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# Back Trak High Tech

## MicroVest

P.O. Box 272

Macomb, IL 61455

(309) 837-4512

**Instruments:** Stocks, Futures

**Computer:** IBM PC, XT, AT with 512K; 2 floppies or 1 floppy and 1 hard disk - drive; DOS 2.0 or higher; IBM graphics card and/or color monitor supported; 80-or 132-column IBM/EPSON compatible printer.

**Databases Supported:** Commodity Systems, Inc., 200 W. Palmetto Pk. Rd., Suite 200, Boca Raton, FL 33432, (305) 392-8663; Nite Line, 175 West Jackson, Suite A 1038, Chicago, IL 60604, (312) 427-5125.

**Prices:** Back Trak and High Tech (IBM only) \$695; High Tech \$295.

**T**his is a slick package and probably a "Best Buy." It will store data for you, extract it for study, apply up to 51 different technical studies to it, graph the results (on High Tech only) for your visual inspection, run simulations of trading strategies using the studies and techniques of money management that you select, and, finally, optimize the parameters of those studies to produce a trading system. The only thing left to do is phone in the orders!

Back Trak/High Tech is competitive with packages such as CompuTrac (\$ 1,500) and, to some extent, Profit Taker (\$995), Swing Trader (\$ 1,595), and SPECTRUM (\$2,500). All except CompuTrac generally hand you a set of tools (i.e.: technical analysis indicators) which may or may not be disclosed, and let you test your own range of parameters on whatever time series of prices you select to find the "best" parameter set for your own personal trading system.

So popular has this approach become that one vendor has a total black box on the market with a contest to find the mysterious best parameters! Here we are reducing trading to a game show, an approach which I must protest. The good folks who did this probably wanted to showcase the data/software in a friendly manner and have some fun at the same time, but it still irks me. I must be turning into a prude in my old age.

Fortunately, there is a serious alternative. Back Trak/High Tech is cheaper than its competitors and it has, by far, the most technical indicators to compute and test. They are all disclosed and explained. The flip side is that it is more of a toolbox than a way of thinking, as some of the others are. You will have to supply some thought and conceptualization to the selection of the indicators you want. From my point of view, that's ideal. It's the right way to go about trading.

So--how does it work? First of all, I tested it on a 640K IBM-like ghost (the name had been etched off by

the liquidator) with a 10 megabyte hard drive, a mystery monitor (ditto), and a Panasonic KX-P1093 printer programmed to look like an Epson FX-185. On this rig, which has run everything ever sent No me, everything about Back Trak/High Tech worked, no questions asked, with the exception of the output to the printer which worked sporadically! Dumping to files worked without a hitch and is probably the better idea.

The High Tech module is the place to start. Do not skip the setup choices on the menu. Take the time to tell the program in which directory it may find its data and try to adjust the color schemes to your eyes. About the only complaint I have about the programming is that someone put lines through the menu bars, making them practically illegible on color screens with lower resolution.

The homework being done, go directly to the meat: TECHNICAL INDICATORS. [Figure 1](#) is a screen dump of your choices. You just highlight the one you want, specify your parameters (or take proprietor Steve Kille's defaults) and tell the machine where you want it on the screen and how big you want it. A typical result is [Figure 2](#). This takes less than a minute.

To add additional indicators, either on the graph you have or on another section of the screen, hit Return to go back to the TOOLS menu and Return again to select the TECHNICAL INDICATORS. Page the cursor to the one you want, set parameters and position on the screen--there it is. Not only is this fast, it's simple. Most prompts can be answered with Return so the process really flies.

You can set up the screen many different ways. See [Figures 3 and 4](#) as alternatives. In color, they can be spectacular. Not as good as my kids' space wars games on the Commodore but close! Printed out, as they are here, they lose punch but I don't suggest printing them out anyway. You'll quickly bum up a lot of paper to which you'll seldom refer. Leave it in the machine where it can be regurgitated at lightning speed and save your filing space.

Let's talk about hitches in High Tech. Really, I can think of only one. You don't get to select the beginning and ending dates of the prices graphed. It seems to me an obvious improvement. As to quality, point-and-figure charts are missing! These really are a staple. I've expounded on their value before so there's no point in beating the drums again. They'd be very nice to have.

Assuming you've done your homework with the indicators and graphics, you'll next want to see if your insights can make money. Step out of High Tech and call up Back Trak (let's call it BT). You're going to love this: it feeds the trader's maniacal search for just the right set of numbers to produce money. What Kille has done to you here is give you just about every conceivable way of trading just about every conceivable indicator. Ninety-eight percent of the time BT will do what you want. For the other 2 percent, a formula builder is under development and may be available by the time you read this.

Let me show you what I mean with illustrations right off the screen. I could never discuss all the possibilities in an article of this length.

The first screen you'll run across is the Simulation Setup menu ([Figure 5](#)). The sequence of items is important. In order to run a simulation, you cycle through each item which you wish to specify. It serves as a very fast checklist to select the indicators you want ([Figure 6](#)) and their parameter ranges; the data files (manual or automated updating, CSI format, [Figure 7](#)); your stop strategy ([Figure 8](#)) and its parameters; your entry and exit method ([Figure 9](#)) and the optimization criterion ([Figure 10](#)). The prudent trader will also use the output option to limit the printing which could be truly voluminous!

Those are just the items I used routinely. You may very well use the others, of which a unique one is the

ability to trade using fundamental data as a filter. The forecast option is also intriguing--you stick in your adviser's best shots and the program will trade off it. Imagine what this could do to the advisory business!

What you get back from all this is something like [Figure 11](#), the minimum for which you can ask. You could get a summary for every possible combination of parameters. You could get a listing of every trade taken. You COULD get a listing of every single day's action or inaction. Save a forest: it's best to put this on disk for review with your word processor. From the various outputs, you winnow out the parameters whose broad range isn't profitable. At least, that's the idea of optimizing. A better approach is to come up with your own characterization of the market and use this toolbox to check it out objectively.

Provided in the program is an option called real-time testing. Here you take parameters you've developed from, say, three years' data and apply them to the *next* year's contracts to see if they continue produce profits. This is a prudent practice, to say the least, and speeds up the paper trading stage immensely.

To MicroVest's credit, they thoroughly air the pluses and minuses of optimization. Since optimization became an enthusiasm, its value has been questioned. The markets reflect a lot of random input from the rest of the world and the resultant time-series of prices sometimes have larger components of randomness than order. If I had to summarize the discussion, I'd say that all the number-grinding has produced fairly stable sets of values with relatively short time horizons. However, even knowing there is a steady 6-day cycle in DMarks doesn't produce infallible trading rules. Continuous monitoring of the series for untoward behavior, disciplined executions, and prudent loss management are still essential.

One quick word about the nuts and bolts. Both High Tech and Back Trak come with dense, 200-page manuals which are an education in themselves, especially the discussion of the various indicators. At first, I thought that Back Trak didn't contain a tutorial, but it's tucked in the back of the manual and omitted from the table of contents. Use it. The program itself is thoroughly menuized and it is easy to look up (in the manual) the stage where you are lost. I got installed and running immediately, but got lost off and on for about the first two hours before I figured out the menu sequence. After that, things are a breeze.

Well, none of us can afford to buy everything. Where does High Tech/Back Trak stand in the marketplace? I'd say it's right at the top, especially in terms of value. Only CompuTrac has more material and it's more costly, tougher to use, and has a lot of outdated, mysterious routines in it. High Tech/Back Trak is so smooth, I'd hand it to new traders, confident they'd get both their money's worth and a tool with which they can grow almost indefinitely.

Winning on Wall Street, my former pick for novices (until MetaStock came along), does have accounting and adaptive filtering modules not found here. But after that, it's no contest except that it's cheaper (\$195) because it's canned and has no optimization. Since Summa Software apparently had serious financial difficulties, its support is also questionable. MetaStock, my current introductory favorite is cheaper than High Tech/Back Trak at \$195, but has nothing like Back Trak--it's really only competitive with High Tech.

CSI's Quickstudy list of programs is thinner, though more innovative and proprietary. Quickstudy has no optimization and there's no explanation of the way some of the newer studies work. Besides, you should get CSI's basic analytical tools in Quicktrieve if you get your data via CSI.

Conclusion? High Tech/Back Trak is *the* one to get for the technical trader.

- CompuTrac, 1021 Ninth St., New Orleans, LA 70115, (800) 535-7990.

- MetaStock, Computer Asset Management, P.O Box 26743, Salt Lake City, UT 84126, (801) 964-0391.
- ProfitTaker, 1430 W. Busch Blvd., Suite 4, Tampa, FL 33612, (813) 933-1164.
- Spectrum, Technicom, Inc., 736 NE 20th Ave., Ft. Lauderdale, FL 33304, (305) 523-5394
- Swing Trader, The Pardo Corp., 1615 Orrington Ave., Suite C202, Evanston, IL 60201, (312) 866-9342.
- Winning on Wall Street, available through SCIX Corp., (800) 228-6655.

```
>          T E C H N I C A L       I N D I C A T O R S       <
> Bar Chart          <   Relative Strength          Standard Moving Avg.
Percent R           Basis                               High/Low Oscillator
On Balance Volume  Spreads                                                Parabolic Time Price
Swing Index        Volatility                                              Momentum
Variable Oscillator Regression Slope      Volume Op/Int. Index
Ratios            Mov. Avg. Momentum   Mov. Avg. Oscillator
Accumulation Distr. Alexander's Filter  Variable Alexander's
Mov. Avg. Alexander Directional Movement  Momentum Crossover
Support Resistance Comm. Channel Index  Price Channel
Weighted Moving Avg Exponential Mov. Avg  Mov. Avg. % Bands
Up Down Patterns   Plot Volume           Plot Open Interest
Trend Lines        Parallel Line          Speed Lines
Retracement        Regression Fit

> Arrow Keys To Make Selection -- Function Keys -- Return Key To Execute <
```

**FIGURE 1**



FIGURE 2

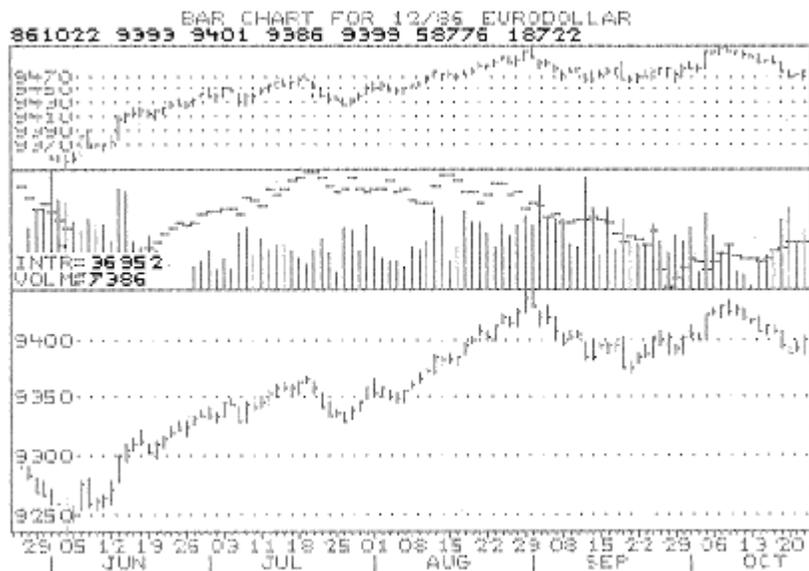


FIGURE 3



```

>      T E C H N I C A L      I N D I C A T O R S      <
> Relative Strength < Percent R Standard Moving Avg.
Variable OBV High/Low Oscillator Parabolic Time Price
Swing Index Volatility Momentum
Variable Oscillator Regression Slope Volume Op/Int. Index
Mov. Avg. Momentum Mov. Avg. Oscillator Accumulation Distr.
Alexander's Filter Variable Alexander's Mov. Avg. Alexander
Directional Movement Momentum Crossover Comm. Channel Index
Price Channel Weighted Moving Avg Exponential Mov. Avg
Mov. Avrg. % Bands Stochastics Slow Stochastics
Point & Figure MACD Majority Rule
Volume Price Variable Acca./Dist. Trailing Reverse
Percent Range Rev. Key Reversals Bull/Bear Hooks
Run Away Gaps Mod. Colver Method Two-Day Close Pat.
Pivot Point Channel Open vs. Close Regr. Slope Channel
Adjusted Hi/Lo Oscl. Percent New Pivot Point Reverse
High/Low Moving Avg. Pivot Equilibrium Head & Shoulders
Island Reversal Related Slope Lines High Percentage Runs

> Arrow Keys To Make Selection -- Function Keys -- Return Key To Execute <

F1 ->Setup Menu F2 ->N.A. F3 ->Auto-Run F4 ->Auto-Make F5 ->Help
F6 ->N.A. F7 ->N.A. F8 ->N.A. F9 ->N.A. F10->DOS Exit
    
```

FIGURE 6

```

>      L I S T I N G      O F      D A T A      F I L E S      O N      D R I V E      C      <
> 03/87 SUGAR #11 < 03/87 SUGAR #11 12/86 NY LIGHT CRUDE OI
JAPANESE YEN 12/86 T. BONDS 12/86 COPPER
12/86 EURODOLLAR 12/86 T. BILLS 12/86 DEUTSCHE MARK
S&P INDEX DEUTSCHE MARK 12/82 T. BONDS
12/83 T. BONDS 12/84 T. BONDS 12/85 T. BONDS
12/86 T. BONDS 12/87 TEXACO

> Use Curor Keys For Selection ---- Execute By Pressing Return Key <

F1 ->Setup Menu F2 ->N.A. F3 ->Auto-Run F4 ->Auto-Make F5 ->Help
F6 ->Change Dr. F7 ->N.A. F8 ->N.A. F9 ->N.A. F10->DOS Exit
    
```

FIGURE 7

```

>          S T O P          S T R A T E G I E S          M E N U          <
> Standard From Entry Stop      < Trailing Stop From Highs And Lows
  Trailing Stop From Closing Price  Taking Profits Stop
  Penetration Of N Day High Or Low  Extreme Strength Or Weakness Stop
  Inactivity Stop                  Pivot Point Stop
  Moving Average Bands Stop         X Percent Of Profit Lost Stop
  Second Level Support & Resistance  Loss On Close Stop
  Break Even Stop                  Top Stop
  Volatility Adjusted Trailing Stop  Run Simulation Without Stops

>          Select With Cursors  -----  Execute With Return          <

F1 ->Setup Menu  F2 ->N.A.          F3 ->Auto-Run   F4 ->Auto-Make  F5 ->Help
F6 ->N.A.        F7 ->N.A.          F8 ->N.A.      F9 ->N.A.      F10->DOS Exit
  
```

**FIGURE 8**

```

> MARKET ORDER STRATEGIES <
  > Enter And Exit On Tomorrow's Open  <
    Enter And Exit On Today's Close
    Favorable Move From Tomorrow's Open
    Unfavorable Move From Tomorrow's Open
    Favorable Move From Today's Close
    Unfavorable Move From Today's Close
    First Level Support & Resistance
    Enter Position On Filled Gaps
    Short Above High - Long Below Low
    Short Below Low - Long Above High
    Enter Market At Indicator Price

  > Select With Cursors -- Execute With Return  <

F1 ->Setup Menu  F2 ->N.A.          F3 ->Auto-Run   F4 ->Auto-Make  F5 ->Help
F6 ->N.A.        F7 ->N.A.          F8 ->N.A.      F9 ->N.A.      F10->DOS Exit
  
```

**FIGURE 9**

```

> OPTIMIZATION CRITERIA <
> Average Daily Gain <
  Total Profit Or Loss
  Largest Drawdown
  Profit/Margin Ratio
  Win/Loss Ratio
  Short Profits
  Long Profits
  Average Winning Trade
  Average Losing Trade
  Largest Obtained Equity
> Select With Cursors -- Return <
    
```

```

F1 ->Setup Menu F2 ->Chng. Menu F3 ->Auto-Run F4 ->Auto-Make F5 ->Help
F6 ->N.A. F7 ->N.A. F8 ->N.A. F9 ->N.A. F10->DOS Exit
    
```

**FIGURE 10**

```

--> Optimal Setup
--> Total Profit Or Loss

4, 16 Day SMA ->Remain Purpose -> Initiate Long & Short
Standard From Enty Stop Value ->16 ReEnt ->Rev.
Entry -> Today's Close Com 30.00 Slp 63 Mrg 2500 Dpp 31.25

--> Simulation Over Data Files
DEC 86 T. BONDS

--> Optimal Results

Number Of Trades Made ----> 3 Commissions Paid -----> 90
Number Of Days In Market -> 218 Frequency Of Trades -----> 0.88
Number Of Winning Trades -> 1 Largest Winning Trade ----> 55126
Total Of Winning Trades --> 55126 Average Winning Trade ----> 55126
Number Of Losing Trades --> 2 Largest Losing Trade ----> -3186
Total Of Losing Trades ----> -4309 Average Losing Trade ----> -2154
Largest Winning Streak ----> 1 Largest Losing Streak ----> 2
Win/Loss Ratio -----> 0.50 Profit/Margin Ratio -----> 20.33
Number Of Stops Hit -----> 2 Stops Frequency -----> 0.67
Largest Drawdown -----> -41594 Largest Unrealized Loss --> 0
Largest Obtained Equity --> 75847 Number Of Tradeable Days -> 247
Short Profit Or Loss -----> -1123 Long Profit Or Loss -----> 51940
Total Profit Or Loss -----> 50817 Average Daily Gain/Loss --> 233.11
    
```

**FIGURE 11**

# COMPUTER INVESTMENT SOFTWARE

## A/R Graphics

REINHART INDUSTRIES

1250 OAKMEAD PKY STE 210

SUNNYVALE, CA 94088

408-738-2311

This is a program used by investors to determine their daily orders and to test out their trading methods. It draws the following lines: Schiff, Andrews Median Lines, Trend & Parallel lines, Moving Average Channel Lines, Angles, Gann Lines, Fibonacci Time Cycle lines, Action Reaction lines, and more. Adds up to 30 days on the screen without redrawing lines or reloading data. Converts daily data to weekly or monthly. Menu driven, and comes with CSI compatible data. For use on the IBM or Apple. Cost: \$595.



## Baron

BLUE CHIP SOFTWARE

6744 ETON AVENUE

CANOGA PARK, CA 91303

818-346-0730

Real Estate speculation is no longer a pastime reserved for the idle rich. Now, everyone can play the game--rich or poor, daredevil or conservative, young or old--with Baron, the real estate simulation. Learn the ins and outs of investing in commercial, residential, or undeveloped property. But don't count your mortgages too soon. Just when you think it's safe to call yourself a millionaire, any number of world or local events can come into play and send you to the poorhouse. That's Baron--exciting, realistic, and practical. Cost: \$59.95 (IBM), \$49.95 (Apple), \$29.95 (Commodore), \$59.95 (Macintosh).

## Bond Control System (BONDSCO)

HARDAN GROUP INC

160 EAST 38TH ST

NEW YORK, NY 10016

212-697-2370

Bond Control System (BONDSCO) is a user friendly computer system for fixed income securities (including financial futures) that runs on an IBM PC. The system calculates, maintains and produces: confirmations and delivery tickets; trade data blotters; sale and purchase settlement data blotters; historic database; accounting positions; trading positions; profit/loss, interest earned, interest accrued, amortization; margin call amounts for financial futures; customer statements; stock record; general ledger; repos and reverse repos. Cost: \$3,000 to \$40,000.



**BondWare**

DAVIDGE DATA SYSTEMS CORP

12 WHITE ST

NEW YORK, NY 10013

212-226-3335

BondWare is a decision support tool for fixed-income security investors and accounting personnel. BondWare integrates yield calculation, portfolio filing, portfolio analysis and swap analysis in one easy to use package. Complete bond data includes after-tax information, duration and analysis of GNMA's and mortgages. Special features include a link to Lotus spreadsheet products, amortization/accretion tables, bond database access and strip yield charts. For IBM PC/XT/AT or compatibles Cost: \$450.

**Bonds & Interest Rates**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Interactive programs for forecasting and evaluation of price, risk, and return on fixed income securities: bonds, T-bills, mortgages, and present value of annuities and lump sums. Also, 220-page Computer Assisted Investment Handbook. Cost: \$119.95 (Your cost: \$107.95).

**Bondware Bond Yield Calculation Screen**

DAVIDGE DATA SYSTEMS CORP

12 WHITE ST

NEW YORK, NY 10013

212-226-3335

This hard disk installable program provides quick and accurate yield calculations on pre and after tax bases, including TEFRA, for all types of fixed income securities. Special features include duration, realized compound yield, call yields, odd first coupon dates, issues dates, current yield, variable service charges and prepayment dates on mortgages and GNMA's, bond equivalent yield on CD's and T-bills, and more. Cost: \$69.95.



**COMMX Micro Software**

HAWKEYE GRAFIX

3415 HYDE PARK DR

CLEARWATER, FL 33519-1527

813-786-8161

Multi-terminal emulator and file transfer available for over 100 different computer configurations: 8 bit and 16 bit, including the IBM PC/XT/AT and compatibles. Operating systems supported: CP/M 80, PC DOS, MS DOS, and others. Cost: \$99 per micro.

**CONSOLX Micro Software**

HAWKEYE GRAFIX

3415 HYDE PARK DR

CLEARWATER, FL 33519-1527

813-786-8161

Provides a software mechanism to access computers by phone and operate them remotely. Available for most computers operating under CP/M 80, PC DOS, and MS DOS. Easy to install and use; access by password; automatically run a selected program to a caller; disconnect on loss of carrier (even if another program is currently running) so the next caller may access the system. Cost: \$69 per micro.

**CV Evaluator**

BETA SYSTEMS

BOX 1189 GMF

BOSTON, MA 02205

617-861-1655

CV Evaluator is convertible securities software. The program has been designed to provide the user with a large database of convertible bonds and preferred stocks and calculational tools to identify and analyze securities of interest. The current database is about 600 CVs. CV Evaluator allows the user to freely edit its database. Additional CVs may be added or the existing ones updated. A datafile can be screened, sorted, or displayed in graphical form. Individual CVs may be more closely analyzed by use of "what-if" analysis and historical plotting. The program is offered on a subscription basis. Each month the user receives a diskette with updated database and program correlations that characterize the then current interest rate and CV markets. A single full capability, limited database trial diskette issue is available for \$25. Cost for the Evaluator: \$325/year.

### **Calendar Calculator**

CTCR

1731 HOWE AVE STE 149

SACRAMENTO, CA 95825

916-929-5308

Those traders who use cycles and Fibonacci or Gann time projections know how tedious it is to count days on the charts. Bruce Babcock has designed a computer program that will do it for you! Its basic function is to count days or weeks, but it is very flexible. For cycle work, you enter the cycle bottom or top dates and the program instantly tells you their distance apart. For projections, you enter the significantly high or low dates and what kind of time projections you want. The Calendar Calculator automatically gives you each projection from the date you entered, and it will even print out all projections in chronological order so you can see where they "cluster." Requires IBM or compatible computer with 64K, Apple II series or compatible with 48K, one or two disk drives, monochrome display, supports any printer. Cost: \$95.

### **Champion**

INVESTORS MICRO SOFTWARE

P.O. BOX 319

HARVARD, MA 01451

617-772-5950

Champion is the improved Jesse Livermore system with Fibonacci harmonies. Trading system software for the Apple and IBM-PC.

### **Commission Comparisons**

NEWTEK INDUSTRIES

P.O. BOX 46116

HOLLYWOOD, CA 90046

213-874-6669

Commission Comparisons is a brokerage database designed to show the market trader how 11 selected discount brokerages and one full-service brokerage compare in commission cost for any particular transaction in stocks, options, or bonds. The user enters the number of shares, contracts, or bonds and price accordingly. The trader can readily see how they compare, the exact differences, how the comparison changes according to the transaction, and how a particular trade can be designed for minimum commission. At the press of a number key, the vital statistics concerning the brokerage of choice are displayed on the screen, including toll-free numbers, nationwide offices, and special trading requirements where applicable. Cost: \$39.95.

### **Commodities and Futures**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Interactive programs for forecasting and evaluation of price, risk and return on futures contracts including soybean spreads and arbitrage. Handbook included. Cost: \$119.95 (Your cost: \$107.95).

### **Commodity Futures Charts**

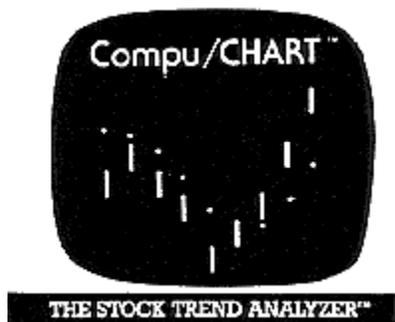
ENSIGN SOFTWARE

7337 NORTHVIEW

BOISE, ID 83704

208-378-8086

Plots real-time tic charts and historical charts on an IBM-PC computer from the Bonneville Telecommunications Market Monitor data stream. Shows stochastics, parabolic stop, RSI, moving averages, oscillator. Keltner channel, directional move index, Fibonacci, Volume, and open interest. Bar variations: 1-120 minutes, daily and weekly. Free demonstration. Cost: \$895.



### **Compu/Chart 1**

NEWTEK INDUSTRIES

P.O. BOX 46116

HOLLYWOOD, CA 90046

213-874-6069

Compu/Chart 1 is a user-modifiable program that generates graphic displays of trend patterns and relative strength in stock, bonds, commodities, and anything with a flow of values. It features 3 moving averages (2 user selected), comparison charting, hardcopy printouts, and easy menus and prompts. Program issues buy/sell targets and alerts, last trade status reports, Ex-dividend reminders, and more. 72 point data files are maintained. Cost: \$99.95.

### **Compu/Chart 2**

NEWTEK INDUSTRIES

P.O. BOX 46116

HOLLYWOOD, CA 90046

213-874-6669

Compu/Chart 2 is a user modifiable program that generates graphic displays of trend patterns and relative strength in stocks, bonds, and commodities employing a 144-point base period for its charts. In addition to near and medium term moving averages and 3 different comparison charts including "window," overlay and spread ratio comparison charts, it also generates Point and Figure charts, Price/Volume, four oscillators(relative strength, rate of change, moving average, and momentum), several printout options including screen dump with volume and oscillators, on-screen chart interpretation principles for each of the major charts drawn, Buy/Sell targets and alerts, user-determined trading targets, Last trade and Ex-dividend reminders, and more. Graphics hardware is not required. Cost: \$199.95.

### **Compu/Chart 3**

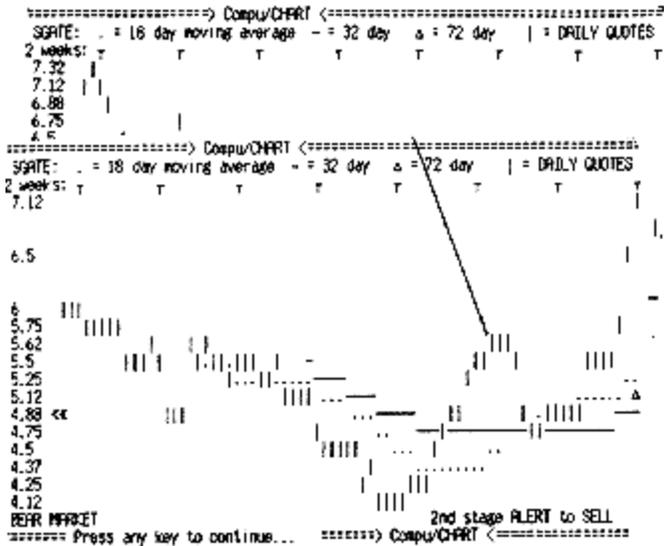
NEWTEK INDUSTRIES

P.O. BOX 46116

HOLLYWOOD, CA 90046

213-874-6669

Compu/Chart 3 builds on the features of Compu/Chart 2 but adds a communications module for downloading price information into the Compu/Chart format automatically. Automatic update routine (prior to charting) reports the day's changes for each file. For most issues, the retrievable data includes high/low/close pricing as well as volume and open interest. Market sentiment is displayed on the MA chart with arrows indicating days on which higher highs or lower lows were made on increased volume--a relationship that is often a leading indicator of trend direction. Other additions include the Exponential Average Divergence chart (EXAD) and change to range oscillator. Stocks, commodities, over 1300 mutual funds and a wide range of indices are available from the data source on an historical or daily update basis. Download parameters are selected by the user off-line making on-line processing accurate and efficient Cost \$229.95



## CompuTrac

COMPUTRAC

1021 9 ST

NEW ORLEANS, LA 70115

800-535-7990

CompuTrac is a technical analysis software program designed to assist professional traders using their IBM PC, XT, AT, or compatibles. CompuTrac features over 40 resident studies and tools, and it has the ability to be easily programmed by the trader to run private studies. CompuTrac will also evaluate the profitability of your trading system by applying rules you specify to enter or exit a position, over historical data. The program will even automatically alter the variables in your trading system to hunt for the most profitable combination. CompuTrac can be automated to perform routine tasks such as collecting data from quote vendors, applying studies, printing charts, etc., totally unattended. In effect, CompuTrac offers the trader complete hands off automation. CompuTrac was rated editor's choice by *pc magazine* in their April 1986 review of technical analysis software. The program is supported by a full-time helpline staff and is updated with new studies and features at regular intervals. Cost: \$1,900.

## CyberWare

CYBERENGINEERING CORP

P O BOX 4143

HUNTSVILLE, AL 35815-4143

205-880-2250

CyberWare computer aided technical analysis (CATA) software for MS-DOS computers using Box & Jenkins, Kalman filters, Fourier cycles, entropy analysis, state space modeling, ARMA methods and Lyapunov special exponents. Principles of artificial intelligence are used to extract the maximum information for chaotic data. Cost: depends on product selected.

## **DATAFLEX**

DATA ACCESS CORP

8525 S.W. 129 TERRACE MIAMI, FL 33156

305-238-0012

DATAFLEX is a transportable applications development and relational database management system for single multi-user and local area network (LAN) microcomputers. Versions are available for most micro operating systems. UNIX V and VAX versions are also available. Cost: \$995 single user, \$1,250 multi-user.

## **Dow Jones Market Analyzer**

DOW JONES & CO.

P.O. BOX 300

PRINCETON, NJ 08543-0300

609-452-2000

A cost-effective technical analysis tool for investment advisors, private investors and professional money managers. You can collect historical market quotes and at a touch of a key create standard technical analysis charts. Charting capabilities include: relative strength and comparison charts, individual price and volume bar charts, moving averages (simple, weighted, exponential) for time periods of your selection, straight line constructions, volume indicators, and oscillator charts. The Market Analyzer features automatic updating of daily data on stocks, bonds, mutual funds, and options. With a modem, you have easy access to all Dow Jones News/Retrieval databases. Available for Apple II series, Macintosh, IBM PC, PC/XT and AT, and AT&T PC 6300. For more information call 800-257-5114 (In NJ, Alaska and Foreign, call 609-452-1511) Cost: \$349.

## **Essex Bondtrader**

ESSEX TRADING COMPANY

25W137 JANE AVE

NAPERVILLE, IL 60540

312-416-3530

A day-trading system for T-bond futures. All signals generated automatically; trades every day; no regular overnight positions or reversals. Limited edition available for IBM PC, Apple II, TRS-80. Cost: \$595.



**Exsell**

EXCALIBUR SOURCES INC

P O BOX 467220

ATLANTA, GA 30346 7220

404-956-8373

Exsell organizes the client or prospect database and provides instant access to a variety of useful, stored information. This includes a customer profile, contact history, comment file, and two user definable histories. In addition to the basic client information (name, company name, address, phone number), the customer profile includes six user definable codes as well as a next and last contact date. A tickler file reminds the user when to make scheduled calls, while providing a simple method for updating the status of each individual. Also, Exsell contains a Call Log report feature which keeps a record of your telephone calls and the results. Exsell's built-in word processor makes it easy to generate personalized standard letters. The mailmerge feature places the date, inside address and salutation in the letter for you. Reports are easily printed by Exsell in several formats. Also, mailing labels and envelopes can be printed with just a few keystrokes. Exsell is an excellent organizational tool. Even novice computer users find the program easy to use and very productive.

**FUNDGRAF**

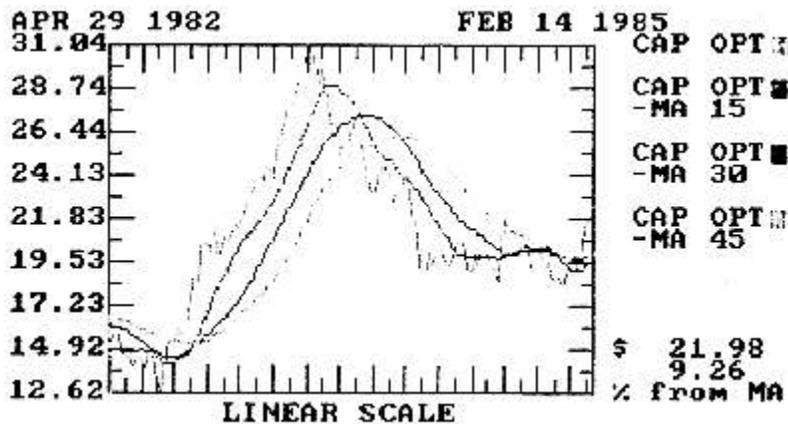
PARSONS SOFTWARE

1230 W 6th ST

LOVELAND, CO 80537

304-424-5191

This program is designed to graph and find the best performing mutual funds with an IBM PC compatible, 128K (minimum), color graphics board, and color monitor. Graphs price and any moving average, calculates strength ratings, generates buy/sell signals. See review in *Stocks & Commodities*, February 1986, p. 42. Cost: \$100 (demo disk \$10).



*Fundgraf chart*



*Fast Fouries screen*

### **Fast Fourier Transform Tutorial**

DYNACOMP

PO BOX 18129

ROCHESTER, NY 14618

716-671-6160

This is a menu-driven, graphics-oriented education program designed for both classroom use and self instruction. The program itself presumes no knowledge of the mathematics associated with Fourier Transforms. Rather, it permits hands-on experience showing what the spectra of various waveforms look like. Further, you may examine the spectra of several window functions and transmission formats. FFTT is an educational program which is highly tutorial in character. It does not have the data storage, retrieval and editing features of other programs. However, if you want to get a feel for Fourier Transforms, or already have some knowledge and want to learn more, this is a good program to use. Cost: \$39.95.

### **Financial-Pak**

GENERIC COMPUTER PRODUCTS INC

P.O. BOX 790 DEPT TD-56

MARQUETTE, MI 49855

906-249-9801

A package of financial software which can be used for mutual fund analysis, loan amortizations, and annuity investments. The mutual fund portion of the package provides effective buy and sell advice using an average-cost basis. The loan amortization module can handle most fixed-rate loan situations. The annuity portion provides useful information for deposit plans such as IRAs. This software is packaged in a custom 3-ring binder. Cost: \$149.

### **Foreign Exchange**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Interactive programs for forecasting exchange rates for foreign currencies as well as arbitrage: Deutschemark, Swiss Franc, Canadian Dollar, Pound Sterling, and Japanese Yen in exchange for American Dollar. Cost: \$119.95. (Your cost: \$107.95)

### **Fourcast**

ENGINEERING MANAGEMENT

P O BOX 312

FAIRFAX, VA 22030

703-425-1296

Fourcast is a computer program for forecasting stock market indices, stock prices, and commodity prices. It will forecast turning points and changes in trend. Available in three models: 1-variable, 3-variable, or 7-variable. Features--reads CompuTrac format, download by modem or keyboard entry, color graphics, menu-driven. Cost: \$300 1-variable, \$495 3-variable, \$995 7-variable.

### **Frequency Domain Filtering Tutorial**

DYNACOMP

PO BOX 18129

ROCHESTER, NY 14618

716-671-6160

This is an extension of the Fast Fourier Transform Tutorial. The package consists of two parts--the manual and the diskette. The manual describes the theory behind the two-dimensional discrete Fourier Transform along with pictorial illustrations. You may then examine the results of transforming and filtering various two-dimensional patterns. The results are displayed as either a spectrum density plot, or a 3-D representation. Because the calculations involved are so time consuming, you are provided two versions of the calculation program; a compiled version, and a source version for examination. Instructions are given for generating your own images. Requires 48K RAM, two disk drives, and some initial familiarity with Fourier Transforms. Cost: \$29.95.

### **Futuranalyzer**

1631 BARRY AV #6

LOS ANGELES, CA 90025

213-820-7344

Futuranalyzer is a low-priced alternative to expensive futures analysis programs. Users can compile data, produce graphs, perform many technical analysis routines (including moving averages, momentum, RSI, percent R, stochastics), develop indicators of their own design, and do spreads. Also includes autoplot and option valuator programs. For the Apple II only, 64K required. Cost: \$89.

### **FutureSource**

COMMODITY COMMUNICATIONS

420 S EISENHOWER LN

LOMBARD, IL 60148-5768

800-621 -2628

FutureSource brings you real-time quotes direct from futures exchanges via our own private satellite network including 10-year historical database, technical analysis, news, options quotes with instantaneous calculation of Delta and Volatility, point-and-figure and bar charts with graphics studies overlaid, Program Pages, Trade Alert (tm), and more. Call for prices.

### **FutureSource/Historical**

COMMODITY COMMUNICATIONS

420 S EISENHOWER LN

LOMBARD, IL 60148-5768

800-621-2628

Fast, comprehensive technical software. A complete, yet expandable, computerized market information system. Instant quotes, news, bar charts, key indicators. FutureSource/Historical displays dozens of inter- and intraday studies, plus you can build hundreds of charts and your own ongoing historical database.



### **Futuresoft**

CISCO

327 S LA SALLE ST #800

CHICAGO, IL 60604-3304

312-922-3661

Technical analysis of daily and historical data on all commodity futures, their options, cash instruments, and government issues. The system provides database maintenance and retrieval, calculates moving averages, oscillators, spreads, and trading models, and displays the results with high resolution graphics. Standard ASCII output files are compatible with popular spreadsheet programs. Requires IBM PC or clone, two drives, color card, 256K. Cost: \$395 (Your cost: \$295).

### **Ganntrader I**

GANNISOFT PUBLISHING CO.

11670 RIVERBEND DR

LEAVENWORTH, WA 98826

509-548-5990

Following the methods of W.D. Gann, Ganntrader I produces high resolution charts on popular dot matrix printers. Price charts, square and planet charts are possible. Calculates the Square of 9, Octagon, Hexagon and price and time points. A research and study aid for the serious student. Cost: \$299-\$699.

### **Historical Tick-by-tick Futures on Floppies**

TICK DATA INC

10260 W 13 AVE

LAKEWOOD, CO 80215

303-232-3701

Historical tick-by-tick time and sales data on various futures contracts on floppy disks. We also have manipulative software for printing, plotting, sampling, modeling, and real-time trading. Available in CompuTrac, CSI ASCII, and Lotus 1-2-3. Real-time trading program based on stock index arbitrage strategy. For use on IBM PC/XT/AT or compatibles, Apple, CPM. Cost: \$15/month per contract (\$100 minimum purchase).

### **INVESTigator**

INVESTMENT TECHNOLOGY

5104 UTAH ST

GREENVILLE, TX 75401-6238

214-455-3255

Market timing and technical analysis for securities, indices, commodities, etc. High-Low-Close-Volume charts, moving averages (normal, multiple, or offset), moving average bands (with or without offset projection), price excess oscillator. Maintain 40 files with 600 days each. Collect data from WARNER or enter your own. Auto or manual updating. For IBM PC and compatibles with CGA video, 1 drive, 128K. Printer and modem optional. Cost: \$30 (full function 30-day trial), \$99 (unlimited use), \$29 (CONNECT collection software).



### **InTalk**

PALANTIR SOFTWARE

12777 JONES RD STE 100  
HOUSTON, TX 77070-4624  
713-955-8880

InTalk is a new communications program for Apple's Macintosh computer. It provides the necessary software link between a Macintosh and a modem. InTalk is a combination terminal emulator and file transfer utility, and bends over backwards to do its job. Some of its features are VIDTEX for online CompuServe graphics, support of most popular terminals, and terminal function keys and numeric keypad, cross talk support from IBM to Mac and back, Macbinary support from Mac to host and back, built-in editor for online editing, on-screen function (Macro) keys, and task automation using the communications command language (CCL). Cost: \$145.

### **Insight**

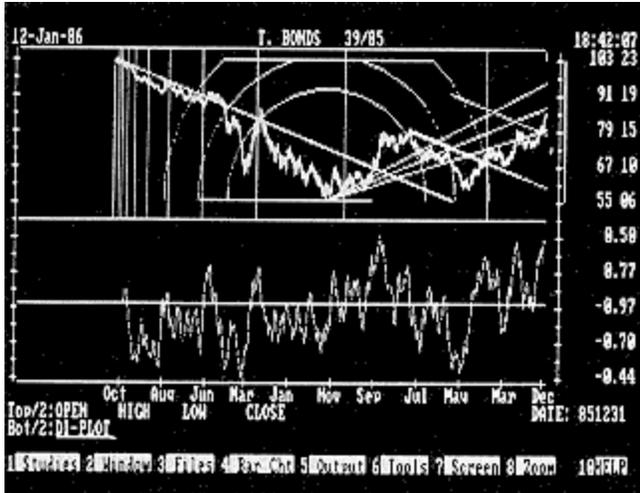
BRISTOL FINANCIAL SERVICES  
1010 WASHINGTON BLVD  
STAMFORD, CT 06901  
203-356-9490

Insight is a ticker analysis software product that processes the mass of real-time tick-by-tick market data received from exchange floors and remanufactures it into comprehensive, usable information to support the implementation of more timely, more profitable trades. Insight can do this because it has unique, self-programming aspects that allow the trader, through the software, to set parameters and extract information that will alert him instantaneously to market conditions. Cost: \$1,495.

### **Internal Market Composition Analysis**

CURTIS ARNOLD INC  
5585 CENTER ST  
JUPITER, FL 33458  
305-747-155

This graph and analysis program plots net position charts, open interest for commercials, large specs, small specs, plus longs and shorts. Also Commitment of Traders Index, Trend Index, Movement Index, and Reliability Ratings. Cost: \$250 analysis program, \$160 historical data since, \$150 online monthly updates (6 months), \$310 total package.



### **Intra-Day Analyst**

COMPUTRAC

1021 9 ST

NEW ORLEANS, LA 70115

800-535-7990

The Intra-Day Analyst for futures, indices, options, and stocks provides the trader with the ability to trade using real-time bar charts and technical analysis on his IBM PC, XT, AT or compatibles connected to a quote machine. The system instantly provides real-time bar charts, from 5 minute to 8 hour intervals for up to 50 different items depending on the quote service you choose. Additionally, the user is able to track any one of 16 different technical analysis studies plus Fibonacci Arcs, Fan lines, Andrews Pitchfork, trendlines, alarms for price or study conditions, and more for each bar. The program is supported by a full-time telephone support staff. Cost: \$1,600.

### **Investment & Statistical Software**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Investment-oriented statistical software. 50 interactive programs for statistical forecasting and evaluation of price, risk and return on investments in stocks, bonds, options, futures, and foreign exchange. Also 220-page *Computer Assisted Investment Handbook*. Cost: \$119.95 (Your cost: \$107.95).

### **Investment Ma\$ter**

GENERIC COMPUTER PRODUCTS INC

P.O. BOX 790 DEPT TD-56

MARQUETTE, MI 49855

906-249-9801

A program to handle lump sum and annuity investments. Deposit or withdrawal annuities are supported. An investment summary is provided which lists all the input and calculated parameters. Very useful software for periodic savings deposit plans, mutual funds, and IRAs. Cost: \$49.95.

**Key Forecaster**

KEY DATA

PO BOX 792

BRENTWOOD, CA 94513-0792

415-634-3838

Key Forecaster is a computer program that forecasts data values obtained from spreadsheet files, databases, or manual data entry. Key Forecaster uses very sophisticated techniques to calculate forecasts that require very little user intervention. This ability makes Key Forecaster an easy program to learn and use. The program is designed to step you through the necessary forecasting procedures by simple function key selections. An automatic forecasting mode is provided for your convenience. If you are a sophisticated forecaster or experimenter, then you can select a specific forecasting method, instead of relying on the automatic mode. You will find that using Key Forecaster will take the painstaking guesswork out of generating your own forecasts. Cost: \$79 (Your cost: \$69).

**Loan Ma\$ter**

GENERIC COMPUTER PRODUCTS INC

P.O. BOX 790 DEPT TD-56

MARQUETTE, MI 49855

906-249-9801

A flexible loan analysis program. Can be used for almost any type of fixed-rate loan including zero-interest and "balloon" contracts. Periodic or annual amortization schedules may be obtained. Annual schedules are useful for income tax purposes. Loan payments can be based on months, years, or days. A loan summary is provided which lists all the input and calculated loan payments. Very useful for home and auto loans. Cost: \$49.95.

**MCPM The Micro Computer**

MITCHELL A FINK ASSOCIATES INC

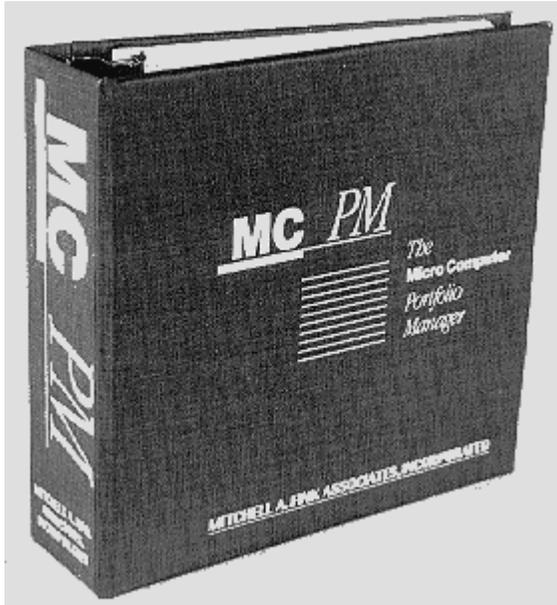
5 BALDWIN PL

NEW CITY, NY 10956

212-344-8030

MCPM operates to maintain accurate, up-to-date records for investment advisors in managing client

investments in various securities markets. In addition to a full range of trade activity, the system produces all necessary reports. A full Query language is included, enabling users to create ad hoc reports for the popular word processing and spreadsheet programs. Cost: \$4,500.



*MCPM Portfolio Manager package*

### **MESA - Maximum Entropy Spectral Analysis**

BOX 1801

GOLETA, CA 93116

805-962-9477

A scientifically optimized computer program to extract cyclic content from data to form prediction of prices. Explicitly, buy/sell indicators are given. Includes utility to create and append data files. CompuTrac and CSI compatible. Cost: \$350.

### **MacType**

PALANTIR SOFTWARE

12777 JONES RD STE 100

HOUSTON, TX 77070-4624

713-955-8880

MacType is a touch typing teacher that is not a game. Rather than adapt an arcade game to keyboard training, MacType combines conventional touch typing principles with Macintosh graphic technology. MacType teaches beginners the basic keyboard layout and typing skills. A warm-up box allows the student to limber up "off the record" before beginning his own text. MacType switches from arbitrary letter drills to meaningful words and phrases as soon as the student is comfortable with the keyboard. It also has a metronome system to encourage the student to type smoothly. MacType allows you to choose

the standard QWERTY or Dvorak keyboard. Cost: \$49.95.

### **Managing For Success**

BLUE CHIP SOFTWARE

6744 ETON AVENUE

CANOGA PARK, CA 91303

818-346-0730

Managing for Success is a comprehensive program that gives the user a feel for the broad responsibilities of a C.E.O of a million dollar company. The program's detail gives the aspiring manager experience in the day-to-day management operations of a company. The user has to make decisions in all departments of the company (sales and marketing, finance, R&D, production, engineering, quality control and material control). The depth and detail of information provided gives the user the facts necessary to make savvy business decisions. The comprehensive business reports generated by the program make it an excellent training tool in any management situation, and the program's environmental editor allows it to be customized and personalized to take on the characteristics of a particular business. Cost: \$59.95.

### **Market Analyzer Plus**

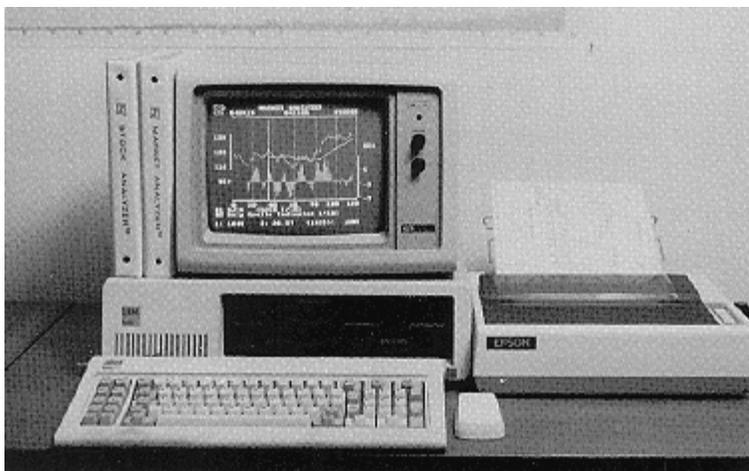
DOW JONES & CO.

P.O. BOX 300

PRINCETON, NJ 08543-0300

609-452-2000

Market Analyzer Plus innovatively combines powerful technical analysis, portfolio management, and communications with Dow Jones News/Retrieval to produce the complete investment package for individual investors, professional stock chartists, and investment advisors. The charting capabilities include individual price and volume bar charts, point-and-figure charts, relative strength and comparison charts. To further extend the analysis, there are numerous market indicators available including; moving averages, straight-line constructions, volume indicators, and user-defined charts. You can manage 45 portfolios with 1500 transactions. Eight reports are available; profit and loss, return on investment, commission and tax report, plus more. Technical screening reports display volatility, relative strength, trend direction and trend strength, and help the user choose issues with the greatest profit potential. The reports include ranking and filtering options. Available for the IBM PC, XT and AT; AT&T PC 6300. For further information call 800-257-5114 (In NJ, Alaska, and foreign, call 609-452-1511) Cost: \$449.



*Market Analyzer Plus*

### **Market Analyzer/Stock & Futures Analyzer**

N-SQUARED COMPUTING

5318 FOREST RDG RD NE

SILVERTON, OR 97381-9708

214-680-1445

Very powerful technical analysis software for Apple and IBM-PCs. Flexible graphics presentations. Gives the serious technician the ability to create any indicator plus develop his/her own. Do all of your technical analysis with the N-Squared Combination; not just some of it. Free technical support for software and technical analysis. Cost: \$395 each or \$595 for both.

### **Market Eas-Alyzer**

WALL STREET GRAPHICS

P.O. BOX 562

NEW YORK, NY 10268

718-645-7717

Market timing software for the professional and individual trader. Cost: \$795

### **Market Edge**

COMMODITY COMMUNICATIONS

420 S EISENHOWER LN

LOMBARD, IL 60148-5768

800-621-2628

Market Edge gives you all the power of a computer trading system, plus all the accuracy of a quote system without the expense or hassle of owning your own computer. You get all the information you

need: real-time futures and options prices, charts and studies, market news, exclusive options, delta and volatility spreads watch, trade alert price monitor/alarm system, and more.

### **Market Monitor Plus**

BONNEVILLE

TELECOMMUNICATIONS

19 W S TEMPLE #200

SALT LAKE CITY, UT 84101-1503

800-255-7374

Market Monitor Plus provides real-time quotes from all of the U.S. markets as well as London and Winnipeg. Other features include programmable pages, market stop alerts, news, FM/satellite delivery, quick installation, service, and low cost. Technical analysis software such as Octool is also available for the user requiring intra-day and inter-day studies. Cost: \$200/month plus exchange fees.

### **Market Window**

FBS SYSTEMS INC

P.O. DRAWER 248

ALEDO, IL 61231

309-582-5628

A charting program which features automatic file update and chart generation, 252 days (whole year/life of contract on the screen), chart file and directory, price interrogation, zoom, frame, trendlines, channels, percentage mode, moving averages, volume, open interest, and cycle finder. Market Window will automatically place phone calls any time of the day and produce trading charts on command. Cost: \$795.

### **Marketpro**

REINHART INDUSTRIES

1250 OAKMEAD PKY STE 210

SUNNYVALE, CA 94088

408-738-2311

Marketpro lets you test out the profitability of various trading methods, while helping you learn technical analysis. It can be used for futures, stocks, options, and mutual funds, and can be played like a computer game using real data. Marketpro takes your orders, tracks your portfolio, and tracks your profit and your open equity. Designed for the novice as well as the professional, Marketpro is user friendly and comes with telephone support. Cost: \$129.95.

### **Marketview**

MARKETVIEW SOFTWARE INC

37 W. 228 ROUTE 64  
ST CHARLES, IL 60174  
312-377-5135

Comprehensive real-time quotation and analysis system utilizing high resolution graphics and windowing with user formatable displays. The system is IBM XT/AT compatible and has over 25 technical studies and systems. Supports printers and high resolution graphics. Interfaces to a number of broadcast tickers having quotes for stocks, options, futures, from major U.S. and foreign exchanges. Discounts for multiple subscriptions. Price includes database. Cost: \$400/month license fee.



**Master Chartist Series**

ROBERTS SLADE INC  
PO BOX 610  
SPANISH FORK, UT 84660  
801-798-8604

Software products to be used with a live data stream. The software will maintain real-time information on stocks, futures, and options. Trading information is instantly updated throughout the day. Numerous analytical functions of all intervals are provided. Cost: \$1095-\$1195.

**MathFlash**

PALANTIR SOFTWARE  
12777 JONES RD STE 100  
HOUSTON, TX 77070-4624  
713-955-8880

MathFlash uses the time-tested flash card system in teaching addition, subtraction, multiplication, and division, using graphics only the Macintosh computer can offer. MathFlash is no arcade game, but rather a back-to-basics route to mastering elementary math. MathFlash keeps a complete report card of errors, time, and level for up to 100 students and is the only flash card oriented package on the market for the Macintosh. Cost: \$49.95.

**Max:Chart**

HALLIKER'S INC

2508 GRAYROCK

SPRINGFIELD, MO 65807

417-882-9697

Now you can produce large beautiful bar charts up to 10 feet high by 720 units wide with your computer and an Epson printer with Max:Chart. Designed for the Gann trader, this is the program that will give you the precision charts you need to succeed. Select either 12 x 12 or 8 x 8 grid per square inch. Comes with utility module and auto-run feature. Uses Quicktrieve format. IBM or Apple compatible. Cost: \$149.95 (Your cost: \$134.95)

**Max:Grafix**

HALLIKER'S INC

2508 GRAYROCK

SPRINGFIELD, MO 65807

417-882-9697

The technical analysis and database program is all you need to create and maintain price files and bar charts. Analyze price action with a selection of indicators and tools, moving averages, relative strength, project, retrace, timing, cycles, trendlines, 45 degree angles, parallels, speed resistance lines, horizontals. Features global zoom. Uses Quicktrieve data format. IBM and Apple compatible. Cost: \$149.95 (Your cost:\$134.95)

**Max:Tables**

HALLIKER'S INC

2508 GRAYROCK

SPRINGFIELD, MO 65807

417-882-9697

A unique program designed to give you another approach to forecasting time and price movements of the markets based upon table charts. Creates several variations of the table charts to give the trader another check to his bar charts. Indispensable to the Gann trader. IBM and Apple compatible. Cost: \$49.95.

MERLIN  
DIAL/DATA



**Merlin**

**HALE SYSTEMS INC**

TWO SEAVIEW BLVD STE 204

PT WASHINGTON, NY 11050

800-645-3120

Merlin offers a daily and historical database of securities, commodities and options available to the investment community. The Merlin database is the heart of a service that includes comprehensive analytical tools, total graphics capabilities, and customized options. You can access the database by running Merlin's standard library programs, or by using a set of access subroutines that greatly simplify the programming effort. You can call these subroutines from programs written in FORTRAN, ALGOL, or COBOL. With Merlin, users can develop techniques for monitoring the market, create sophisticated trading systems, or utilize any of the programs already in the Merlin library. Micro owners have immediate access to Merlin through the DIAL/DATA program. Comprehensiveness, consistency, flexibility--the success of Merlin over the years is but one example of the ongoing commitment to excellence at Hale Systems.

**Merlin Dial/Data**

HALE SYSTEMS INC

TWO SEAVIEW BLVD STE 204

PT WASHINGTON, NY 11050

800-645-3120

Automatic pricing for microcomputer users. Track daily, weekly, and monthly prices for stocks, options, and commodities. Technical data available from 1970 from all original S&P issues. Stock splits reported the evening they occur. Consists of high, low, close, and volume for NYSE, AMEX, NASDAQ, and government issues. Two years of option data online. Includes more than 20 years of historical data on commodities. Cost: .015 to .07 cents range per price.



**Microstat**

ECOSOFT INC

6413 N. COLLEGE AVE

INDIANAPOLIS, IN 46220

317-255-6476

Since 1978, Microstat has been the most popular statistics package available for microcomputers.

Missing data handling, interface with external files, conversion utility for older Rel 2.0 and 3.0 files, buffered data entry, improved speed, program reports that can be output to a data file and modified or merged with other reports with a word processor, re-try on data entry, almost twice as many transform codes, inclusion-exclusion of variables by key value, expanded variable names and descriptions, plus other new features. The user's manual is available separately for \$25 (credited towards purchase) and includes sample printouts for most programs. Cost: \$375 (Demo, including manual, \$40, credited toward purchase price).

## Millionaire

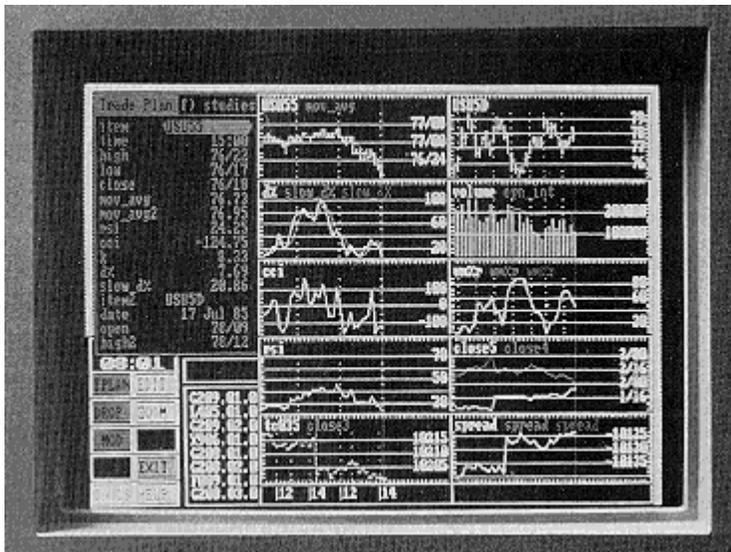
BLUE CHIP SOFTWARE

6744 ETON AVENUE

CANOGA PARK, CA 91303

818-346-0730

Millionaire combines simulated stock market transactions with a variety of fluctuating conditions--corporate profiles, news headlines, performance graphs, price tables--to create a realistic composite of risks, opportunities, and rewards commonly associated with stock market trading. Beginning with an investment of \$10,000, Millionaire permits a player to choose from 15 prominent stocks such as GM, Exxon and Sears, in five major categories. Decisions are made on the basis of a steady stream of information which affects normal stock market fluctuations. The result is a realistic financial simulation with a realistic environment. For IBM, Commodore, Apple Macintosh, and Atari. Cost: \$59.95 (IBM), \$49.95 (Apple), \$29.95 (Commodore), \$59.95 (Macintosh), \$19.95 (Atari).



*Tradeplan on Mitronix II microprocessor*

## Mitronix II & TradePlan

MARKET INFORMATION INC

11414 W CENTER RD

OMAHA, NE 68144

402-333-6633

Chart cash and futures on the TradePlan technical analysis software and the Mitronix II microprocessor. Quotes from the major commodity exchanges, news, and value-added services. Cost: varies.

### **Model Development Software for Time Series**

MARKET TIMING REPORT

PO BOX 225

TUCSON, AZ 85702

602-624-6364

Financial and economic model development package for time series data. Available for the IBM PC and compatible computers. Time Series Analysis Program has 58 built-in functions, graphics, and reports to video, disk or printer. Performance Evaluation Program provides detailed summary reports for models with comparisons to money market, transaction costs and Sharpe ratios. The Edit-math program provides for descriptive statistics of time series. Cost: \$400 (includes True Basic Language) (Your cost: \$360).

### **Money Track**

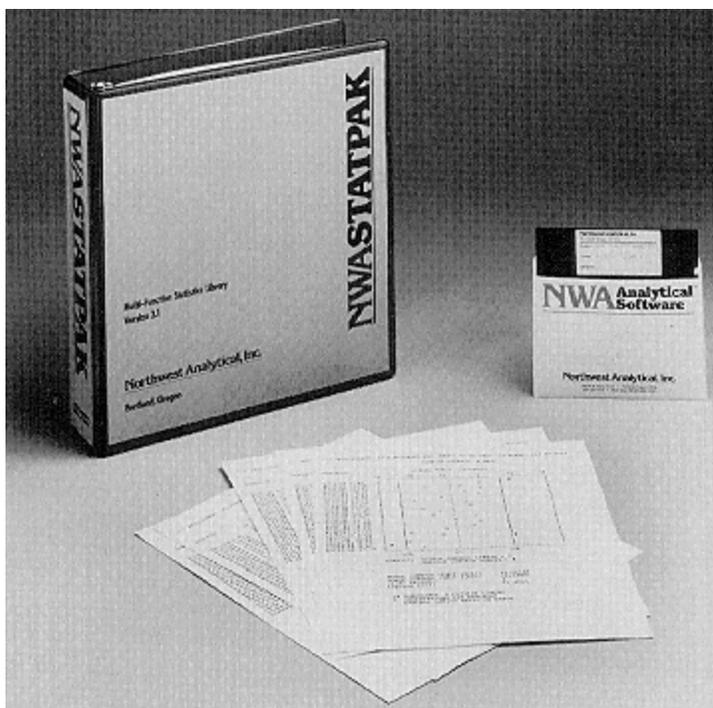
PACIFIC DATA SYSTEMS

1380 PIPER DR

MILPITAS, CA 95035-6820

408-946-6600

Money Track maintains transactions in a large database-like chart of accounts. A user can set up separate businesses that share a general ledger, making it possible to select and sort transactions to generate quick summaries or highly detailed reports. Money Track's ability to provide a fully detailed audit trail gives the user the performance of a large financial system on the PC. Installation is simplified so that the user specifies computer characteristics only the first time Money Track is used. No extensive DOS familiarity is required. The transaction screens use a common sense approach with clear, consistent prompts. Money Track is appropriate for individuals managing multiple sources of income or investments, small wholesalers, law offices, farmers and agribusiness, and real estate offices. Cost: \$295 (Your cost: \$265.50).



*NWA Statpak*

### **NWA Statpak**

NORTHWEST ANALYTICAL

520 N.W. DAVIS ST

PORTLAND, OR 97209

503-224-7727

NWA Statpak is an easy to use multifunctional statistical analysis and graphics package, developed for the microcomputer, that provides alternatives to time-share statistics systems. NWA Statpak interfaces with other software, such as word processors, spreadsheets, and databases with ASCII text files. In addition to data management and manipulation capabilities, NWA Statpak performs statistical computation and reporting in the areas of probability, descriptive statistics, frequency studies, regression and correlation, means testing, nonparametrics, distribution analysis, and ANOVA source code available. NWA Statpak is available in a wide variety of formats. User support is provided by an excellent technical staff by phone during normal business hours Monday to Friday. Cost: \$495.

### **OPTIONS-80**

OPTIONS-80

BOX 471-SC

CONCORD, MA 01742

617-369-1589 (eves.)

The OPTIONS-80 programs are powerful tools for projecting and increasing annualized return on total

investment. They are menu driven and include call, put, covered writing, and spreads, and allow for commissions, cost of money, and dividends. The programs can be backed up. The advanced Options-80A includes Black-Scholes modeling, and other extra features for most personal computers (including Macintosh). Free brochure. Cost: \$125.

### **OPTIONS-80A**

OPTIONS-80

BOX 471-SC

CONCORD, MA 01742

617-369-1589 (eves.)

Written and published by active investor to help increase return from the stock market, OPTIONS-80A is an easy to use program that analyzes Calls, Puts, Spreads, does Black-Scholes modeling and calculates market-implied volatility. OPTIONS-80A plots annualized return on investment against expiration price of underlying stock to guide user to an optimum investment. Unique algorithms account for future payments as well as buying and selling costs and time value of money. The program presents tables and charts for choosing transactions to give the highest yield for price action user thinks most likely. Comes with a comprehensive, indexed manual. Cost: \$170.

### **OpVal**

CALCSHOP INC

P.O. BOX 1231-T 12 SPRUCE RD

WEST CALDWELL, NJ 07007

201-228-9139

OpVal helps find profitable investments in stock, index, and futures options, and in warrants and convertibles. You can evaluate up to 96 options in just 18 seconds. You get: familiar newspaper-like tables for forecasted and quoted option prices, expected profit, and more; adjusted Black-Scholes forecasts; recall of ALL security information from disk; market quotes from Dow Jones or keyboard; an auto-calendar to December 2060 that operates in just three seconds; electronic book menus; forecasted profit/loss graphs and tables for strategies and positions. OpVal runs on IBM PC, PC-JR, Apple II, and compatible computers. Free brochure, 15 day unconditional money back guarantee. Cost: \$175.

### **Option Master**

INVESTREK PUBLISHING

419 MAIN ST 160

HUNTINGTON BCH, CA 92648

714-642-3196

Developed by Kenneth Trester, Option Master is computer software for pricing options for IBMs and compatibles (Apple version will soon be available). To order call: 800-334-0854 ext. 864 Cost: \$69.95

plus \$2.50 postage and handling. In California, add sales tax.

### **Option Master**

COM TECH SOFTWARE

141 W JACKSON BLVD #1531A

CHICAGO, IL 60604

312-341-7547

Calculates fair market values, hedge ratios, vega, time delay, spreads, implied volatility for options on any future, stock, or index. Position manager computes potential risk for time/market movement. IBM graphics--5 1/4" floppy--Apple or IBM. Cost: \$295 (Your cost: \$265.50).

### **OptionVue Plus**

STAR VALUE SOFTWARE

12218 SCRIBE DR

AUSTIN, TX 78759-3149

512-837-5498

A strategy maintenance and analysis system for serious work with options. Accurate pricing models are employed for projecting profit/loss scenarios and identifying optimal strategies for the reduction of risk and enhancement of returns. Applies to stock, index, and gold options. Also handles convertible securities and warrants. Supports automatic data capture from Dow Jones. Works on IBM PC and all close compatibles. Cost: \$695.

### **Options & Arbitrage**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Six option valuation models including Black-Scholes, and much better ones, as well as arbitrage and futures indices. Handbook included. Cost: \$ 119.95 (Your cost: \$107.95).

### **Optionsware**

J C PRODUCTIONS

7424 JACKSON DR STE 1B

SAN DIEGO, CA 92119

619-466-5703

Displays target day(s) and recommended premiums for both long and short positions in S&P 100 index

puts and calls. Apple II/II+/IIe/IIc, IBM PC/XT/AT and compatibles. Cost: \$100 (Your cost: \$85).

### **PC/Personal Investor**

BEST PROGRAMS

5134 LEESBURG PIKE

ALEXANDRIA, VA 22305

703-931-1300

PC/Personal Investor is a portfolio management program for the IBM PC and 100 percent compatibles. It maintains unlimited portfolios and produces a full range of reports including tax reports. Portfolios can be updated using the Dow Jones Retrieval Service and a free subscription to Dow Jones is included with your order. Cost: \$195.

### **PEAR Portfolio Management System**

HALE SYSTEMS

TWO SEAVIEW BLVD STE 204

PT WASHINGTON, NY 11050

800-645-3120

The first multiple portfolio record keeping system for the Apple II; also operates on IBM PC and other micros. Gives stockbrokers, advisors, and professional investors all the features of a complete transaction record keeping and portfolio reporting system. Reports include portfolio appraisals, realized and unrealized capital gain and loss, income statement, security cross-reference, and a complete audit trail. Cost: \$600 (Apple version), \$695 (IBM), \$40 (demo).

### **Palantir Word Processor**

PALANTIR SOFTWARE

12777 JONES RD STE 100

HOUSTON, TX 77070-4624

713-955-8880

The Palantir Word Processor is a full-featured and menu driven word processor suitable for all types of writing. It utilizes dedicated function keys, logical keystrokes and screen attributes (such as underlining, boldfacing, etc.) and supplies as standard features 36 stored glossary phrase capabilities, 250 column horizontal scrolling, multiple line heading and footings, and true proportional printing with justification and column block operations. MailOut is a collection of advanced features included with the Palantir Word Processor. Conditionally printed form letters, reports, mailing labels, and lists can be created. Text can be combined from data files, multiple external documents, and operator responses to produce beautifully formatted results with a minimum of effort. Data files created by BASIC programs, text editors, or database managers can be read easily. Full four-function math on variables read from external files can be performed. Totalling invoices, calculating sales tax, and figuring commissions are just three

of the functions available. The updated Speller is also an added feature of the word processor. Speller uses a 60,000 word coded dictionary that can be expanded to 80,000. Unlimited auxiliary dictionaries can also be created, and words can be added or deleted. The average look-up speed is 6000 words per minute and will correctly interpret compound words and suffixes. Cost: \$395.

### **Portfolio Management Systems**

MITCHELL A FINK ASSOCIATES INC

5 BALDWIN PL

NEW CITY, NY 10956

212-344-8030

The Portfolio Management System assists investment advisors in managing client investments. All securities industry activity is entered, validated, and accumulated to ensure correct entry. Year-to-date activity for each account is provided. Current prices may be entered to produce validation. Performance measurement using several methods is available, as is a family grouping. Cost: \$55,000.

*ProQuote TSA Proforma Inc.*

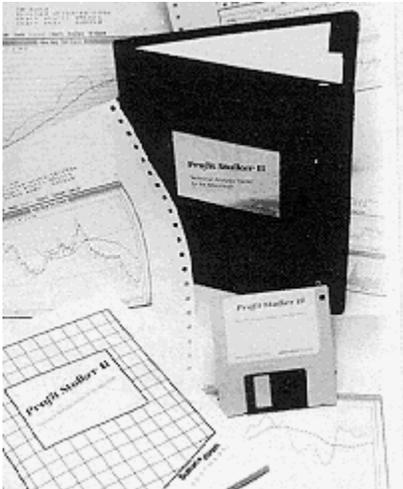
### **ProQuote**

TSA PROFORMA INC.

67 MOFFAT AVE.#239

TORONTO, CANADA M6K 3E3

Real-time stock and commodity quotation and charting system with technical analysis, most actives, time and sales, multiple pages, limit alarms, historical and real-time data, automatic charting, news and messaging. Cost: \$495.



*Profit Stalker II*

### **Profit Stalker II**

BUTTON DOWN SOFTWARE

6768 BALLINGER AVE  
SAN DIEGO, CA 92119  
619-463-7474

Profit Stalker II is an integrated database/charting/terminal emulation program for the Macintosh 512K and larger. Price data can be downloaded directly into the program and then studied with the technical analysis tools. Charting tools include daily bar charts, sales or volume, open interest, on-balance volume, moving averages, relative strength, range, momentum, oscillators, and accumulation-distribution, and point-and-figure charts. Spreads can be tracked and trendlines drawn. Cost: \$250.



*ProQuote TSA Proforma Inc.*

### **Put 'n Call**

FBS SYSTEMS INC  
P.O. DRAWER 248  
ALEDO, IL 61231  
309-582-5628

Features of the Put 'n Call Calculator include: evaluation of puts and calls, giving both delta ratios and fair market values; ability to adjust the value of each input parameter in order to answer all of your "what if" questions; printouts of tables and matrices of values for convenient reference; ability to calculate both implied and historical volatilities for use in evaluating option premiums. Cost: \$300.

### **Quicktrieve/Marstat**

COMMODITY SYSTEMS INC  
200 W PALMETTO PK RD STE 200  
BOCA RATON, FL 33432  
800-327-0175

CSI maintains and provides online access to its central database providing a wide variety of financial data, including commodity futures, cash prices, commodity options, optionable stocks, index options, financial instrument rates and U.S. short-term money rates. CSI also supplies data on magnetic tape or floppy diskettes for use on client computer facilities. The Quicktrieve software family provides in-depth programs for data retrieval management, study and graphical review for the user's unique portfolio stored at CSI. Allows customers to make toll-free calls daily from world-wide locations via Telenet, Uninet or long distance. The QuickPC hardware offered by Financial Micro-Data, is fully IBM PC/XT compatible. Our model A version includes a near letter quality printer, a 1200 baud modem, 10MB hard disk, floppy disk, 8 slot chassis, color graphics card, monochrome display and a 33 percent speed upgrade of the 8088 processor chip. Cost: \$150 (Quicktrieve).

### **Right Time-Stock Program**

T.B.S.P. INC.

8821 ALCOTT STREET

LOS ANGELES, CA 90035

213-275-0208

Also: Right Time-Futures Program, and Right Time-Stock Index Program. These are stand-alone technical analysis programs that generate Buy/Sell signals for stocks, futures and indices. Features include: automatic daily and historical retrieval from Dow Jones, CSI, or the Radio Exchange; daily printout of signals; three graphs; "what if" section; profit/loss analysis; and Black/Scholes options analysis. Plus, totally menu-driven, easy and extensive capabilities, and most important, amazing accuracy. For use on Apple IIe, II+, IIc, IBM PC, AT, XT, Macintosh 512e, Plus v8.6. Cost: \$349.

### **SISCOM IP=Frontrunner**

SATELLITE INFORMATION SYSTEMS

100 ARAPAHOE AVE SUITE 10

BOULDER, CO 80302

303-449-0442

IP=Frontrunner allows Framework II users to manipulate financial stock quotes and news from XPress cable-TV delivered information service (\$19.95 per month data). A user may open a Framework window to monitor up to 1,000 stocks at a time or to read the latest corporate news release or financial news. Cost: \$300.

### **Save Our Spreadsheet**

GOLDATA COMPUTER SERVICES INC

2 BRYN MAWR AVE

BRYN MAWR, PA 19010

800-432-3267

With SOS, never worry about losing your spreadsheet again. SOS saves your current worksheet in RAM to disk at time intervals specified by you. Cost: \$49.95.

### **Signal**

LOTUS INFORMATION NETWORK CORP

1900 S NORFOLK ST

SAN MATEO, CA 94403

415-571-1800

Signal is a productivity tool for the serious investor. Using Signal with 1-2-3 or Symphony from Lotus, you can analyze your portfolio, spot investment trends, do fast, informed forecasting, and much more. With Signal, you track over 20,000 issues from all the major U.S. stock, futures, and options exchanges. By creating customized portfolios, you can monitor several hundred issues at one time. Signal is easy to use. Creating customized portfolios, transferring data to Symphony or 1-2-3 spreadsheets, setting price or volume alert thresholds--all can be learned in minutes with only a minimum of effort. The monthly subscription fee is based on the number of exchanges used. There are no time sharing or by-the-quote access charges, and Signal uses inexpensive FM radio waves for transmitting.



*Signal*

### **Squire**

BLUE CHIP SOFTWARE

6744 ETON AVENUE

CANOGA PARK, CA 91303

818-346-0730

Your goal is to retire as a millionaire at age 40..50..60..The age doesn't matter. What does--and the factor

that separates Squire, the financial planning simulation, from other computer software--is the "Reality Mode," a special feature that enables you to "play" with real-life goals and devise a financial plan to get you there. Squire is a unique learning experience that permits the player to experiment with a full range of investment options--stocks, bonds, real estate, commodities--and combine the hypothetical experience with your actual income and expenses to arrive at a personal financial gameplan. Cost: \$59.95 (IBM), \$49.95 (Apple), \$59.95 (Macintosh).

### **Statistical Software**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Fifty interactive programs for forecasting stocks, bonds, options, futures and foreign exchange including multiple correlation and regression and exponential smoothing for forecasting. Cost: \$ 119.95 (Your cost: \$107.95)

### **Stock Ma\$ter**

GENERIC COMPUTER PRODUCTS INC

P.O. BOX 790 DEPT TD-56

MARQUETTE, MI 49855

906-249-9801

A stock market investment aid which is especially useful for mutual funds. This program is for the casual investor who does not have time to become familiar with all aspects of the stock market, but yet needs effective buy and sell advice. Investment transactions are logged to a disk file for later review. The current status of your stock or mutual fund is also available. The program is menu-driven and easy to use. Cost: \$49.95.

### **Stock Market Securities Program**

COMPU-CAST CORP

1015 GAYLEY AVE 506

LOS ANGELES, CA 90077

213-476-4682

The Compu-Cast program measures daily accumulation and distribution in a security, regardless of the direction of price movement. It spots accumulation in a receding security, thereby detecting a possible turnaround point. It shows distribution on a rising security, pointing out when to place protective stops and where, or to sell if the price objective has been reached. Instead of measuring moving averages which are always late, this revolutionary program measures accumulation or distribution, thereby showing the probable turning points in a security's price movement. It also contains a program that points to the

probable short-term and medium-term market turning points. Very useful for mutual fund trading strategy. There are 28 sub-programs including a modem program that includes automatic filing of data from Dow Jones or CompuServe, Automatic Charting and Security Alert system, spreadsheet conversion program, stock split, and many editing programs. Thirty-day money back trial period. Cost \$325 copyable, \$275 backup.

### **Stock Market Software**

PROGRAMMED PRESS

2301 BAYLIS AVE

ELMONT, NY 11003

516-775-0933

Interactive programs for forecasting and evaluation of price, risk and return on equity investments including stock index futures, and options. Also 220-page Computer Assisted Investment Handbook. Cost: \$119.95 (Your cost: \$107.95).

### **Stock Option Analysis Program**

H & H SCIENTIFIC

13507 PENDLETON ST

FORT WASHINGTON, MD 20744-5414

301-292-2958

The Stock Option Analysis Program (SOAP) allows you to calculate and graph expected profit and loss on transactions. It is ideally suited for "what if" calculations, and will analyze calendar spreads, vertical spreads, etc. Uses Black/Scholes model. Cost: \$150.

### **Stock Option Scanner (SOS)**

H & H SCIENTIFIC

13507 PENDLETON ST

FORT WASHINGTON, MD 20744-5414

301-292-2958

SOS can scan up to 3,000 stock options and rank order the top 50 and bottom 50 options according to the statistically expected rate of return. Although it can be used on a standalone basis, it serves as a pre-filter for identifying favorable option positions for more detailed analysis. SOS can run attended analyses for up to five preselected scans with the printout collected at a later time. "Stale quotes" can be rejected, which significantly reduces the time spent in chasing non-existent option prices. Cost: \$150 (Your cost: \$135).

### **Strong Signal**

AMERICAN MICRO

99 PARK AVE  
NEW YORK, NY 10016  
212-883-1155

SOF.PLATE for integrated portfolio analysis, automatic graphics, analysis, and file storage, using Lotus Signal and the IBM PC. Call 800-445-5656 Cost: \$199.



*Tax Calc*

### **TaxCalc**

TAXCALC SOFTWARE INC  
4210 W VICKERY BLVD  
FORT WORTH, TX 76107-6425  
817-738-3122

The TaxCalc program is a tax planning template which requires a spreadsheet program such as 1-2-3 or Symphony. It is compatible with most personal computers. A time-saving, convenient tool for computing quick tax calculations from the simplest to the most complex. Automatically computes most tax limitations. Play "what if," make changes or additions--TaxCalc program immediately recalculates and selects the lowest tax option. Input follows IRS form. Modifiable to fit individual needs. Cost: \$150.

### **TaxCalc Stock Option Planner**

TAXCALC SOFTWARE INC  
4210 W VICKERY BLVD  
FORT WORTH, TX 76107-6425  
817-738-3122

The TaxCalc Stock Option Planner is a template to be used in conjunction with a spreadsheet program. It was written by a CFP with over 12 years experience in financial planning service which includes managing investments of retirement plans and trusts. Every attempt has been made to make the Stock Option Planner as easy as possible to use. The experienced as well as the novice covered-option writer will find minimal input required, and get results that are easy to follow. Stock Option Planner was designed to calculate the costs and results of a covered call and buying the stock and selling the call

option. While this program cannot pick stocks and call options for you, it can assist you with the calculations necessary to give you the factual potential gain or loss information from which you can make a more intelligent decision. The Stock Option Planner automatically calculates either standard or discount brokerage rates; net cash investment; percent return on transaction and annualized return; net cash return; break-even price; and more. Cost: \$100.

### **Techni-Stock Stock Market Software**

TOCO TECHNOLOGY

PO BOX 328

SANTA CLAUS, IN 47579

812-544-2361

The Techni-Stock software system is a stock market analysis program that provides you with accurate, up-to-date technical and statistical data on your favorite stocks and a market average. The system is designed primarily for investors who make their own investment selections. Several reports are produced using past price/volume information which is easily obtained from Sunday newspapers or the weekly financial newspapers. Then you can make decisions based on information obtained from the reports. The system runs on the Apple IIe, IIc and II+ personal computers with a minimum memory of 64K, PRODOS operating system, two disk drives, and graphics printer. Cost: \$59.95 (Your cost: \$53.95).

### **Technical Analysis on Symphony**

OHLSEN FIN MGMT CORP

820 TRINITY DR STE C

LOS ALAMOS, NM 87544-3237

505-662-6839

Using Symphony's compressed database and spreadsheet language provides extensive technical analysis in the form of studies and charts including bar chart, volume, open interest or up tic volume, ordinary and exponential moving average, moving average convergence divergence (MACD), momentum, oscillators, spreads, ratios, stochastics, commodity channel index, on balance volume, and others. Includes a profitability calculation system which tests user-defined trading rules over historical data and generates daily trading signals. Cost: \$345.

### **Technical Indicator Program**

INVESTMENT SOFTWARE

P O BOX 2774

DURANGO, CO 81302-2774

303-563-9543

Calculates, stores and plots 18 indicators used by professional analysts and market advisers. The indicators include McClellan oscillator and summation index, magic-T oscillators, traders indices,

advance-decline line, and others. Includes detailed manual and company support. Available for Apple II series and IBM PC series and compatibles. Cost: \$89.50.

### **Technical Trader**

OPTIMANAGEMENT RES.

701 MT LUCAS RD

PRINCETON, NJ 08542

609-924-8957 X252

The Technical Trader simulation service enables traders, hedgers, arbitrageurs, and researchers to develop, test, and run their own personal trading systems as well as test money management strategies before risking capital. Test your model against OMR's database of historical futures and cash prices to produce graphs, portfolio profitability track records, statistical reports, and even buy/sell orders. Our programmers can set up your model usually in less than one day. Cost: varies.

### **Technical Trader**

MEMORY SYSTEMS

PO BOX 886

SKOKIE, IL 60076

312-674-4833

Memory Systems has released the latest version of their advanced Technical Trader. The demand index, %R, stochastics, Relative Strength Index, moving averages, oscillators, Directional Movement Index, and the MACD trading method are just some of the systems it includes. All of Welles Wilder's systems are included as well as others described in Memory Systems' detailed brochure. All indicators and trading systems are completely paramatizable by you. The package is a complete software tool including advanced charting, optimization routines, historical testing, automatic execution feature, and customization routines allowing you to combine systems. The chart facility offers advanced features such as channel drawing, live cursor, automatic scaling, and others. You may optimize all trading systems automatically, getting detailed profit and loss statements. A complete set of price database routines are included, allowing you to create daily, weekly, or monthly files. Manual or automatic telephone price update is possible. The system will operate with price files in either the CSI or CompuTrac price file format. Apple version not as comprehensive as IBM version. Cost: \$675 for IBM version; \$450 for Apple version.

### **TeleTrac**

COMPUTRAC

1021 9 ST

NEW ORLEANS, LA 70115

800-535-7990

TeleTrac is a real-time graphic technical analysis system designed exclusively for use with Telerate's live cash and financial markets data including: Spot FX, Spot Euro-Currencies, Currency Futures, U.S. Treasury Instruments, Treasury Futures, Fed Funds, Repos, S&P 500 Futures, TIRI, and more. In addition, the trader has access to a selection of Telerate's 30,000 pages of financial information. Featured is TeleTrac's easy to use graphics screen which can simultaneously display up to 10 charts in color with up to four items (such as bar chart with three moving averages) plotted on each chart. Or, you may choose up to four monochrome monitors, displaying up to 10 charts each, for added market coverage. The monochrome version is compatible with video switching networks. TeleTrac has studies and tools built-in. In addition, the trader can enter his own private studies. TeleTrac will give you your choice of graphic or spreadsheet evaluation display of the profitability of your trading rules. This is done by applying your rules to the computer collected market data, including the most recent up-to-the-minute prices. TeleTrac will even automatically alter the variables in your trading rules to hunt for the most profitable combination, and will also calculate and print charts and studies automatically. Cost: on lease basis only.



*Telescan*

### **Telescan Analyzer & Database**

TELESCAN INC

11011 RICHMOND AVE STE600

HOUSTON, TX 77042

713-952-1060

A color graphics stock and mutual fund analysis program which accesses the Telescan database of over 8,000 stocks and indices and over 2,000 mutual funds. Prices are updated periodically throughout the day. The fast and easy to use program displays up to 13 years of historical data for technical or fundamental analysis. Cost: \$49.95 plus monthly online charges.

### **The Data Connection**

QFS INC

BOX 565

ARDSLEY, NY 10502

914-591-6990

Download and maintain security and commodity pricing data from CompuServe for use in CompuTrac, MetaStock, Swing Trader, Lotus 1-2-3, Symphony and user written programs. Cost: \$99.95 (Your cost:

\$89.95).

### **The Impersonator**

DIRECT AID INC

1720 14TH ST

BOULDER, CO 80302-6353

303-442-8080

The Impersonator, with its built-in programming language, offers the user virtually unlimited capabilities in designing terminal applications and emulations. Twelve full pre-programmed emulations of most popular terminals are included. Features XMODEM, file capture, 9600 baud, text editor. Cost: \$245.



### **The Market Forecaster**

WILLIAM FINNEGAN ASSOC

21235 PACIFIC COAST HWY

MALIBU, CA 90265

213-456-5741

Now you can make your move before the market does. This remarkably accurate computer program is an economic model of the stock market with a correlation to future market moves of  $(r) = .90$  over the past 22 years. It has proven to be an invaluable tool for hundreds of professional investors. And now the Market Forecaster is off the mainframe and available for use with your personal computer or calculator. On funds managed since 1979, the Market Forecaster has never had a losing year. It correctly forecasted the Dow's 212-point advance, it beeped "sell" on January 17, 1984 at 1278 on the Dow, a few points off the market high; it beeped buy on December 7, 1984, a market low of 1163, and it remained positive throughout the market's 650-point advance. Moreover, between each of these major moves, the Forecaster provided enough guidance to make short-term trading both interesting and profitable. The Forecaster is available for the IBM PC, Apple, or as a module for the HP-41 calculator. Cost: \$325 IBM, \$295 Apple, \$285 HP-41 (Your cost: \$308.75 IBM, \$280.25 Apple, \$270.75 HP-41).

### **The Option Calculator**

APPLIED RESEARCH CO

53 W JACKSON 720

CHICAGO, IL 60604

312-922-7882

The Option Calculator calculates fair values, implied volatilities, and deltas for all futures options contracts. Prints delta sheets like those used by floor traders. Computes theoretical values for "what if"

simulation. Runs on IBM PC or compatible computers. Cost: \$150.

### **The Professional Trading System**

CTCR

1731 HOWE AVE STE 149

SACRAMENTO, CA 95825

916-929-5308

Trade commodities like a professional with a system that allows you to mechanize your trading as the experts recommend. Enforces patience and discipline, allows you to trade a diversified portfolio of markets for increased risk control and profit opportunity and allows you to customize your own system so that too many people will not be using the same signals. It quickly does historical research and teaches the trader about the effectiveness of various popular trading approaches, and automatically generates the next day's trading signals for easy, mistake-free trading. Requires no previous computer ability. Cost: \$700.



*The Technical Investor*

### **The Technical Investor**

SAVANT CORPORATION

P.O. BOX 440278

HOUSTON, TX 77244

800-231-9900

The Technical Investor contains charting, communications and technical database programs, and is fully integrated with the other programs in the Savant Investor Series. The database stores a year of daily high/low/close/volume information for 100 stocks (per double-sided disk), 40 years for two stocks, or anything in between. The charting program allows one to four plot windows, each independently controlled. Plotting capabilities include price and volume bars, high/low/close price lines, point-and-figure charts, positive/negative volume indicators, on balance volume, moving and exponential averages, regression lines, relative strength, and much more. Copies plots to your printer. Saves plots on disk. Set up and store charting procedures to be executed by pressing one key. The communications

package updates prices automatically from Warner, Merlin or Dow Jones online databases; you can get current quotes or up to 10 years of historical data on stocks, commodities, market indices, etc. A terminal program allows you to manually communicate with almost any commercial database. Supports data directory paths. Requires IBM PC/XT/AT, regular or enhanced IBM color/graphics card, 2 disk drives, 320K, DOS 2.X or 3.X. Cost: \$395.

### **The Trading Assistant Series**

OPTIMANAGEMENT RES.

701 MT LUCAS RD

PRINCETON, NJ 08542

609-924-8957 X252

The Trading Assistant is multicurrency PC-based software to support trading in futures, options, OTC options, foreign exchange, fixed income, equities, and physical commodities. Supports automatic trade liquidation, automatic commissions, automatic telexing, contract generation, inventory control, accounts payable/receivable and automatic invoicing. For use on IBM PC, XT, AT and compatibles. On-site training and support provided in addition to a 24-hour hotline. Cost: starting at \$6,000.

### **Trader's Workstation**

WARMACHINE

1912 W HOOD

CHICAGO, IL 60660

312 262 1318

Online technical analysis software for the Macintosh and IBM using datafeed from Lotus Signal, Telemet America, and Market Information. Razor sharp graphics, up to eight windows, 15 analytical routines including Hurst-style channels. These channels model price motion as waves within waves. Alarms can be set based on divergence forecasts, trendline breaks in prices or relative strength, or new highs or lows in prices. Indicators include stochastics, relative strength, spreads, ratios, moving averages, channels, moving average oscillators, Gann angles, and trendlines. Exponential averages are available on all studies to give a feeling for the trend of the indicator. A networking product is available for Signal allowing up to 25 windows to be fed by one Lotus box! Cost: \$350-\$2,000, Annual maintenance \$0-\$600.



### **Tycoon**

BLUE CHIP SOFTWARE

6744 ETON AVENUE  
CANOGA PARK, CA 91303  
818-346-0730

If you thrive on the unpredictable twists and turns of commodities trading--everything from gold and foreign currencies to oil and coffee--this high-risk, earn-as-you-learn commodity market simulation will give you a good turn for your money. Tycoon transports you into the fiercely competitive arena of international commodities trading, where luck is as important as good business sense, where timing is as critical as planning, and where you learn as much about the cause and effect of world events on the markets as anything else. Cost: \$59.95 (IBM), \$49.95 (Apple), \$29.95 (Commodore), \$59.95 (Macintosh), \$19.95 (Atari).

### **Upgrade Peripherals for PCs**

T W TECHNOLOGIES INC  
21636 N 14TH AVE  
PHOENIX, AZ 85027-2806  
602-581-0669

High speed hard disks and tape backups to enhance/expand capability/efficiency of IBM personal computers and most compatibles. PART I software to custom-partition hard disks. Hard disk models 20 and 120MB. Tape backups 10 to 60MB streaming/file-by-file. Half height 3-1/2 inch, full height 5-1/4 inch. Internal mounting and external models. Install in 30 minutes or less. State of the art quality. Warrented. Full factory service. Cost varies with model.

### **VQP Options Option**

COMMODITY COMMUNICATIONS  
420 S EISENHOWER LN  
LOMBARD, IL 60148-5768  
800-621-2628

The Options Option is an add-on capability for VQP instant quote systems' that provides real-time "instant" options prices. The Options Option displays prices on premiums, the underlying futures contract, delta values, and implied volatility, all on a single line. Split screen capability allows comparison of futures and option prices plus scrolling news display.

### **Visible Asset**

PINSTRIPES SOFTWARE LTD  
8260 GREENSBORO DR 137  
MCLEAN, VA 22043  
703-790-8488

Visible Asset is a powerful stockbroker practice management software which gives you sophisticated portfolio and client management capabilities together with other time saving prospecting features. Visible Asset helps you manage your clients--it can update portfolios continuously with the addition of online databases, produce impressive reports, act as a calendar, and provide full account information at the touch of a button. It can save you valuable time--Visible Asset automatically cross-posts to products when a transaction is entered, dials up phone numbers, and has a complete online help facility accessible from any point in the program. Prospecting can be done with it--Visible Asset generates mailing lists from user-defined criteria, formats mailing labels, and allows the user to create and examine "what if" scenarios. Cost: \$1,495.

### **Wall Street Techniques**

SMITH MICRO SOFTWARE INC

21062 BROOKHURST 106

HUNTINGTON BCH, CA 92646

714-964-0412

Technical analysis and charting for securities. User-defined indicators. Four types of moving averages, up to 10 trendlines, price envelopes. Quote database may be updated manually or automatically via Dow Jones. Cost: \$295.

### **Wall Street Window**

PINSTRIPES SOFTWARE LTD

8260 GREENSBORO DR 137

MCLEAN, VA 22043

703-790-8488

Wall Street Window is a powerful high-resolution graphics technical analysis and presentation tool. It combines sophisticated technical stock analysis techniques, automatic database communications, high resolution color graphic displays, graphic printout, and spreadsheet links. Wall Street Window is the only stock market analysis package designed to use color graphics in high resolution, a feature that enhances an investment adviser's client presentation or prospecting recommendation as well as easing an active investor's analysis of the market. In addition, Wall Street Window's unique packing algorithm allows storage of a vast amount of stock information. Best of all, the program includes the Keysaver software that enables Wall Street Window to run unattended. Cost: \$395.

### **Window on Wall Street**

BRISTOL FINANCIAL SERVICES

1010 WASHINGTON BLVD

STAMFORD, CT 06901

203-356-9490

Window on Wall Street is a modularly designed software product that allows investment professionals to assimilate live market data and turn it into information that will enable more timely and profitable trading decisions. The Ticker component transforms a small personal computer into an investment workstation that displays, analyzes, graphs, and stores live market information from the stock, option, and futures exchange floors. The portfolio accounting component provides complete tax lot accounting, immediate portfolio valuations, client holding cross-references, and a series of hard-copy reports. Window on Wall Street operates in real-time on market data transmitted by Lotus Information Network Corporation via its Signal product. Cost: \$595-\$3,490 depending on modules selected.

### **Windows Spell**

PALANTIR SOFTWARE

12777 JONES RD STE 100

HOUSTON, TX 77070-4624

713-955-8880

Windows Spell is the only speller for Microsoft Windows. Windows Spell comes with a 65,000 word dictionary. In normal operation, Windows Spell appears on your desktop as an icon. With the click of your mouse, Windows Spell pops up on your screen ready to spell check. If you are spell checking a long document, Windows Spell will sit quietly in icon form flashing when a spelling error is found. It automatically corrects your Windows Write documents even when they contain graphics. It can spell check your documents while you are editing another document or working with any other Windows application. The icon displays the progress in the background--or starts flashing when it finds a word you need to confirm. Cost: \$145.

### **Windows inTalk**

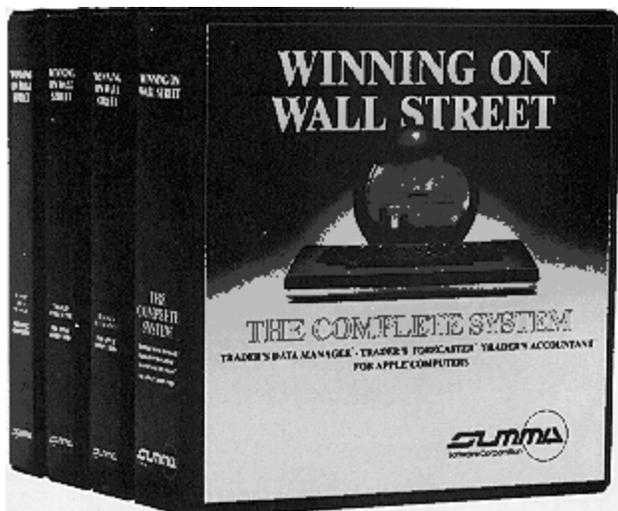
PALANTIR SOFTWARE

12777 JONES RD STE 100

HOUSTON, TX 77070-4624

713-955-8880

Windows inTalk is the complete tool for personal computer communications with the power and ease of use of Microsoft Windows. InTalk pull down menus are packed with features. Communications settings like baud rate and parity, terminal emulation, phone numbers, etc. can be saved in a "Settings File" for each computer you communicate with. Start inTalk by clicking on a settings file, and inTalk assumes the correct settings automatically. InTalk lets you connect to the world with VT-52, VT-100, IBM 3101, ADDS, Televideo, Beehive, and VIDTEX emulation. Hundreds of other terminals work with these emulations so you can connect to IBM mainframe or minicomputer hosts as easily as you can connect to DEC, PRIME, or any of dozens of mini and mainframe business systems. You can send or receive text files with options like "Save in Tabular Format" so you can use information in your spreadsheet program. You can send or receive binary files using XMODEM, Crosstalk, or inTalk protocols. With inTalk, you can do a binary file transfer in one minute, and text transfer the next without having to change your protocol selection. Cost: \$145.



*Winning on Wall Street*

### **Winning on Wall Street**

CSSL INC (WINNING ON WALL ST)

909 ELECTRIC AVE. SUITE 202

SEAL BEACH, CA 90740

213-493-2471

Integrated stock market system: Trader's Data Manager, Trader's Forecaster and Trader's Accountant. Cost \$195.

### **WordPlay**

PALANTIR SOFTWARE

12777 JONES RD STE 100

HOUSTON, TX 77070-4624

713-955-8880

WordPlay is an educational program challenging the vocabulary skills of children and adults alike. The user can solve puzzles, save solutions in progress and print them out. Teachers especially will enjoy the ability to create their own puzzles and print them out with their own customized clues. Puzzles come in sizes from  $4 \times 4$  up to  $23 \times 23$ . Diagramless puzzles are also included. Cost: \$49.95.

### **Yieldpack**

TRADECENTER

25 HUDSON ST 12TH FLR

NEW YORK, NY 10013

212-226-4700

Yieldpack is a comprehensive, flexible software package and historical database specifically designed for technical analysis of the fixed income markets. Yieldpack's high resolution graphic display takes full advantage of today's state of the art personal computer technology. With the software accessing the database directly from your IBM compatible PC hard disk, no communications facilities are necessary for generating analysis. And only a short telephone call is necessary to update your database with daily open, high, low and closing price information. Yieldpack graphs include daily close, bars, departures, spreads and ratios, yield curves, yield spreads, trendlines, moving averages, the relative strength index, and much more. In addition, the Yieldpack library can be used to archive your most commonly referenced charts. All graphics and boardwatch pages stored in your library are always available for instantaneous recall with the most current data from your database. Cost: \$295/month.

### **Your Move!**

GOLDATA COMPUTER SERVICES INC

2 BRYN MAWR AVE

BRYN MAWR, PA 19010

800-432-3267

Your Move! is a memory-resident utility that allows an easy way to move data between applications. Your Move! reads data directly off the screen while running one application and uses that data as keyboard input to another. Great for transferring data from a spreadsheet to a word processor. Cost: \$59.95.

### **Z-Transform Tutorial**

DYNACOMP

PO BOX 18129

ROCHESTER, NY 14618

716-671-6160

This is the second selection in Dynacomp's complex plane analysis educational series. In the Z-Transform tutorial, poles and zeros and their relationship to the Z-Transform are described theoretically. The resulting filter response function is discussed with respect to rational polynomials and "tapped delay lines." The tapped delay line representation is shown to be amenable to a "difference equation" implementation of a digital filter. The software is keyed to the manual. You may enter either the pole/zero representation or the rational polynomial filter function coefficients for up to 30 poles and zeros. If you give the transfer function, the program gives you the poles and zeros. Also, you are provided with high resolution plots of the amplitude response and impulse and step function responses. Cost: \$24.95.

# Direc-Tree PLUS

## VERSION 5.0

### Micro-Z

4 Santa Bella Road

Rolling Hills Estates, CA 90274

(213) 377-1640

**Computer:** IBM-PC, XT, AT

**Price:** \$49 list

**I**t's hard to believe that a program as handy as Dtree (our shorthand here at *S&C*) could get handier. We've reviewed it favorably before, so our biases are well-known. We use it on all our IBM-like machines which run anything from subscription maintenance programs to technical analysis applications.

When we first met Dtree, it was a simple organizer for hierarchical file structures--of so we thought. Later, it turned out to be a word processor and program "booter." From our standpoint, it made life much more efficient as we jumped from application to application with one or two keystrokes. If even that was too much, we could write down the sequence of keystrokes and have Dtree do them for us--or our staff!

Dtree was the first (by about a year) to present an on-screen picture of the hierarchical file structure. Since then, that idea has been widely copied, but none of the competition has a built-in editor, program execution menu or security system. None of them are written in machine language so they are all slower. Plus Dtree's price is right!

Now version 5.0 has a half a dozen new features: a notepad (*a la* Sidekick, Pop-Up, etc.); descriptive notes attached to files (so you can tell what's in them without opening them); a space-age security system to keep your kids and the opposition out of the good stuff; a quick backup capability using floppies, and program execution using 50-75 percent *less* RAM without copy protection.

Frankly, I expect to see a complete desktop integrated into the next release! What's left to do?

Dtree comes with a model installation program. Step 1 - copy the program to your disk. Step 2 - insert disk, type "RUN-ME," answer questions, and start using the program. The manual is a neat blend of depth for advanced users and superior organization that lets you dive right in. One caution from our experience: if you are installing on a disk which already has a previous version of Dtree on it, rename the old Dtree COM file before installing the new version. Don't throw away the old version until the new one is up and running!

Dtree's new notepad feature is superfast and medium handy. It's not immediately accessible because you must leave the application you are working in, return to the tree diagram and then call up the notepad. Once you get it, though, it's neat. You have two lines per note for free-form comments and you can

search for *anything* in the note. It will return with the note virtually instantly.

For the hundreds of files you've got, Dtree also can attach a note to each one so that instead of using just eight letters to identify a file, you can have two lines of comments to describe what's in the file. Then, you can use Dtree's search capability to *find* the dam file note that says, "This file does the payroll worksheet!" Best of all, you can search on any word in the note! This feature can really save some irritation when you've forgotten a file name. Or, if you just wonder what a particular file is, point to it, press "D", and Dtree will display any notes attached to the file.

I think you are going to see a lot more of this "free-form" database approach. It's available now only in very high-end applications (like ZyIndex) which use it for legal databases or on mainframes. Here in Dtree, we have a straightforward, very useful application of an advanced technique.

Security systems, however, usually get in my way, so I take chances and leave almost everything unprotected. I've lost entire directories when my ancient version of Wordstar mangled them in the hands of other people. Some things you just hope people never see (their compensation projections, for example). Dtree's new system may prove to be the first usable security system I've found.

All you do is run the security program (and hide the master disk once you're done!). You point to what you wish to secure and give it a password. Nothing's written in blood--you can change or delete your passwords. Once everything's as you like it, the program will implant the security on your disk. When Dtree runs, it just doesn't show the secured files/directories unless you've previously given your password. The only improvement would be a request for a password when security is active, although this should be an option for the security manager.

All this is done very, very quickly because this version of Dtree is in machine language. There is even a "miser mode" that gives up a memory resident picture of your tree when you aren't using it so that Dtree uses as little as 28K of core memory. The graphic tree is redrawn when you need it--which takes two blinks instead of one to accomplish. This speed is a Dtree exclusive.

Competition has forced Micro-Z to leave this program unprotected. I, personally, hope they still make enough money to continue the extraordinary level of support you can get from them. Ninety percent of their support relates not to their program, but to DOS or other peoples' programs! For the individual user, this non-protected version is highly portable, especially if you have several machines!

Oddly enough, magazines--which copyright their own output--have been in the forefront of those urging no software copy protection. From my point of view, the backup "need" they so often advocate is just a scam--extra disks are almost always available. Programmers and distributors have families to feed, too. If you think they're making too much money, get into the business yourself and try it. To deny them their livelihood for a cheap steal is simply base. Pay for what you use, I say if you want good people to stay in business and keep making their products better.

Dtree is the class item in this line of products and the price is cheap. Upgrades are easily and cheaply available to registered owners--a valuable feature given the rapid evolution of this product. We can recommend it without reservation.



# Historical Data

## **Tick Data, Inc.**

10260 West 13th Avenue

Lakewood, CO 80215

(303) 232-3701

**Computer:** IBM PC (S&P 500, Value Line futures and cash, T-bonds, Soybeans, Swiss Franc, DMark); Apple II and CPM formats (S&P 500, Value Line futures and cash)

**Price:** Tick by tick data: \$15 per month per contract.

**W**hat we have here is the only source "in the world" of historical tick data for PC users trading Standard & Poor's, Value Lines, T-bonds, soybeans, Francs, and DMarks. You folks who are plotting one-minute bar charts on MarketPlan just thought you were getting close to the market, but you're really not down into the weeds yet! Here is yet another level of detail to be analyzed.

A program to print the data is included free and a graphics program to plot the data from the Tick Data files is available for \$100. A program to sample data at user-specified time intervals also is available for another \$100 and AMODL, a "value oriented" trading strategy optimizer for the stock indices, is available for \$500.

Nuts and bolts first: these programs are "bombable," but won't destroy themselves or their data files if you hit CTRL-Break at the wrong time. Installation is nil-just run the disk you get or its copy. I could discern no copy protection. Color and the other exotica found in retail level software these days is not used. On a 640K machine, they ran very, very quickly. Instructions for each program come on several copied, but clear, pages. For the money, you're getting well-used, analytical software, not pretty pictures.

Data is shipped to you in a compressed format which is then "uncompressed" by a special program called "UNCO." You only need to "uncompress" if you need to use the data with other programs. This same program will put out an ASCII data file for use by, say, Lotus 1-2-3. This compression capability is probably a mathematical delight since it achieves a ratio of 50:1, a level usually seen only in secured satellite transmission. Credit here goes to author Dave Cowan's brother for a very successful algorithm that a number of other data services might profitably employ.

The remaining programs work on the compressed data. Some of the results are shown in [Figures 1-3](#). Aside from merely listing the data, which can be done with the print program included in the data price, the graphics program can show you a picture of the price action. [Figure 1](#) is the condensed version of seven days of such action in the March S&P contract. You can also zoom in on as little as one hour of the data, as [Figure 2](#) does. Here you are truly into the nitty gritty.

More fascinating from my personal standpoint is the sample program's output which could be a text file accessible by other programs, a Commodity Systems, Inc. or CompuTrac format file, or a bar chart together with tick volume ([Figure 3](#)). I don't have to look at this son of thing very long before coming up

with some good trading ideas.

Unfortunately, this charting package is deficient. It doesn't look ahead to scale the graph correctly. Then, when the prices exceed the range provided, the plotting stops and you must restart it on a new chart by hitting Return. This chops up your graphs, making interpretation more difficult. Despite all this, inspection of the correlation of tick volume and price movements restimulated juices from my day-trading days, so I commend this feature to you! (Interestingly, this data isn't used in Tick Data's CTA trading.)

In contrast, the plotting program "PL," must get pretty low marks. A typical output is in [Figure 4](#) so you can see for yourself. I drew little inspiration from this muddy presentation, even after expanding the scale to get as much detail as possible. Part of the blame must rest with the low resolution of IBM-level graphics, but the program clearly leaves great gaps in the vertical pixels, as well.

The graphics haven't deterred Dave Cowan though! He's worked with this data thoroughly and, in the process, come up with some trading ideas of his own: TMODL and AMODL. The first is a trend-following optimization program which I haven't seen. The second is a program to optimize trading the stock index futures based on the behavior of the cash-futures spread.

AMODL attempts to put one in the same futures position that arbitrageurs will be taking in maintaining the cash- futures spread. In evaluating the spread, AMODL provides 12 different parameters that can be optimized in the now-traditional way: by trying every conceivable combination on historical data. To help keep this number-crunching under control, AMODL also provides for sequential optimization. It will optimize one parameter, then fix it and move on to optimize the next before repeating the process on the next parameter and the next. This, it seems, is the way to proceed.

Output can be graphic or tabular to printer, screen, or file. File output can be accessed by spreadsheets which can access ASCII text files.

Unfortunately, I can't tell you what the winning numbers are. I can only say that my parameters were consistent losers! Of course, I didn't spend the time necessary to thoroughly analyze them. You're clearly looking at a thorough search, lasting many, many days or weeks, or you can use TDI's research (which comes with AMODL) as a starting point.

Should you uncover tradable patterns using this data you would no doubt want to arrange a data feed that can replicate the data you tested, only do it in real time. This can be arranged from a number of sources, Tick Data included, but may not be necessary. Cowan's experience is that you can be 90 percent effective using 10-minute data. He cites his experience trading it initially with quotes from Financial News Network.

Keep in mind that you are only taking half the arbitrageurs' full position-the futures portion. You're not hedging, but speculating. Nevertheless, Tick Data's CTA operation has been using this successfully, they say, to guide their trading for several years.

Pricewise, you must be serious about day-trading to go for this. A single contract for a single year is going to set you back  $12 \times \$15$  or \$180 and Tick Data probably isn't making a killing even at that rate. For the money, you'll have good backup though. Dave was knowledgeable, accessible and helpful whenever I called, so support seems solid.

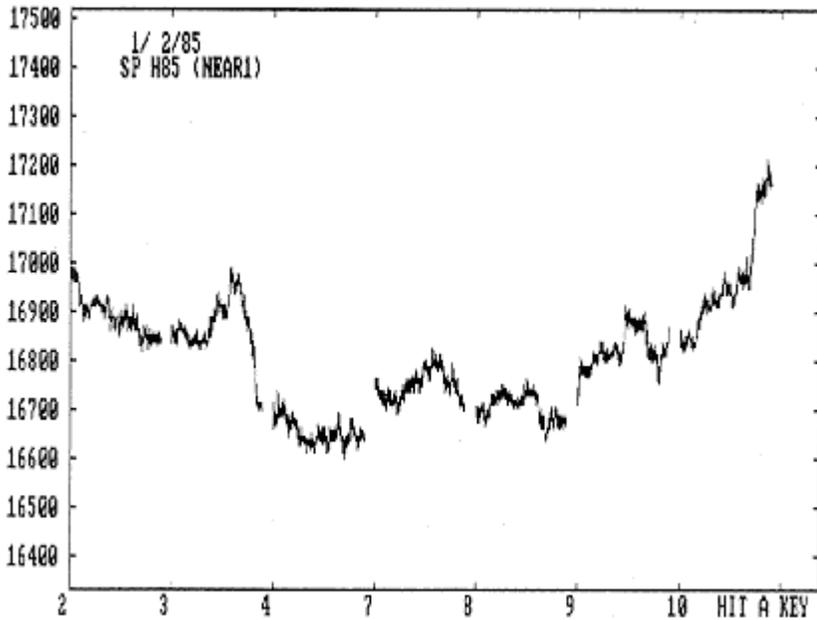
In summary, Tick Data is necessarily THE data choice for the serious day trader with the time for

optimization and/or detailed programming/analysis. Whether you use their graphics programs is debatable. With Tick Data's capability to output CompuTrac, CSI, and ASCII data files you might very well want to use some of the other programs that can manipulate such data. For trading the cash-futures spread, you'll most likely want to stick with AMODL.

- CompuTrac, (800) 535-7990.
- CSI, 200 W. Palmetto Park Rd., Suite 200, Boca Raton, FL 33432-3788, (800) 327-0175.



*"Let's see...360 three martini lunches comes to \$2,162.85. Say don't you ever get tired of martinis?"*



**FIGURE 1**

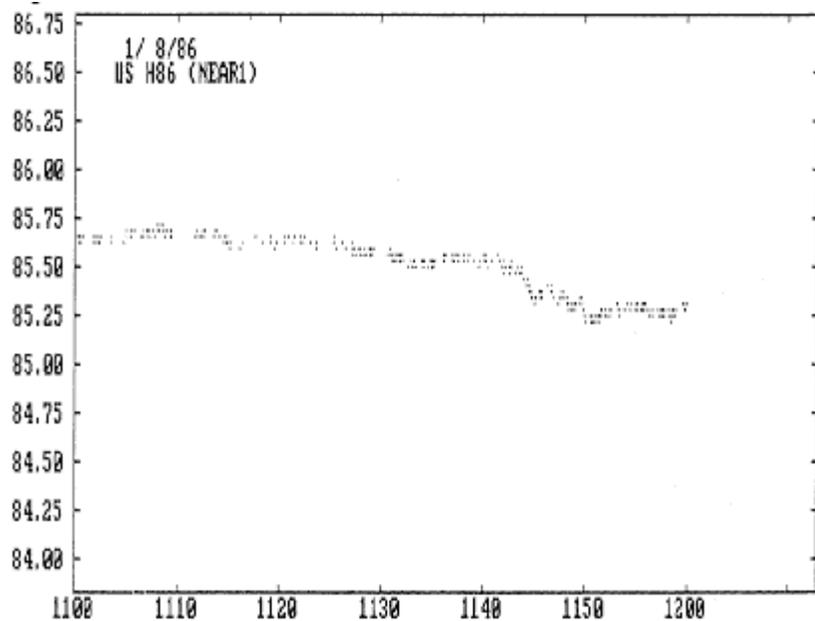


FIGURE 2

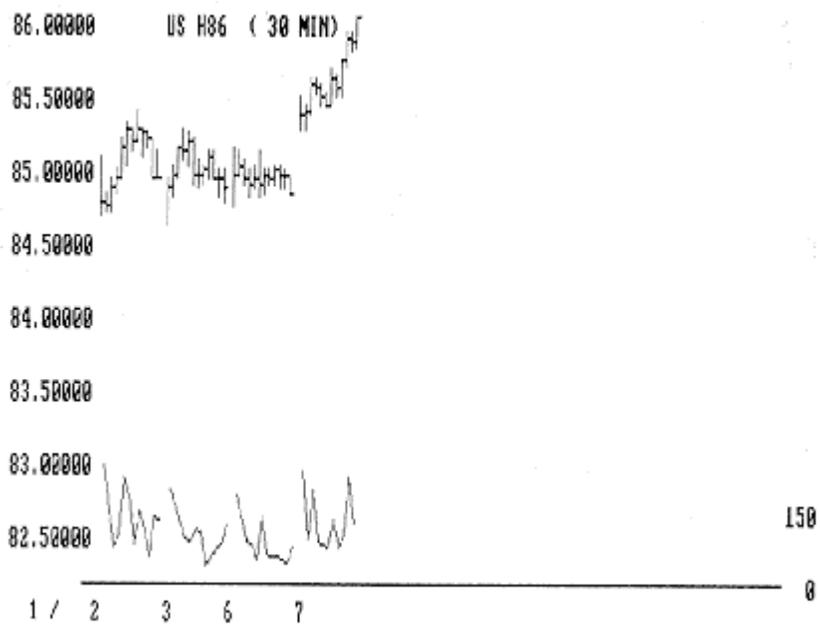


FIGURE 3

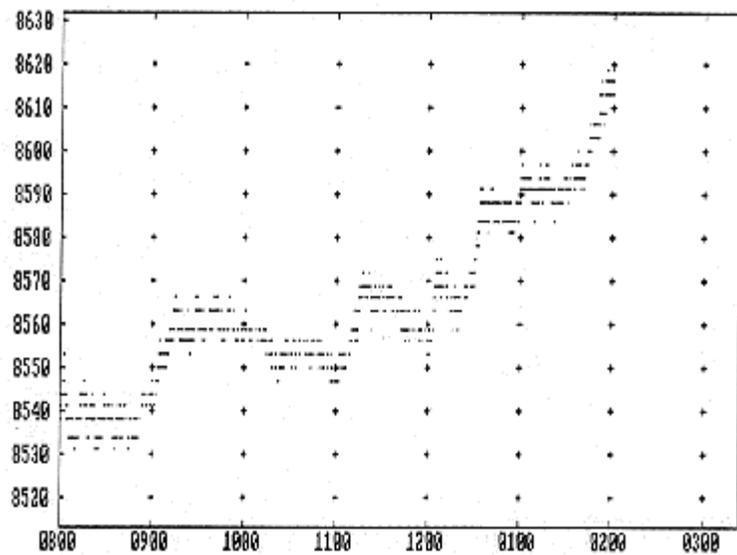


FIGURE 4

# IN THIS ISSUE

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*John Sweeney*

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This is a unique issue for us: it's devoted exclusively to reviews of trading tools, principally computer software. To be honest, I was driven to this by the flood of products that have landed on my desk in the past year. We were getting buried!

What to make of this proliferation? Have we found the perfect package? What's best to buy, to upgrade? How in the world are choices to be made? Why do some items get in and others don't? How biased are we? How in the world did reviews get to be such a big deal?

Our reviews are biased by our background as do-it-yourself traders. The magazine was started by engineers who enjoyed tinkering with numbers and trading objectively--that is, by pre-established rules, rather than by the seat of your pants. We still believe, as I've said here previously, that you would be better off building your own system than trading a black box or another system that you hadn't thoroughly tested. That's because you will need confidence in your system to trade through adversity.

All that being so, we aren't that interested in black boxes or systems which hand you a trading idea and let you tinker with the *parameters*. Given our druthers, those will be given second priority for reviews.

Contrarily, we like toolboxes. These are packages which have encoded the wide range of technical indicators that have been developed and let you use the few that fit your ideas. Even these have the inevitable limitation that, if you have any ideas at all, you will want a combination that can't be replicated with the standard tools.

At the high end of the spectrum are the formula generators. Here, if you have an idea and can express it mathematically or graphically, you would be able to program your idea for objective historical testing. There are darn few of these short of mainframe and/or timesharing packages, the leading package being N-Squared.

Oops! There's another bias--we look to use micro-computers because only our institutional readers generally have access to mainframe packages through timesharing or inhouse nets.

Our bias is towards packages where the homework--data acquisition, storage, retrieval, presentation--has been done well. As in all walks of life, a good job on the blocking and tackling is the sound basis for a good performance in the crunch. We still get too many packages with input/output problems. Part of our "creampuff" review policy is just keep sending them back until the developer gets it right. Then you'll read about it in our pages.

Finally, we do accept advertising, which is the lifeblood of any magazine. Developers send us packages for free to review and we sell them ads. Your defenses here come down to our editorial integrity and your knowledge of our taking their money and their packages. That being the nature of the business, I can only add that, of all the 100+ packages we've gotten, only two are used in my personal trading: CSI, to which I subscribed before I joined the magazine, and MESA, to whom we've never been able to sell an ad! I, personally, am paid on the usual writer's gruel--an hourly wage and all the space I can fill with my ramblings. Since I'm first a trader and peripherally a writer, I'm also given all the editorial independence I wish, short of libeling someone.

Given all of the above, what to buy? It depends on where you are in your personal growth. If you're just starting, my last bias is to a sound fundamental package that handles data well and offers the basic indicators of proven use--if you're not up to writing your own. As you advance, you may find a package that meets your curiosity, as MESA met mine. Once established, after three to five years, you may want to rumble through a sound toolbox package.

I'm not there yet but the senior traders I know could never find something that matches the set of peculiarities and market sense they've built up. The crutches you and I use have been thrown away. We'll try to indicate where we think each package fits in to a trader's development in the reviews and hope that it helps.

*Good trading*

# Master Chartist

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*by Robert Bukowski*

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Roberts-Slade, Inc.

750 North 200 West Suite 301B

Provo, UT 84601

(801) 375-6847

**Computer:** Apple Macintosh

**Price:** \$1,340 + \$125/year; data stream:

\$ 170-\$300/month

**S**hort-term traders hold onto your hats! Real-time charting/technical analysis has taken a quantum leap into the space age with Master Chartist (available at a reasonably down-to-earth price considering the value it holds for an active trader).

Master Chartist is a software package developed by Roberts-Slade, Inc. that operates on the Apple Macintosh. It receives a continuous stream of real-time market data, presents up to six live charts simultaneously, and presents current information for selected issues on the screen in the form of user-specified pages. The data stream, provided by Bonneville Telecommunications (50 N. Main St., Suite. 200, Salt Lake City, UT 84101-1503 800/225-7374), can be received by the user via FM subcarrier in a number of larger metropolitan areas. Alternatively, in areas not served by the FM signal, a small satellite dish, typically 24 inches in diameter, is available on a monthly rental basis.

Before I lose too many readers as a result of incompatible hardware The program maintains 20 fields of current price and volume data on up to 256 issues in the user-selected "portfolio" (see [Figure 2](#)). Trading information is updated instantly throughout the day. The user may present an upstop and downstop for each of the issues in the portfolio, which will trigger an audible and visual alert signal when penetrated.

The data is displayed in tabular form on quote watch pages of up to 16 issues per page, which the user sets up in whatever order desired. The program also allows the user to set up three different quote page formats showing only the specific information he or she wants to see. The mouse makes switching between the different quote watch formats fast and easy. When viewing a quote watch page, each time an issue trades, the last sale price is highlighted in reverse video and an optional "tick click" is sounded.

Data may be saved for up to 40 individual charts with user-selected time intervals ranging from tick-by-tick to intraday bars which can be from one minute to one day in size. (A program upgrade to permit saving 4.3 years of daily and weekly data for 80 charts is undergoing final testing at press time.)

The functions described so far cover the basics, which may be available to one degree or another in other real-time market information systems. The real value of Master Chartist comes with the special features that are built in, and obvious care was taken in planning and implementing the program to make it work

for a wide range of individual traders. In using several other technical analysis programs over the past three years, I would often find myself saying, "Wouldn't it be great if it could just do this or that the other way, or...." Master Chartist seems to have anticipated everything a trader could possibly want and delivers it with an amazing measure of power, speed, flexibility, and ease-of-use.

Here are reviews of some of the key features:

### **Chart types and studies**

[Figure 3](#) shows the pulldown menu selections available under the "charts" heading. Any chart may be switched to the desired chart type or technical study with a click of the mouse. The program assigns initial default values for chart study parameters, but allows the trader total flexibility in resetting both global and ad hoc parameters.

The implementation of the technical analysis studies is nothing short of excellent. Computation is fast, exponential smoothing can be superimposed where applicable, and the basic bar chart can be overlaid directly on top of any other chart. Generally speaking, anything a trader might think of doing is available to him. For example, if you'd like to see a 30-bar moving average of the 12-bar moving average of the six-bar moving average of the high, with the bar chart superimposed, it's there with just a few keystrokes and mouse clicks.

The names of most of the technical studies will be familiar to commodity/futures traders. However, two of those listed deserve special note.

Distribution provides a price range histogram (see [Figure 4](#)) showing the relative number of times that each price interval has occurred in a given time period. The shaded areas indicate the different time periods. Distribution provides a graphic picture of concentrated trading areas that can assist in identifying support and resistance levels, probable location of stops, and the line of least resistance that the market may be following.

Mixed Line, as the name implies, allows the trader to plot up to five different issues all on the same chart (see [Figure 5](#)). If the price ranges are not naturally close an automatic or manual scale factor can be employed to show the relative changes in price. I think this capability is one of the most useful tools for identifying interrelationships between markets and, using one-minute charts, determining which of the issues is moving first or fastest.

### **Chart layout manipulation**

Up to six live charts can be displayed simultaneously (see [Figure 6](#)). The size, shape and location of each can be changed easily for a custom screen layout. The user can freely mix and match any combination of different issues and technical studies on the same screen, and then save the screen layout for recall later. The program will store up to 18 layouts, so the trader can jump between markets or groups of studies quickly and be looking at the same familiar screen every time.

Two macro-like commands are provided which change all the charts on the screen to the same symbol or change all of them to the same type of chart or technical study. This lets the trader compare the trading behavior of several different issues in the same context.

### **Chart view manipulation**

Master Chartist provides the capability to adjust the time/price relationships and the view area of the charts. Each chart has 225 bars of high, low, close, and volume data stored. The "Normal View" usually shows the most current 75 bars, but can be changed to another number by the user. Clicking the mouse on the appropriate icon along the left edge of the screen zooms the chart in or out for a more detailed or expanded view (see [Figures 7 and 8](#)). Another icon command displays movable ruler lines so the same time interval can be related on all the charts simultaneously (see [Figure 8](#)). There is also an icon command that lets the user switch back and forth between a normal, small-sized chart to a full-screen working window.

### **Trendlines**

A set of icon commands allows the user to draw and manipulate up to six trendlines on each chart. By simply positioning and clicking the mouse, the user can draw, move, or erase a trendline; extend, truncate or create a parallel trendline; set the trendline to the high or low of a given bar; or set the trendline to a linear regression line between two points on the chart.

### **Status/Editing**

At the touch of one button, the user can know the exact time, prices, or system values for any bar on the chart (see [Figure 9](#)). Similarly, the "EB" (edit bar) icon lets the user edit the price values of any bar, which may be done when a bad tick is transmitted.

### **Printing**

Printing options include quick print of the top window or the entire screen, or a custom printing of the current chart with the height, width, orientation and quality specified by the user. The results achieved on an Apple Imagewriter III dot matrix printer are shown in [Figure 5](#) (originally printed 8 by 10.5 inches). There is also an option for sending bar data to the printer in tabular form.

### **Documentation**

The documentation available to date may be characterized as somewhat informal and occasionally lacking in a minor detail here or there, but overall quite adequate. In explaining several of the more complex functions, the manual makes very effective use of annotated illustrations of sample screens, which clearly and concisely cover the details. (Roberts- Slade reports that a new manual is being printed and will be available before the end of 1986.)

### **Getting started**

The program disk is also used to store the data. The disk, as received, already has several issues on it, so the best thing to do is to get familiar with the operation and functions on the data provided.

I had no problem getting operational with my own data setup within a couple of hours. After a couple of days, I felt really proficient at what I wanted to do. As time went on, I discovered additional features that I tried out and sometimes incorporated into my routine. Overall, I found Master Chartist extremely easy to learn and use.

Clearly, the Master Chartist system does not fit into every trader's budget. But, in spite of the sizable financial commitment required, I believe it is an outstanding value for those who can put its power to productive use. If you are an active day trader or a "size" trader who is interested in what goes on

intraday, you owe it to yourself to check it out.

*Robert Bukowski is an independent futures trader with Bukowski & Associates in Bellevue, Washington.*

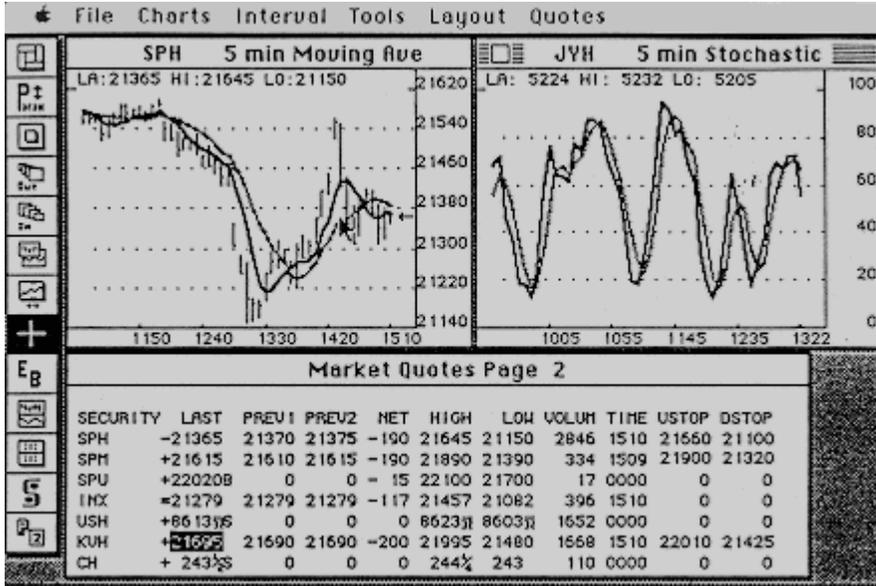


FIGURE 1: Typical screen layout combing two live charts and the quote watch page.

SYMBOL	Ticker symbol of item being watched.
LAST	Last price of item.
NET	Net change from previous days close.
HIGH	High price of current day.
LOW	Low price of current day.
PREV1, PREV2, PREV3	Previous 1, 2, & 3 prices.
OPEN	Opening price of current day.
VOLUH	Total trade volume (stocks) ... * trades (commodities)
TIME	Time of last trade.
OPINT	Opening interest for current day.
USTOP DSTOP	User-set up &/or down price stop values.
BID	Last "bid" price of item.
ASK	Last "ask" price of item.
OP/CL Range	Opening or closing range of item.
====	Price history (= no change, + price up, - price down)
PCLOS	Previous day's closing price of item.
IUOL	Volume of last trade only (stocks only.)
B-A	Difference between "bid" and "ask."

FIGURE 2

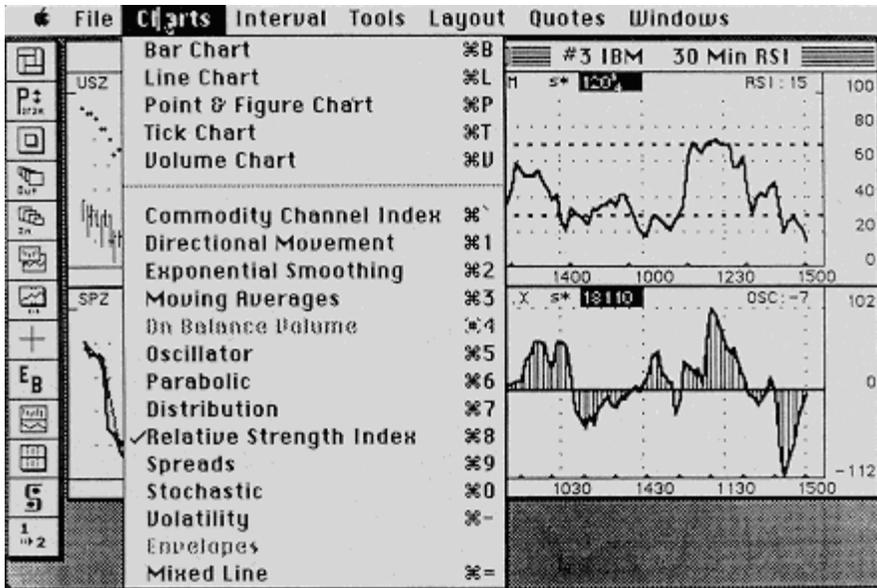


FIGURE 3: Menu selections available for charts and technical studies.

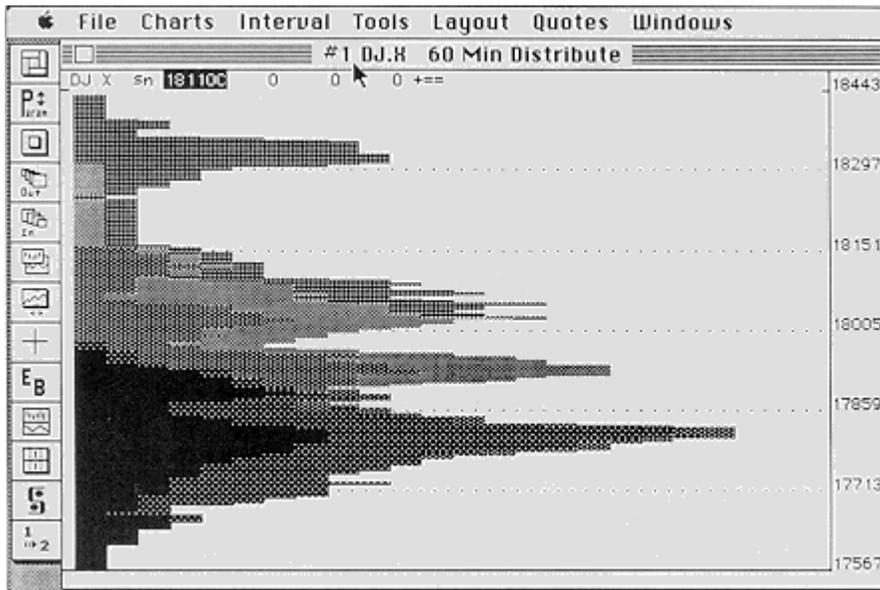


FIGURE 4: Distribution study.



FIGURE 5: Dot matrix printout of mixed line chart.

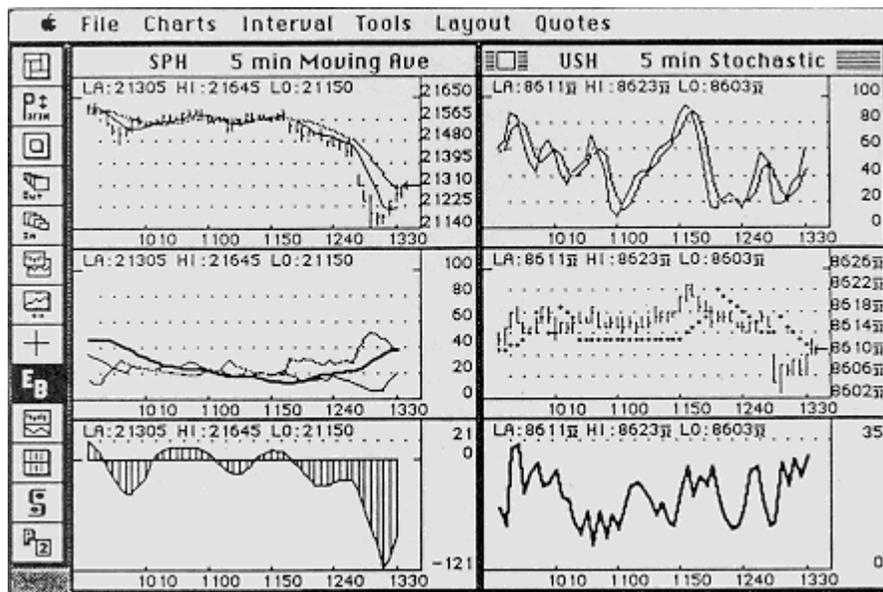
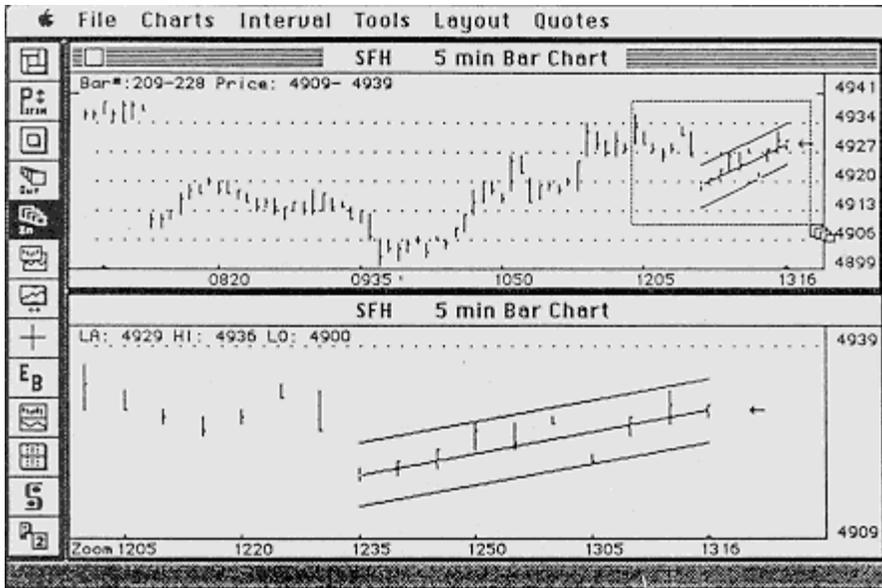
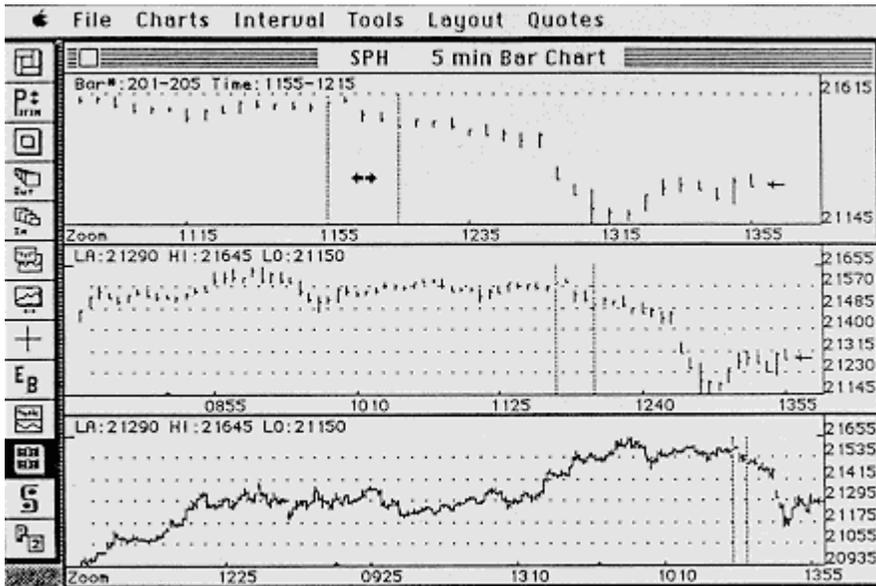


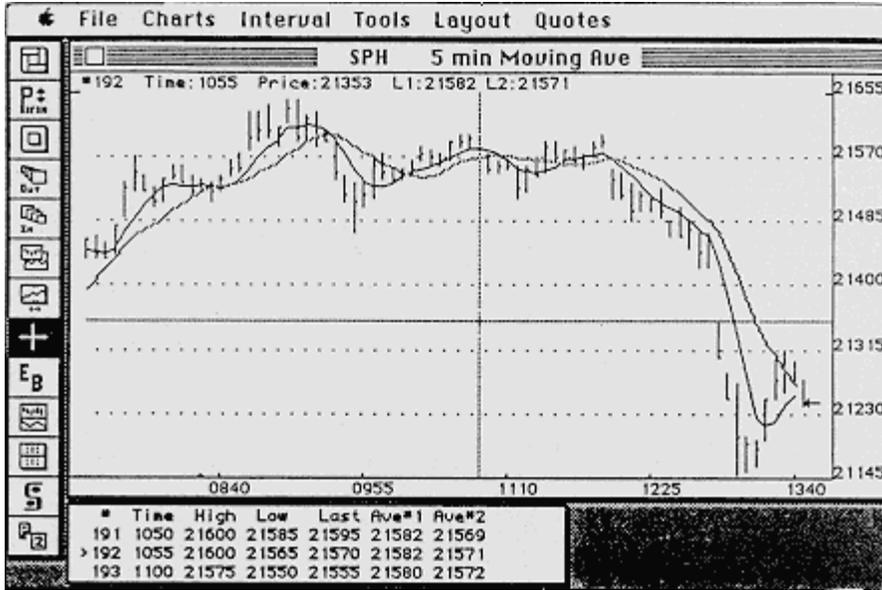
FIGURE 6: Six chart screen layout showing different issues and technical studies.



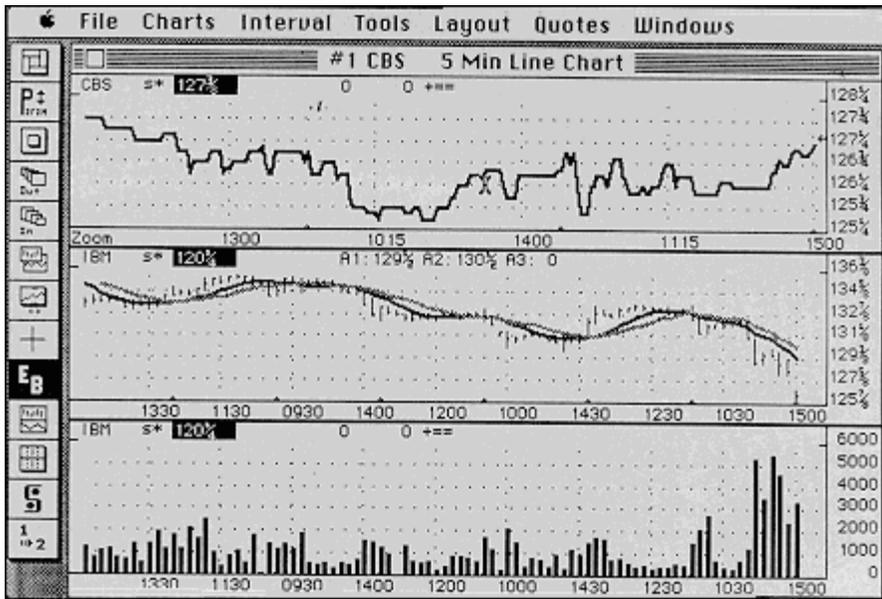
**FIGURE 7:** Lower chart shows "Zoom-in" view of box area in upper screen.



**FIGURE 8:** "Zoom-in", normal, and "Zoom-out" view with ruler lines identifying the same time period in each chart.



**FIGURE 9:** Scrolling status line (vertical) produces data behind each bar in box at lower left, including moving average values.



**FIGURE 10**

# MetaStock Downloader

## Computer Asset Management

P.O. Box 26743

Salt Lake City, UT 84126

(801) 964-0391

**Computer:** IBM PC, XT, AT with 256K+ RAM and two drives; IBM color graphics adapter and monitor

**Price:** MetaStock \$195; Downloader \$49; Both \$224

**T**his is a high-value package. For not much money, as these things go today, MetaStock, together with Downloader, will gather, store and maintain your data; chart it with a wide variety of pointers, comments, lines, and angles, and analyze it with a solid selection of technical indicators. It will install and run with practically no glitches and considerable sophistication. It's soundly conceived and easy to use.

MetaStock competes in the toolbox category: it's a selection of analytical tools whose parameters you can vary when studying the market. To boot, it also has a rudimentary formula builder--a feature you wouldn't expect to find for this price. Between what's canned and what you can build, the home analyst will probably find this a very useful package.

Installation is fast. Type "MSINST" and answer the questions. This will take perhaps four minutes to set up colors, chart sizes, grids, etc. If your data is not hand-entered and comes from another data service, you will have to be sure your existing data files can be accessed by MetaStock. I had to transfer my Commodity Systems, Inc. (CSI) data to CompuTrac data files in order to use MetaStock. Fortunately, CSI provides routines to do this. MetaStock doesn't, but it does read CompuTrac and RTR Software's Dow Jones files. MetaStock developers also are kind enough to sort through seven data vendors which can be used in conjunction with their software: CSI, Hale, IDC, Nite-Line, Data Connection, I.P. Sharp, and Warner. Then you're ready to run.

Type "MS" and pick your data file. At this point, you can also "compress" the data into weekly, monthly, or quarterly formats-- or anything in between! No extra files need to be created, updated or edited. This is an example of the thoughtfulness of the author, found throughout the program. The result will be a graph of the price and volume, in the size and color you selected when installing the program.

At this point, another thoughtful feature pops up. You can take this graph and adjust its size on the screen to any size including full-screen. Then you can move the *entire* graph around the screen using the direction keys, so you can put it someplace more convenient than the middle of the screen. Once it's where you want it, you can leave it there permanently and create *another* chart with the same or different data, size it, move it, and leave it. You can keep doing this until you're tired of filling up the screen. The result might look like [Figure 1](#). Obviously, you must exercise some self-discipline here, but you're clearly not limited by the program or machine when you want to make comparisons.

Once the data is up graphically, you'll want indicators. Hitting the space bar splits the screen and the F1 key will get you [Figure 2](#), which is the main menu. I can't possibly comment on all this except to say that everything worked straightforwardly and, where I got confused, I could generally get back to where I'd come from by hitting the Escape key. Even when I'd filled the screen with comments, pointers, lines, indicators and other garbage and wanted a clean price chart, all I had to do was hit the Alt-B key to blank out all but the active chart.

At any rate, indicators are under "I." (I'm always grateful for sensible mnemonics, especially after some of the mainframe packages I've used.) [Figure 3](#) shows your choices, evenly weighted between stocks and futures. Moving averages are so commonly used that they have their own menu (under "M"). Oscillators can be created under "O," as can your own formulae. Comparisons between two stocks or indices can be done under "R" for "relative strength." Finally, point-and-figure charting is provided with the F9 key. ("P" has been set aside for pointer commands.)

What can I say? This is really a solid set of tools. All the basics are here and, I've always contended you don't need to get far beyond the basics given our current state of knowledge of the markets. The indicator set isn't the most complete available but you're not paying \$800 for this either. In addition, something is thrown in that is almost unique in a package of this sort: a formula builder.

Pressing "O" gives you the choice of editing or plotting a formula. If you choose editing, there are already some resident equations, as [Figure 4](#) shows. By diving into the manual--organized along the lines of the menus--you can start cranking out your very own formulae. This isn't truly heaven: there are only four functions, lagging and averaging available to you. Things like maximums, minimums, detrend, logs, exponentiation, and other convenience items aren't here. Unlike its competitor, N-Squared (503-873-5906), it really only allows you to work on the single price time series you have in front of you. Nevertheless, to discover this in such a low-priced package is truly a find. I must say, it's well implemented, too. Type in your formula, hit Return and you're ready to plot with no fooling around. The result goes in the indicator window in the plot.

Having gotten the data and the indicators on the screen, the thinking begins. [Figure 5](#) shows an attempt to create trading bands around crude oil during the price jump in August 1986--a tough job! To get this, I asked for a full screen graph, ran a moving average through the middle of its prices and then +/- 10 percent bands above and below the average. Using the pointer feature (see your choices in [Figure 6](#)), I added a trendline and a comment to document where I got left in the lurch. This took less than 10 minutes, mostly trying different averages to get the fit I wanted (that is, the fit that convinced me this approach wasn't going to work).

Since I wasn't burned out, I decided to go back to something safe like T-bonds. [Figure 7](#) is the MetaStock T-bond chart with a 16-day simple moving average and a 16-day Relative Strength Index (RSI). Since the RSIs hadn't been hitting 70-30 percent, I felt I was in a non-trending market. But I wanted to review where I'd come from to determine what changes in my approach were necessary. I plotted the trade points using the "P"ointer function's arrows but had difficulty seeing the position of my average in October 1986. Just to see if things were any clearer, I switched to CSI and plotted its version of the events ([Figure 8](#)). It's more jumbled than MetaStock's chart, but clearer to read in October. It also plots less data, so you have less sense of history. Cyclically, I'd been expecting a downturn in T-bonds so the uptick November 3 was abnormal. From the moving average's standpoint, though, everything was in line. A quick MetaStock point-and-figure chart ([Figure 9](#)) confirmed the market to be grinding to little result. Conclusion: stick with the 16-day average.

I've only demonstrated the basic features of the package. If you recall [Figure 6](#), you know you can do everything from linear regression to Gann angles. These implementations are like the formula builder in that they do provide the basic capability.

Where does all this fit with the competition? I'd put it behind CompuTrac and High Tech/Back Trak by MicroVest simply because its list of indicators is short and it has no optimization capability. On the other hand, its small formula builder is currently something Back Trak doesn't have and its data acquisition/compatibility is truly outstanding. It's on par with N-Squared and ahead of CSI's basic package. CSI's basic package is cheaper if you buy their data anyway, but the basic indicator selection is smaller as well as futures-oriented, and the presentation is more jumbled. None of the competition has the windowing capability. N-Squared has a better formula builder, but MetaStock's \$195 price is a particular value compared to \$395/\$595.

MetaStock is an excellent first package and easily worth the money just to become introduced to the world of technical analysis. This package replaces my previous recommendation (Winning on Wall Street) for folks who don't need a portfolio manager.

- CompuTrac, 1021 Ninth St., New Orleans, LA 70115, (800) 535-7990.
- CSI, 200 W. Palmetto Park Rd., Suite 200, Boca Raton, FL 33432, (305) 392-8663.
- Dow Jones & Co., P.O. Box 300, Princeton, NJ 08543-0300.
- MicroVest, P.O. Box 272, Macomb, IL 61455, (309) 837-4512.

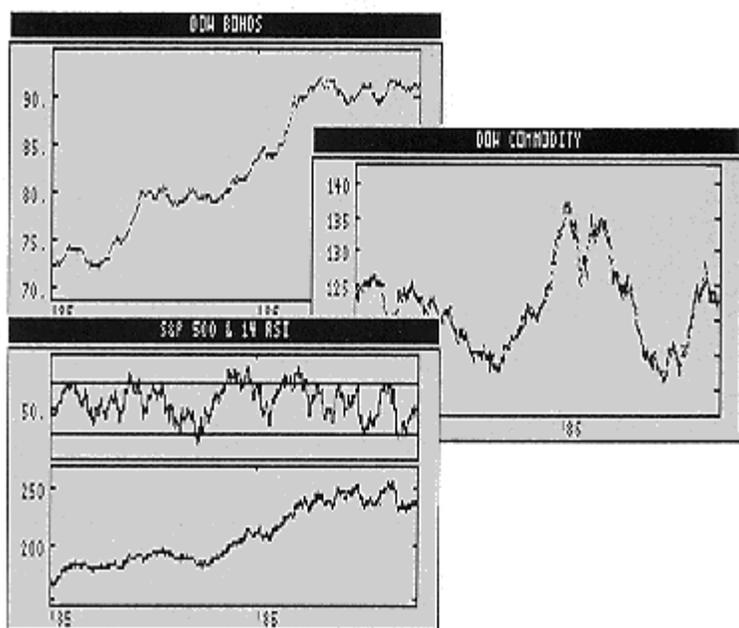


FIGURE 1

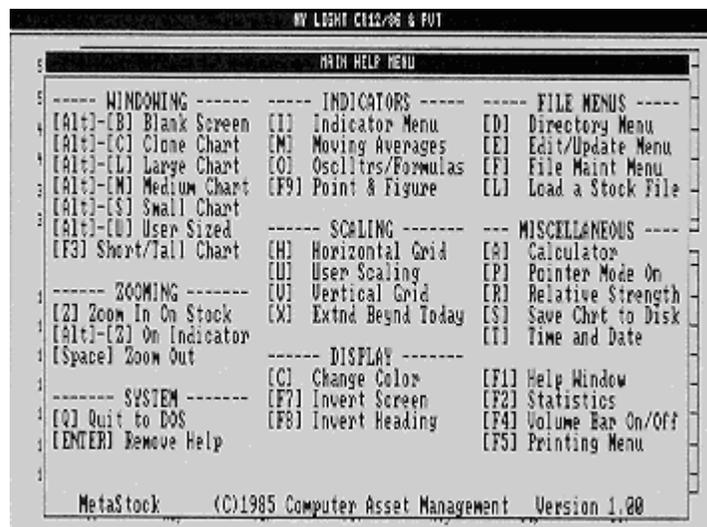


FIGURE 2

INDICATOR MENU			
[F1]	Accumulation Distrbtion	[Alt]-[F1]	Stochastic Oscillator
[F2]	Chaikin A/D Oscillator	[Alt]-[F2]	Volume Diff of Averages
[F3]	Commodity Channel Index	[Alt]-[F3]	Volume Line
[F4]	Negative Volume Indctr	[Alt]-[F4]	Volume Rate-Of-Change
[F5]	On Balance Volume	[Alt]-[F5]	
[F6]	Positive Volume Indctr	[Alt]-[F6]	
[F7]	Price Diff of Averages	[Alt]-[F7]	
[F8]	Price Rate-Of-Change	[Alt]-[F8]	
[F9]	Price Volume Trend	[Alt]-[F9]	
[F10]	Relative Strength Index	[Alt]-[F10]	
[ESC]	ESCape (exit this menu)		

FIGURE 3

EDIT FORMULA	
[F1]	((C{5}/C{10})-1)*80+(((V{5}/V{10})-1)*20)+I
[F2]	((C{12}/C{25})*70)
[F3]	((V{12}/V{25})*30)
[F4]	((C-C{12})/C{12})*100
[F5]	((C{12}/C{25})-1)*40+I
[F6]	((C{10}-C{11})/C{11})+I
[F7]	C{12}-C{25}
[F8]	C{S10}-C{S20}
[F9]	C{12}[12]
[F10]	((C{S10}[0]-C{S10}[12])/C{S10}[12])*100
[ESC]	Exit to Menu

Press function key to edit -->

FIGURE 4

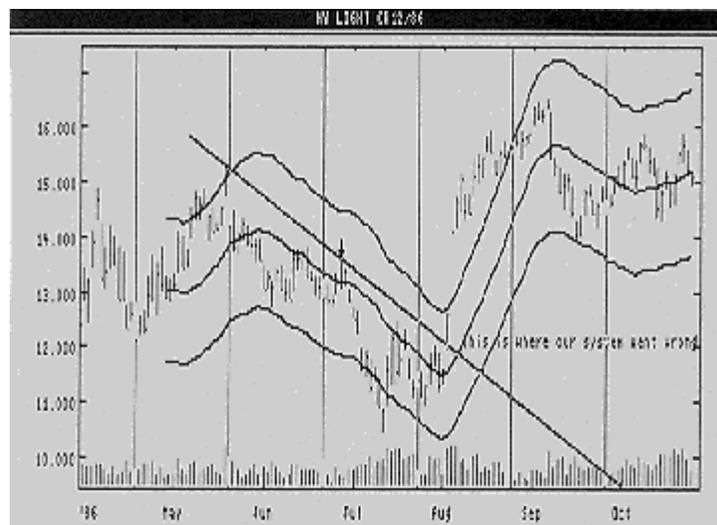


FIGURE 5



FIGURE 6

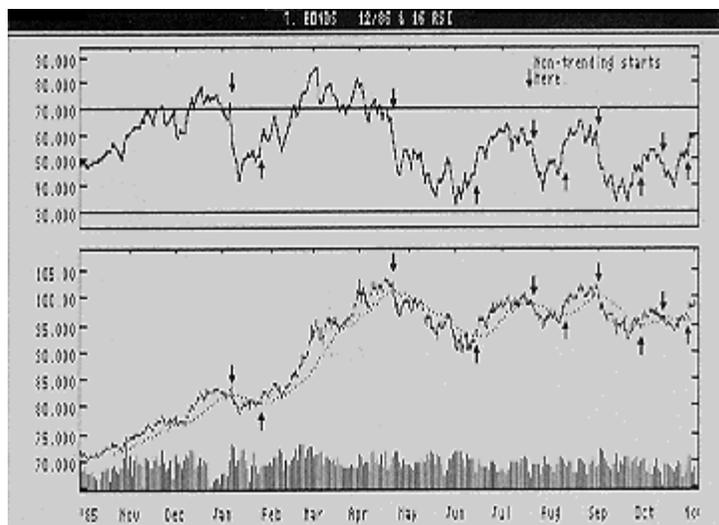


FIGURE 7

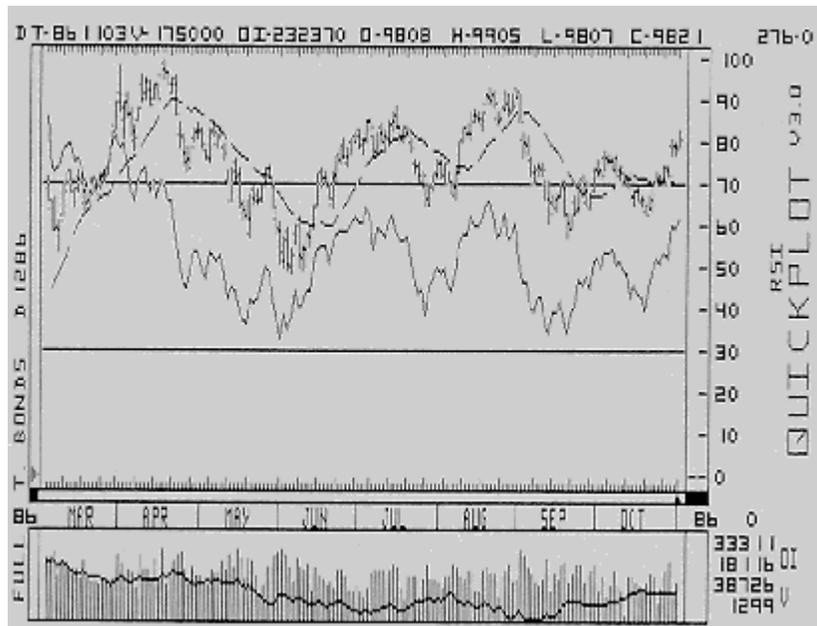
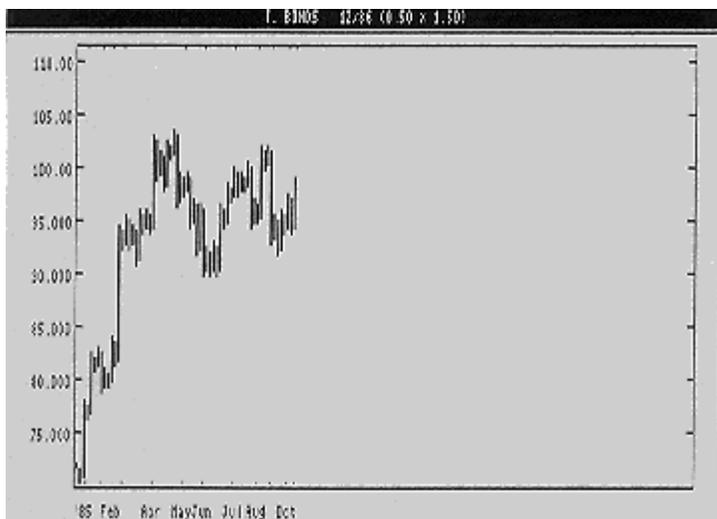


FIGURE 8



**FIGURE 9**

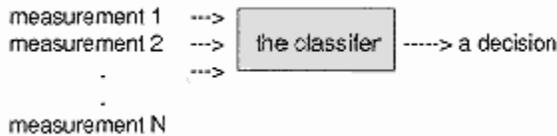
# Applying statistical pattern recognition to commodity trading systems

*by Scott Brill*

**S**tatistical pattern recognition (SPR) is a subfield of artificial intelligence concerned with automatic recognition of meaningful regularities in noisy or complex environments. Since the early 1960s, a large body of these techniques have been developed to solve problems ranging from machine vision and machine recognition of human speech to bankruptcy prediction. In this article, we will introduce you to some basic SPR tools which can be used to create automatic trading systems, and give two demonstrations of how these may be applied to a weekly gold trading scenario using a personal computer.

The primary element in this type of pattern recognition system is the classifier, whose goal is to make an accurate decision about a new situation or event given examples of what we think (or history has shown) it should have done in the past. A decision, for example, could be whether to buy or sell gold this week. Not only can a classifier make a decision, but depending on the implementation, it can give a probability for any of the possible decisions.

In general, the classifier takes input data in the form of measurements:



In a trivial case, a classifier may consist of one rule, R1, that says:

"If the difference between the fast and slow smoothed price series for gold this week is greater than 100 then buy gold, otherwise sell."

The important thing is how this rule was arrived at, and its performance rate on future data. The traditional and most obvious approach to arriving at a rule such as R1 is to study a large number of historical charts plotting various parameters such as the difference between the fast and slow smoothed price series in conjunction with the price of gold. The human mind, being as it is, will invariably spot a pattern in the relative movements of these parameters which may or may not be a pattern that recurs frequently and consistently in history.

If we have an automatic trading system evaluator, we might test a rule that looks promising to see what kind of return would have been possible on historical data if we had traded using that rule. Then, we could change the number 100 to see if 80 works better, etc. This approach can require numerous refine and test cycles if we are to build a profitable system.

## An SPR approach

The approach we have used successfully for time series analysis is to consider each week's decision as an event, and gather a historical database of these events. Then, with the benefit of hindsight, label each historical event as a buy or sell or neutral and, either automatically or manually, try to find combinations

of measurements or technical factors that can differentiate the events labeled buy from those that are labeled sell. Note that although we have chosen a weekly gold scenario for the purposes of explanation, we could have instead chosen daily, hourly, yearly, or another commodity.

Most people who build automatic trading systems have a toolbox of their favorite indicators, be they Relative Strength Indices, exponentially smoothed arrays, etc. The most successful trading system is one that can exploit information from many different sources at once, relying on sources that have proven themselves to be most consistent for the situation at hand. Using the framework we are proposing here, the measurements (indicators) can easily be compared to each other for potential usefulness without going through lengthy refine and test cycles.

Once we have assigned labels to each event, our historical database will have a general form such as in [Table 1](#). Measurement 1 (MEAS1), in this case, is the difference between the fast and slow smoothed-price series for gold (a common element in a trend-following system), and measurement 2 is a moving measure of standard deviation. Other measurements could include momentum, indicators, Fourier coefficients, etc. In [Figures 1 and 2](#), MEAS1 values have been lumped into 17 categories to help readability.

### Labeling the data

The first problem to be addressed (and one of the stickiest) is how to label each historical event in the database for the purpose of statistical analysis. One approach is to divide the historical data into bull and bear markets, and assign a label to each week based on these divisions. Another approach, which is the most extendible, is to label the data automatically by either writing a computer program or using database software.

The way we label historical data greatly influences our ability to differentiate the classes. Do we want a classifier that performs well on short-term activity or long-term trends? Unfortunately, these two considerations are conflicting in that a long-term system will sometimes have to withstand short-term fluctuations as in the 1980 gold market. A short-term fluctuation system may be harder to build because of unpredictable fundamental events. In essence, we have to determine an analysis time window for our labeling strategy.

Here is one of the simplest automatic, short-term labeling rules for a time series:

Label for week  $x$  is:

"buy" IF  $\text{Price}(x) - \text{Price}(x+1) < 0$

"sell" IF  $\text{Price}(x) - \text{Price}(x+1) \geq 0$

To make the analysis time window larger, we could have chosen " $\text{Price}(x) - \text{Price}(x+2) < 0$ " as the labeling rule. Note also that this labeling strategy does not take into account the amount of the price difference between weeks. We might only want to give a week a buy label if there is a 10-point difference between weeks, or if there is a 1% price difference between weeks.

Once we have labeled data, we can use off-the-shelf statistical software such as StatPac (tm) from Walonick Associates or STATGRAPHICS (tm) from STSC to do comparisons between events labeled buy from those labeled sell. One of the most important tools for an SPR practitioner is graphical data analysis. Histograms and scatterplots give invaluable insights into the form of the data and which SPR techniques may be most effective.

**Figure 1** shows the histogram for variable MEAS1 for hand-labeled weekly gold data from 1969 to 1986. Because there is considerable overlap between the classes, a simple rule using only this measurement probably will not be very effective. What we are looking for is separation between the histograms of each class. If we can find a measurement that has a non-overlapping histogram between classes, a simple trading rule such as R1 will perfectly classify all training examples, and probably will yield a very effective trading system on future data.

A common frustration that befalls the novice in SPR techniques is the construction of a complex classifier that works perfectly on the training database only to produce mediocre results on a previously unseen testing database. To reduce this potential problem, we recommend that you partition your database into a training set and a testing set of roughly equal size and market conditions. If the rate of return on the testing set is significantly different from the training set, there can't be much confidence about the rate of return of the system on future data. A tradeoff exists between the complexity (degrees of freedom) of the classifier and the amount of training data. This tradeoff must be dealt with carefully.

Another aspect worth noticing in **Figure 1** is a collection of weeks for the class <sell> at a MEAS1 value of approximately 30,000. If we have access to database software, we can track down these exceptions and see if either the labeling was faulty or the weeks truly were exceptional cases. In fact, these weeks are from 198019 to 198045, a time of severe unrest for gold.

If we disregard these outlying values for the time being, we can zoom in on the core of the distributions by changing the righthand boundary of the histogram from 55,702 to 20,000 (**Figure 2**). You can see from this exploded view that we would be more confident that a given week would be a sell if the week's MEAS1 value was negative. In fact, 64% (213) of class <sell>'s weeks are less than zero, while only 15% (65) of class <buy> are less than zero. How this translates into profit, however, must be tested by an automatic trading system evaluator which depends on other factors such as where stops are set and other money management strategies.

### **Parametric vs. non-parametric classification**

A standard problem in SPR is: given a possible decision between two classes, and given historical examples of correct decisions, construct a system that can correctly identify a new event based on the measurements provided for that new event. For an in-depth treatment of this subject see *Pattern Classification and Scene Analysis*, by R.O. Duda and P.E. Hart, 1973, and *Artificial Intelligence with Statistical Pattern Recognition*, by E.A. Patrick and J.M. Fattu, 1986.

There are two major categories of approaches that we can use to solve this problem. The parametric approaches assume that the underlying forms of the distributions fit a classical model such as the "normal" (Gaussian) model. The non-parametric approaches do not assume any underlying density form.

We can use a parametric technique to construct a univariate (one variable) classifier on our weekly gold data by plugging in the values for means and standard deviations for each class into the standard Gaussian formula. In essence, we are fitting separate, "normal" curves to each class' distribution. The curves would represent probability density functions derived for the weekly gold data shown in the histogram in **Figure 1**.

If we assume that the likelihood of observing either a <buy> or <sell> is equal, our classification procedure for a new week is as follows:

1) Find the height of each class' normal curve by plugging the value of MEAS1 and the respective means and standard deviations into the Gaussian equation:

$$p(x) = \frac{1}{\sqrt{2\pi}\sigma_i} \exp\left[-\frac{1}{2}\left(\frac{x - \mu_i}{\sigma_i}\right)^2\right] p(X) =$$

Where  $\sigma_i$  is the standard deviation for the class,  $\mu_i$  is the mean for the class, and  $X$  is the observed value for MEAS1.

2) Decide the class whose height is greatest.

For example, if we have an observed value of 1 for MEAS1 for a given week, the height for class <sell> (mean 602.8, stdv 16448.9) would be 2.424 E-05. For class <buy> (mean 3216.1, stdv 6261.3) the height would be 5.585 E-05. Therefore, we should choose class <buy>.

In fact, since the distributions cross at about -6,000 and 13,000, our parametric classifier can be simplified to rule R2:

"If MEAS1 this week is between -6,000 and 13,000 then buy gold, otherwise sell."

The disadvantage to this approach is that distributions rarely are purely Gaussian in form. Although there are a host of other distribution forms we could have tried instead of the Gaussian, most classical distributions are unimodal (have only one maximum) and real distributions are often multimodal. There are statistical tests such as the chi-square and Kolmogorov tests that can measure the conformance of the distributions to the assumed form. It is often the case that outlying values in training data can distort our estimates of the means and standard deviations for a class.

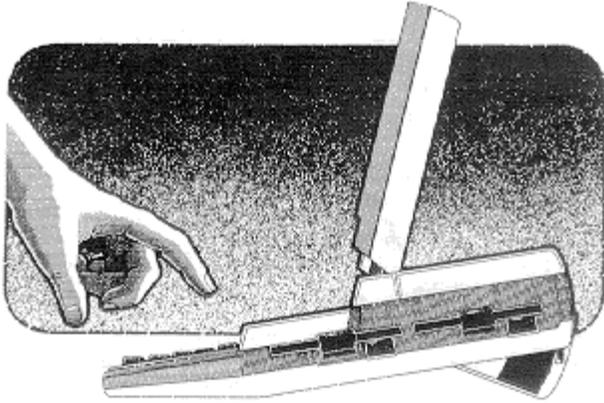
In the non-parametric approach, the form of the underlying densities are not assumed to adhere to any classical model. As an example of one of the many non-parametric techniques applicable, we can use the histogram concept to estimate the densities of each class by dividing the possible range,  $R$ , of the variable MEAS1 into  $N$  bins of constant width  $R/N$ . We can then compare the number of samples from each class that fall into each bin to create a decision look-up table with our decision for each bin.

Using the histogram in [Figure 1](#) as a framework, [Table 2](#) displays the actual number of weeks that fell into the different ranges (bins) of the histogram.

The decision table is simply a determination of which class has the most training samples for each bin. We want to assume that each class is equally likely, but there were actually less total samples of class <buy> than class <sell> in the training data. We, therefore, should normalize the number of samples for class <buy> by multiplying each bin's count by 447/332 (1.35) before we do the comparisons to decide the dominant class for a bin. In this particular example, this normalization procedure does not change our evaluation for the dominant class for any bin.

Our decision process then becomes:

- 1) Find which bin the sample lands in based on the value of MEAS1 .
- 2) Decide the class that has the highest percentage of training samples for that bin.



Again we can simplify our decision process by noticing that the decision table has an "island" of class <buy> in the center of the table, giving us rule R3:

"If MEAS1 for this week is between 2,305 and 26,576 then buy gold, otherwise sell."

The major design issue in this specific non-parametric approach is the number of bins we use to divide the range of the variable. If there are too many bins we run the risk of not having enough training samples to accurately estimate the dominant class for each bin. In our decision table, we have less confidence in our decisions for the outer bins (1-3 and 13-16) because there are less historical examples than for the inner bins. On the other hand, the more bins we have, the more resolution is possible. Other non-parametric techniques such as "nearest neighbor" and Parzen window density estimation address this issue in greater detail.

### Selecting classifier input measurements

In essence, our measurements input to the classifier define the event to be classified, so we must be careful to provide all possible relevant information about the event. Also, we want our measurements to be as standardized and consistent as possible. A judgment call of market conditions would generally be an inappropriate measurement unless it could be statistically proven to be consistent.

When we have access to a large number of measurements, it becomes necessary that we have some method for automatically and quickly screening the important measurements from the extraneous ones. A method that we have found to be computationally inexpensive as well as effective is the Fisher Criterion, which for one dimension and two classes is defined as:

$$F = \frac{(m1 - m2)}{s1^2 + s2^2}$$

where m1 and m2 are the means of the classes of measurements, and s1 and s2 are the standard deviations of the classes. This formula provides a measure of the distance between the means of the respective classes relative to the sum of the variances. It is usually the case that the larger the Fisher Criterion is for a given measurement, the more successful a system can be built using that measurement.

### Choosing the right approach

There are many possible ways to construct an SPR system, and each possible solution has a type of problem that it can solve best. Unfortunately, there is no widely recognized SPR technique that can

optimally handle every type of decision problem. It has been our experience that for commodities analysis, non-parametric techniques are generally more successful than parametric techniques, but can be more complicated to implement.

Although beyond the scope of this article, an important topic is how to use more than one measurement at a time to make a decision. Many of the techniques introduced here are readily extendible to multivariate SPR.

What we have presented is a different way to look at commodities' data. The main advantages these approaches offer are the ability to find relationships that were not obvious from looking at other traditional data presentation formats, and the reduction of the number of refine and test cycles required to construct a successful automatic training system. Regardless of what your favorite indicator is, SPR can give you a better understanding of its behavior and where to put decision thresholds.

*Scott Brill is the founder of Quantified Intelligence, a Tucson, AZ software and consulting company that custom builds pattern recognition and expert systems. He has done research in the field of automatic speech recognition for more than four years and has built financial systems to trade gold, Swiss Francs, and real estate. He can be reached at (602) 326-8450, or 2101 E. Water St., Tucson, AZ 85719.*

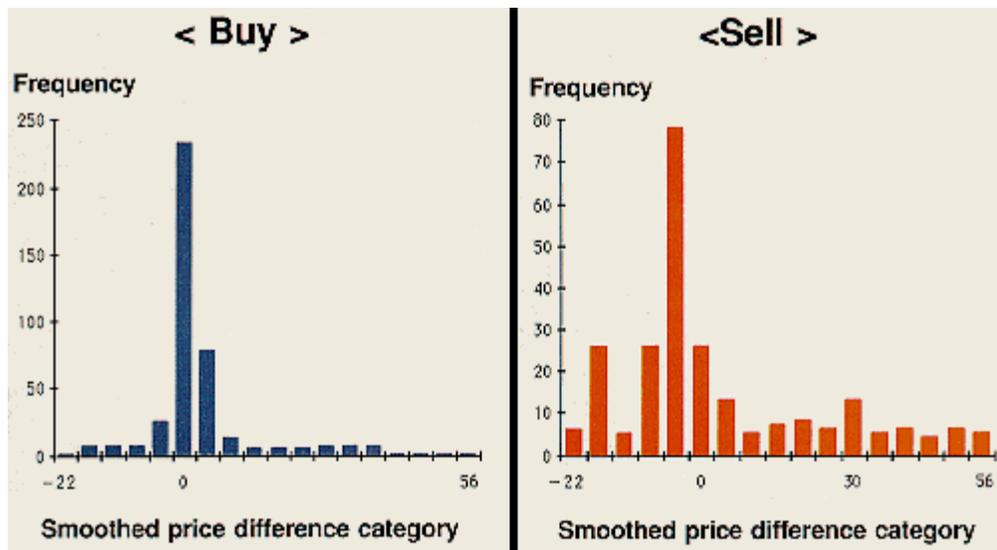


FIGURE 1

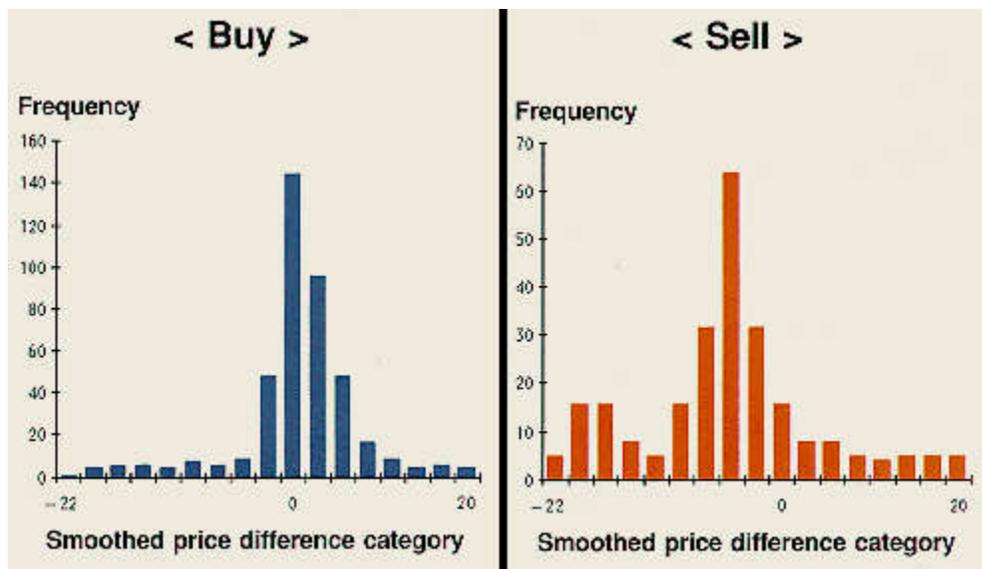


FIGURE 3

Event	Label	Date	Price	MEAS1	MEAS2	...	MEASN
1	buy	196916	4323	688	19	...	...
2	buy	196917	4330	684	19	...	...
3	sell	196918	4360	685	18	...	...
4	sell	196919	4353	681	18	...	...
5	sell	196920	4350	675	17	...	...
..	..	..	..	..	...	...	...

General form of data to be analyzed

bin #	Range of MEAS1	Weeks of each		decision table
		sell	buy	
1	-21966 to -17111	12	0	sell
2	-17111 to -12257	41	7	sell
3	-12257 to -7403	13	7	sell
4	-7403 to -2549	51	6	sell
5	-2549 to 2305	92	39	sell
6	2305 to 7159	51	257	buy
7	7159 to 12013	16	95	buy
8	12013 to 16868	5	18	buy
9	16868 to 21722	4	5	buy
10	21722 to 26576	3	8	buy
11	26576 to 31430	5	3	sell
12	31430 to 36285	23	2	sell
13	36285 to 41139	3	1	sell
14	41139 to 45993	2	0	sell
15	45993 to 50847	3	0	sell
16	50847 to 55702	3	0	sell

Actual number of weeks that fell into each bin for the histogram in Figure 2, and decision table based on these values

# Are there patterns in financial ratios?

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by Clifford J. Sherry, Ph.D.

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**T**echnical analysts strive to find patterns in the past history of the prices of stocks and commodities (using charts, moving averages, etc.) that will allow them to predict future prices or price movements. The major argument against this idea is the assumption that prices are determined by a random and independent process. I have developed a number of statistical techniques that will allow you to determine if the process you are interested in is random (*Stocks & Commodities*, March 1986) and/or independent (October 1985, April 1986) using real data.

Since fundamental analysts accept the premise that prices are random and/or independent, they seek their patterns elsewhere. They focus their attention on economic forecasts (Composite Index of Leading Economic Indicators), management evaluations, and the analysis of financial ratios like profit-earnings ratios. These ratios are generated from financial statements and are compared to a firm's own historical ratios, to competitors' ratios, or to published industry average ratios. But are these ratios generated in a random and/or independent manner? If they are not, it would be reasonable to search for patterns here. I will use the methods outlined in *Stocks & Commodities* (October 1985) to determine if three profit-earnings ratios (for automobiles by year, 1946-79; automobiles by quarter, 1974-1979, and General Motors by year, 1954-1979) were generated by an independent process.

Briefly, the method is as follows: Sequential pairs of price-earnings ratios are examined to determine if the first ratio in the pair is larger or smaller than the second ratio. If the first ratio is larger, a - is written in the Symbol column. If the first ratio is smaller, a + is written. This examination continues with the second and third ratios, the third and fourth, etc.

Occasionally, you will have a tie--the two ratios will have the same value. Dealing with ties is complex (see *Storks & Commodities*, February 1986), so you should develop some method to resolve them. For example, you can flip a coin and allow heads to be a + and tails a -.

Once you have assigned a + or - to all the ratios, you need to arrange them into transition matrices ([Figure 1](#)). These matrices tally the number of times a + is followed by a + or a - and how many times a - is followed by a + or a -. Then, you compare the transition matrices you have generated with the assumption of independence. If you do not allow ties to occur, the probability of occurrence of a + - or a - + is 0.3333, while the probability of a - - or a + + is 0.1666. You can compare your theoretical and observed values using chi-square methodology.

Clearly, price-earnings ratios for automobiles by quarter ([Figure 3](#)) are generated by a dependent process, and you should be able to detect patterns in these ratios. The chance of generating this statistic (20.24) randomly is less than .05%

On the other hand, the price-earnings ratios for automobiles by year may be dependent, but the value is not statistically significant in the generally accepted sense. This does not mean this comparison is without **practical** significance. You could achieve this level of significance about 10 times out of every 100 comparisons by chance alone.

**Transition matrix comparing theoretical and observed frequencies, as well as chi-square statistic, for automobiles, by quarter.**

Symbol	-	+
-	3.67 (T) 11.00 (O)	7.33 (T) 3.00 (O)
+	7.33 (T) 3.00 (O)	3.67 (T) 5.00 (O)

Chi-square statistic = 20.24

Probability  $\leq 0.0005$

**Transition matrix comparing theoretical and observed frequencies, as well as chi-square statistic, for General Motors, by year.**

Symbol	-	+
-	3.83 (T) 8.00 (O)	7.67 (T) 6.00 (O)
+	7.67 (T) 7.00 (O)	3.83 (T) 2.00 (O)

Chi-square statistic = 5.84

Probability  $\leq 0.20$

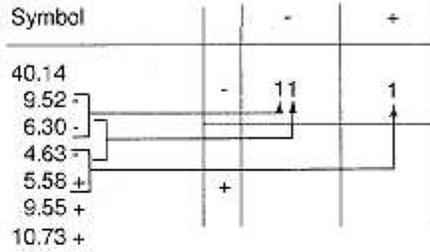
Along the same lines, the General Motors series of P/E is even more clearly non-dependent. Its chi-square statistic of 5.84 could have been achieved randomly 20 times out of every 100. Taken together, these findings suggest that patterns in these financial ratios are more likely to have "windows" of a quarter than a year.



*"Damn, this is good Foster. I'm convinced memo-writing is a gift that can't be taught in business school!"*

Year	Price-Earn. Ratio	Symbol	Year	Price-Earn. Ratio	Symbol
1946	40.14		1963	14.99	+
1947	9.52	-	1964	15.86	+
1948	6.30	-	1965	14.22	-
1949	4.63	-	1966	16.00	+
1950	5.58	+	1967	18.00	+
1951	9.55	+	1968	13.68	-
1952	10.73	+	1969	14.12	+
1953	10.74	+	1970	33.29	+
1954	11.83	+	1971	13.11	-
1955	12.21	+	1972	10.59	-
1956	17.82	+	1973	9.51	-
1957	14.55	+	1974	16.96	+
1958	24.50	+	1975	17.42	+
1959	17.43	-	1976	7.13	-
1960	16.06	+	1977	5.59	-
1961	18.43	+	1978	5.28	-
1962	11.44	-	1979	8.21	+

### Deriving Transition Matrix



To derive a transition matrix, increment each box by the frequency of the pairs of events. For example, box "--" is incremented by 1 for the first two minuses. It is incremented by 1 for the second two minuses. The third pair, a "- +", increases the count in the "- +" box by one.

Figure 1

**Transition matrix comparing theoretical (T) and observed (O) frequencies, as well as the chi-square statistic for automobiles, by year.**

Symbol	-	+
-	5.33 (T) 7.00 (O)	10.67 (T) 7.00 (O)
+	10.67 (T) 8.00 (O)	5.33 (T) 10.00 (O)

Chi-square statistic = 6.55  
Probability  $\leq 0.10$

Figure 2

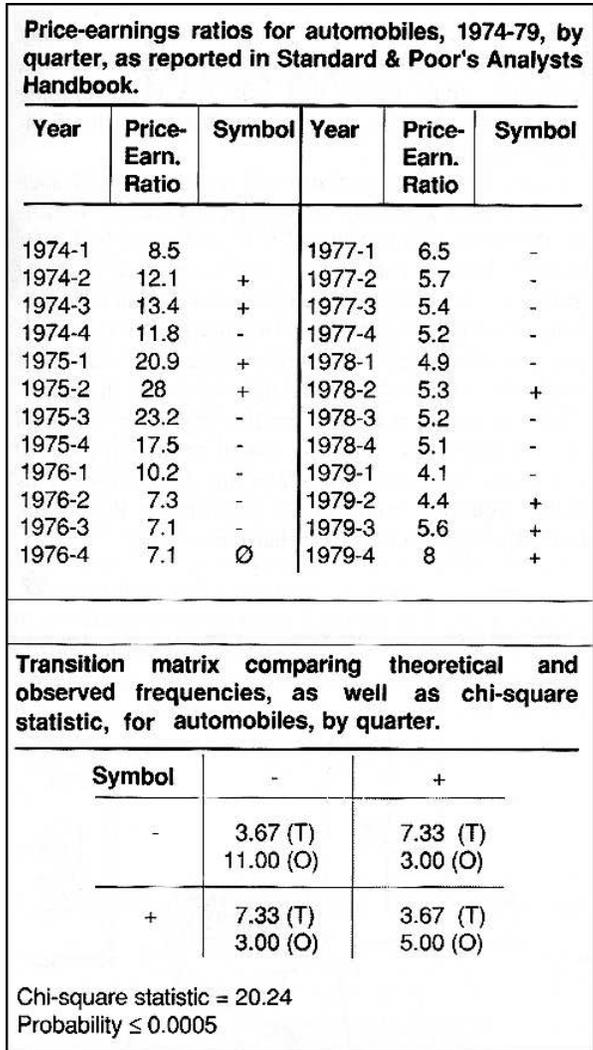


Figure 3

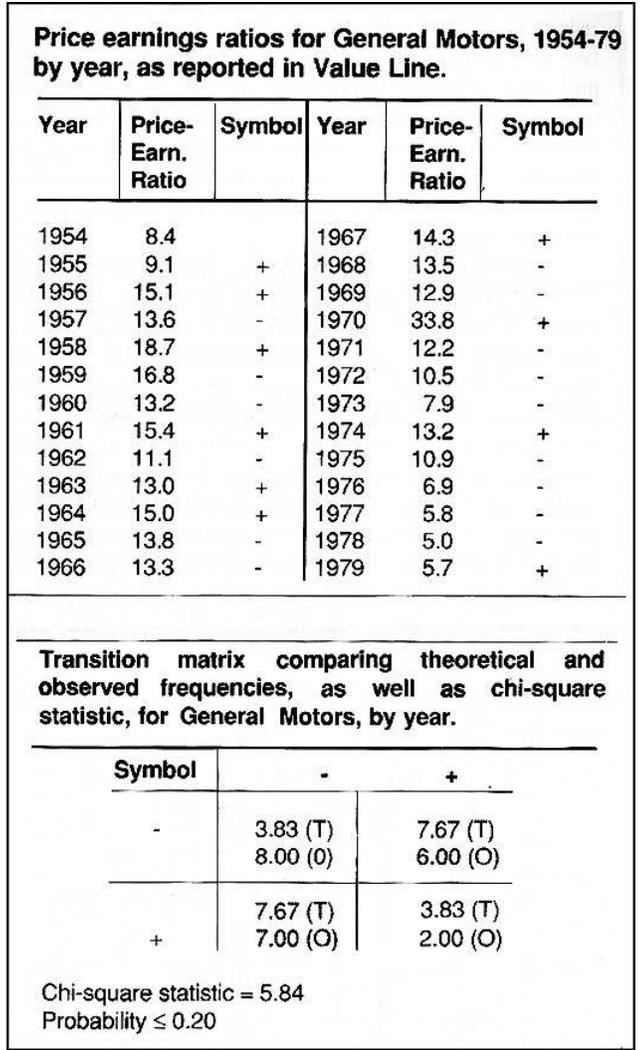


Figure 4

# C3KANSYS

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*by John Sweeney*

---

(Club 3000 Analysis)

Jim Welsh

6404 Buckingham Drive

Burnaby, BC

Canada V5E 3Y6

(604) 521-3275

**Computer:** MS-DOS computers using GWBASIC, 2 drives (one can be a hard disk) and printers with Epson features. Screen graphics adaptor if your machine needs one (such as an IBM)

**Price:** US \$25

From the fertile mind of Club 3000 guru Bo Thunman and the programming talents of Jim Welsh (B.Sc.F., M.Sc., Ph.D.) comes a nifty little program to measure your trading account's equity performance using graphics displays and statistics. Since C3KANSYS is well within *Stocks & Commodities'* budget at \$25 and is the result of much discussion amongst Club 3000 members, we decided to give it a look.

Looking at equity performance is the harshest measure of your all-around performance because it is the "no-excuses" approach. Forget about blaming the system, your broker, your spouse/dog, your philosophy, or your diseases. This approach just looks at the results where it counts: the bottom line on your statements.

Club 3000 (4550 North 38th Street, Augusta, MI 49012) is a group of perhaps 600 individual traders who exchange information through their newsletter on trading topics. In these pages, one ongoing debate (among others) is how to best measure trading performance. The result is C3KANSYS.

The program takes your input on daily, weekly, or monthly results and graphically displays the weekly percent net gain before calculating the average weekly percent net gain, the standard deviation of the above, the coefficient of variation (gain divided by standard deviation), and the Sharpe ratio. These last two measures attempt direct comparisons of diverse results by quantifying returns vs. variability of returns.

You want to find the best return/risk ratio. That is, you are looking for the system or results which give the highest returns per unit of variability of return, since variability of returns is a measure of uncertainty or risk.

C3KANSYS does all this work fairly straightforwardly. Virtually everything is done using menus and the program was "unbombable" in my experience. Startup is easy. The "manual" is on the disk you receive. Just have DOS print it out for you and you're ready to run the setup program which will configure

C3KANSYS for your machine. Next take the demo run, which will go swimmingly. Having done that, you are ready for the nitty-gritty: data entry.

The program can read two types of files, ASCII sequential or random access. If you use this program to set up your files (as you probably should), it will create random files. If you are a programmer and want to fiddle with the file setup yourself, all the information you would need to set up files personally is in the manual. Since the information being analyzed is dollar results of trading or hypothetical dollar results of a trading system, the only time you'd want to use ASCII files would be if your other programs could only generate that form of data output. Even editing ASCII files for data input would be a second choice, given the error-checking this program has built into it.

The most likely input is by hand. Here, the program provides a good set of menus and error-checking. It can look a little screwy on the screen if you happen to enter a number as "34,500" instead of "34500" but it won't foul up your file and the error-checking will disallow many mistaken inputs. Editing is really fast as long as you know the record number or date of the error. These input routines are probably second only to the Right Time programs (T.B.S.P., Inc.) for smoothness, although they don't have the "ESCAPE" capability from any input point. (This is coming in future editions.) You won't have much trouble here at all.

File management (creating, saving, etc.) is also "menu-ized" and silky smooth. Nothing to discuss about this oft-troubled area at all!

The results are seen in [Figure 1](#) for a file I call Real Life. This is a screen dump of the distribution of weekly returns for a hypothetical account which suffers many small losses and gains a few large wins. You can see that the typical weekly performance is a loss as the \$35,000 account goes to \$38,806 in 32 weeks.

More detailed information is in [Figure 2](#), which is the full report. After the distribution of returns, Jim lets you know what your average daily wage is--just to keep you humble--and then gets down to the real message: this is an account with a large (\$5,830) drawdown, an annualized standard deviation of weekly return of 54.9%, and a fantastic coefficient of variation of 2,100.5%!! This is uncertainty or risk of a very high order.

[Figure 2](#) also shows these results graphically. Here, you can see that one trade carried this account. Had that not been done, the account would have been a loser.

Comparisons are the most beneficial in a program of this type. [Figure 3](#) is an output from a trading program with steadier tone. The point of centrality is clearly positive, the maximum drawdown is about the same as is the standard deviation while the coefficient of variation is less than half that of [Figure 2](#). This is confirmed by the graph. (Lines have been added to the graphs to enhance their readability.) Most people, given a choice and the time to think about it, would prefer the steadier system shown here to the more erratic results shown in [Figure 2](#).

The only limitations are that the program doesn't handle irregular time periods (i.e., if you don't get a weekly report from your broker but a trade by trade report instead) and won't check if you enter gaps in data or irregular dates. These things are obvious candidates for future updates.

The idea here is that, given a time period for analysis, a great many factors (security, system, discipline, etc.) come down to just one thing: the bottom line. If you want to know the characteristics of your bottom line or that of an alternative, this program is a tremendous value. At this price, every trader should have it





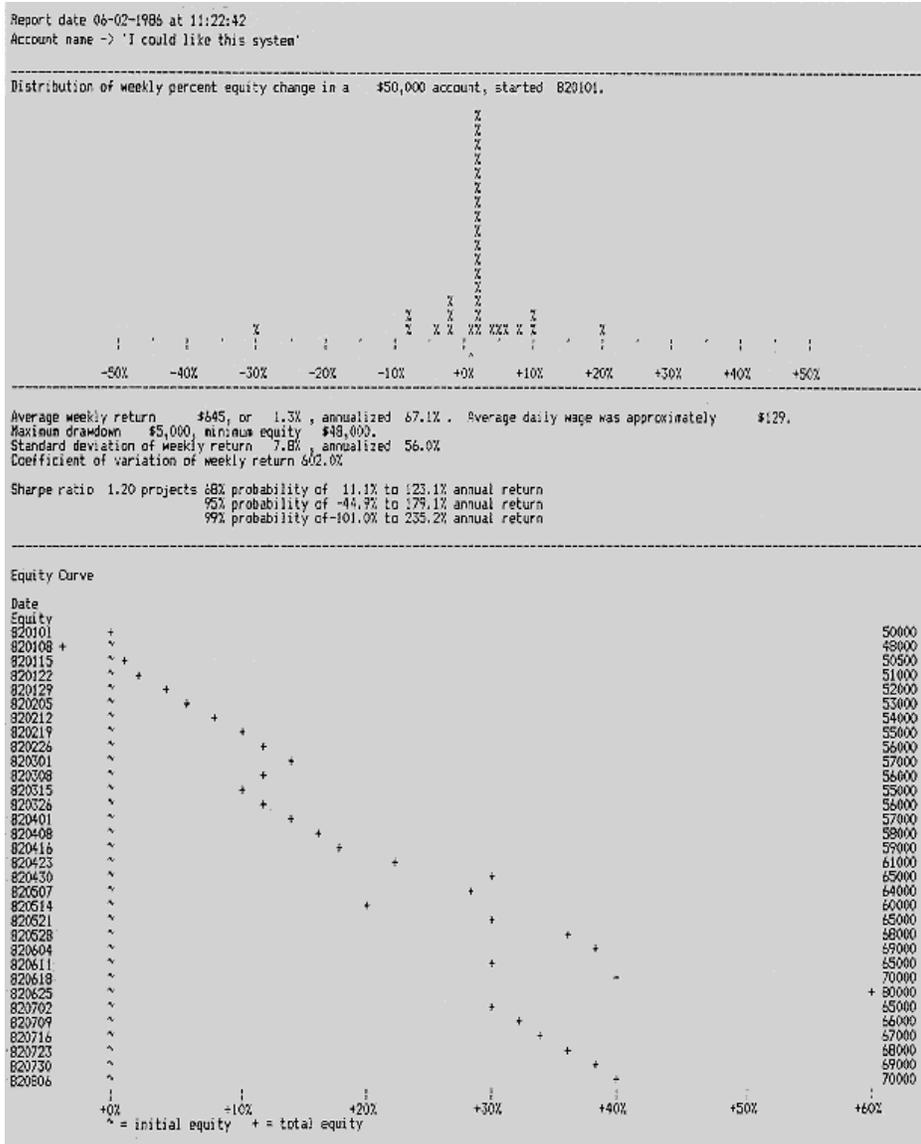


Figure 3:

# Ganntrader I

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*by Hans Hannula, Ph.D.*

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## **Gannsoft Publishing Company**

11670 Riverbend Drive  
Leavenworth, WA 98826  
(509) 548-5990

Ganntrader I, Release 1.4

\$699 IBM Version (reviewed)

\$649 Apple Version

\$299.95 Introductory Package

## **Hardware Requirements:** IBM PC

or compatible, 256K memory, DOS  
2.0 or later, Parallel Printer Port,  
Epson Dot Matrix Printer or  
compatible

## **Data Requirements:** Data in CSI

Quicktrieve or CompuTrac format

**T**here is little dispute that W.D. Gann was one of the world's greatest traders. In one documented case he made 286 trades, 264 of them profitable, in a 25-day period. He doubled his capital 10 times! This kind of incredible result came from his use of dozens of highly refined and sophisticated methods.

W.D. Gann was also clearly the original workaholic. In 50 years of active trading, Gann developed many methods, each based upon exhaustive study and the preparation and analysis of hundreds of charts. His work is so extensive and so exhaustive that even the most aggressive and persistent students of today have probably only begun to scratch the surface.

Two barriers lie before the serious Gann student--getting the material, and practicing the techniques to master them and fit them into today's markets. Gann's material is readily available, but even with it in hand, a student feels intimidated by the requirement to draw many, many charts and make many, many computations to find the geometric patterns that fit the particular stock or commodity of interest. The

prayer becomes one for a better way.

Ganntrader I is the way. It is a powerful, professionally done Gann analysis and charting package that has no equal. It produces the most magnificent charts that I have ever seen. They are **large**. They are crisp. They print sideways on the dot matrix printer, and can be many, many pages long. By controlling the scaling parameters, you can plot strips that glue above each other to make charts as large as you like. Wallpaper your office with them if you want!

But large charts that you can easily read and update are just the beginning. Ganntrader performs many Gann analysis techniques, and overlays those onto the charts. This review will attempt to show you some of these techniques, but keep in mind that the size of the pages in this magazine and the vagrancies of the printing process make any charts shown here a poor substitute for the real thing.

The real benefit of Ganntrader is in its educational value. The Gann techniques used are very well explained and illustrated in the 60 page professionally typeset manual, which turns out to be the best source of Gann material I have ever seen. I once spent \$480 for reprints of three of Gann's books. I would have been better off spending that money on Ganntrader. Also, unlike the books, Ganntrader leaves you equipped with a tool to remove most of the tedium from applying Gann's techniques.

All of that is backed up by Peter Pich, owner of Gannsoft and author of the program. He is a serious Gann student himself, always answers his phone, and provides first class support. The Ganntrader users I interviewed gave him rave reviews.

Ganntrader assumes that you already have your data, either in CSI (305/392-8663) Quicktrieve or CompuTrac (800/535-7990) format. The assumption is that you are using one of these packages for data collection or manual entry. This approach has allowed Ganntrader to concentrate on the Gann analysis and charting aspects of the trader's problem.

The first thing one learns from Gann is that time and price are directly related, and that for any geometric analysis to work, one must plot charts using standardized scaling, normally one price unit per one time unit. None of the commercial chart services provide this, so Gann students must make their own charts. An example of one done by Ganntrader is shown in [Figure 1](#).

Note how small squares of eight units are marked for both price and time. Other scales are available, as well as the ability to scale the price and offset it by a constant. Also note the unusual symbol used by Gann for showing the open, high, low, and close. He taught that the highs and lows determined the future of the market, and he emphasized this by drawing horizontal lines on the top and bottom of the range bar. These horizontal lines aid greatly in seeing support and resistance.

Gann taught that prices thus plotted often followed 1-to-1 or 2-to-1 sloped trendlines. With the Ganntrader plots, these are easily added with a straight edge, as shown by line 1 in [Figure 1](#). It would be a nice addition to Ganntrader to draw these automatically, or on the screen. Also note that at the end of the chart, space is allowed for manual update. The amount of space can be adjusted.

One of Gann's great discoveries was that markets often do things like move 90 points in 90 days, or 144 points in 144 weeks, and then reverse trend. These are called *squares*. Gann found that there were many recurring squares, like 90 and 144, but also that squares of extreme highs or lows or of ranges between highs and lows occurred frequently. Further, within each square, important time or price resistance often occurred at 1/8, 1/4, 3/8, ... and 1/3 and 2/3 points along the square. This led to his practice of overlaying a price plot with a square symbol, subdivided into eighths and thirds, with diagonal lines between all

major intersections. These overlays are usually *anchored* to a price high or low. The lines on the square then aid in predicting resistance and turning points.

The problem with this technique is that it is tedious to draw a square, and it is an extensive trial and error process to find the best size and placement of a square. Gantrader makes this easy. Any size square can be defined and placed, and Gantrader does all the tedious work, leaving you to the invention of the appropriate square and its placement, and acceptance of the result. The whole game here is to find a square that works well for the trading vehicle that you like and then using it to call future high and low movements. For a starting point, you can try one of the standard squares, then move on to try squaring the historical low, then try various ranges, and so on. Only a program like Gantrader lets an average person do this at all, but with practice you could become truly expert. Several of the users I interviewed said they had done this for 20-40 market vehicles, and were getting outstanding results.

[Figure 2](#) shows the S&P index with a square of 90 anchored at the January 22, 1986 low. Note how nicely the S&P index followed Gann line 1 until halfway through the square (line 2) where it reached an intermediate high. Not bad results for a novice who just read the manual and tried one square!

### Prices and planets

W.D. Gann was also a student of astrology, and experimented with many techniques. He found several occasions when the planetary positions, converted to a price scale, formed additional support and resistance lines. One of these techniques was to average the angles of the 6 outer planets and overlay them onto a price chart. Besides overlaying the angle itself, the angle plus or minus 30, 45, 60, 90, 120 and 180 degrees is used.

[Figure 3](#) shows our S&P chart with these lines added. Note how the planet average plus 45 degree line offered price resistance at point 1, and then support at 2. Similarly, the plus 30 degree line offered resistance at 3 and support at 4.

Gantrader offers an extensive set of planetary options that one can try. Without a program to locate the planets and do all the calculation to properly scale and place these lines, no average person would even expend the energy to examine these relationships. But with the tedium removed, such examination is easy, fun, and frequently profitable.

Since the relation of the planets to the markets is of special interest to me, I investigated this aspect of Gantrader I closely. Mr. Pich was kind enough to provide a small program that calculates planetary positions so I could compare it with my own, and test it for accuracy. I found he has made an excellent tradeoff between speed and accuracy in his program, getting within one degree of all planets except Mercury, where four degrees is the maximum error. Any more accuracy in the program would slow down the plotting too much. I also found that all positions are based on the earth (geocentric), which is normal in astrology. Since my work and some of Gann's was based on sun-related (heliocentric) positions, I inquired about providing them as well in Gantrader. Mr. Pich agreed they should go into an update. Several users have also suggested this.

Another area that fascinated Gann was numerology. Two of his great inventions were the *Square of 9* and the hexagon chart. Both are fully explained in the manual, but briefly here, they are geometric figures, overlaid with numbers. On the figures, lines can be drawn at angles, such as 0, 90, 180, and 270 degrees. Gann found that important turning points frequently occurred at these prices. They can also be used to find time intervals from important highs and lows.

Ganntrader computerizes these charts, and produces tables on the screen, which can be dumped to the printer. One such dump is shown in [Figure 4](#). In this example, I used the square of 9 anchored at the S&P January 22, 1986 low to calculate turning point dates. [Figure 5](#) shows the dates given in the first column overlaid on the S&P plot with a colored line connecting them. Since this was my very first try, I was astounded at how well the square of 9 called these points. Powerful stuff.

Gann taught that various fractions of a significant price, such as the historical high, were important support or resistance points. Calculating all the appropriate fractions by hand can be tedious, but Ganntrader does it quickly, displaying the numbers on the screen.

Time points to help you locate the dates of a particular square based on a prior historical point are also easily calculated. For example, May beans made an all-time low of 67 in 1939. With this part of Ganntrader you can easily calculate where the square would be in 1986, using time units of days, weeks, or months. These tools, while not as flashy as the plotting ones, are very useful and important to Gann technicians.

Gann taught that if you only traded the daily data, and had not studied the entire history of a stock or commodity, that you would get killed when a longer term cycle rolled over, or miss the great price moves that can be so lucrative. Ganntrader goes a long way toward making the history study easy to do, by providing tools for converting daily data to weekly, monthly, or quarterly or equinox format. Monthly data may be based on solar or calendar months. Once converted, the other tools, such as the squaring of price and time, can be applied to the data.

[Figure 6](#) is an example of such data converted to weekly format. Notice how nicely this shows the Gann 1-to-1 and 2-to-1 angles in the S&P. It is hard to believe that such a simple change of scale could be so powerful.

[Figure 7](#) shows this weekly chart with my first attempt at fitting a square of 90. Notice how the major trend lies on the Gann line numbered 1, and how the 3/8 price point on the square was a resistance point (number 2). Not a great start, but not bad.

One of the users I interviewed had actually tracked down all the daily data for the stock of a company founded in the late 1800s and had used Ganntrader to do quarterly, monthly, weekly, and daily charts. She claimed to have found some very powerful squares for that stock, which were producing incredible results.

While using and learning Ganntrader was fun, interviewing users was even more so. Gannsoft provided me a list of 11 users. Six of them consented to an interview, and I reached five of them. I expected that the interviews would be sort of quick and cold, because even those who agreed gave me very limited and specific times to call them. Wow, did I get surprised! All five of the users were absolutely crazy about Ganntrader, and were so enthusiastic about it that I had a very difficult time terminating the interviews while I could still pay the phone bill.

Every user said Ganntrader was their main analysis program, that it was vital, and that they were getting very good trading results. They all had been using the program for two or more years, and attributed their mastery of Gann's techniques to its power to experiment. Each and every user whole-heartedly recommended that others buy the program. One user was just upgrading from the Apple version to the IBM, and was buying the IBM version.

The users were asked to rate the program in four areas, on a 1 to 10 scale, with 10 being best. (See chart below)

AREA	USER SCORE					AVERAGE
	1	2	3	4	5	
FUNCTIONALITY	10	10	10	9	10	9.8
EASE OF USE	10	9	10	10	10	9.8
RELIABILITY	10	10	10	10	10	10
SUPPORT	10	10	10	10	11.5	10+

Obviously, they love the program. The users had some minor suggestions for enhancements, such as screen display, adding Gann's swing charts, heliocentric planetary coordinates, etc. All had passed these inputs back to Peter Pich, so maybe they will show up in a future release. No user felt that it would be necessary for any new buyer to wait for these minor improvements. The tough question I always ask is, "Has it made you any money?" Each and every user emphatically answered "yes." One also added that using Ganntrader had prevented him from losing money many times, which is also very important.

I agree wholeheartedly with this strong endorsement of Ganntrader. If you are serious about trading, you really should know the Gann techniques. That is not an easy road, but then nothing worthwhile is easy. But with Ganntrader as a starting point, you can master the Gann techniques, and build a solid future from there. I personally think you should view the price as an investment. From my own experience, you could easily lose a far greater sum in one OEX option trade.

But be aware that you will have to invest in more than Ganntrader. You will have to invest time to study and analyze, and work at it. Gannsoft is well prepared to support you in your studies, offering Gann's books, courses, and other materials. An interesting way to get started might be to buy Gann's *How to Make Profits in Commodities*, Ganntrader, and a recently announced data set (\$200 from Gannsoft) for the CBT May Soybeans, which Gann uses as an example throughout the book. Then, as you read the book, you can duplicate Gann's own analysis in simulated real time. By the time you are done, you should be starting to think like Gann. You will then be armed with a tool that has been very well done, supported solidly by Peter Pich, who also gives a 30-day satisfaction guarantee. With this approach, you could truly become a very respectable, and maybe even a great trader.

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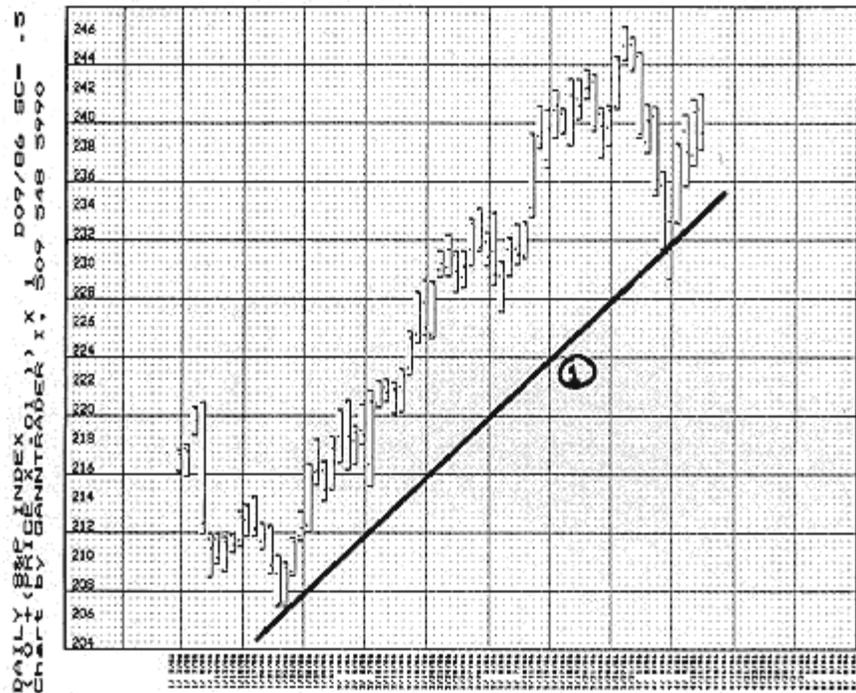


Figure 1:



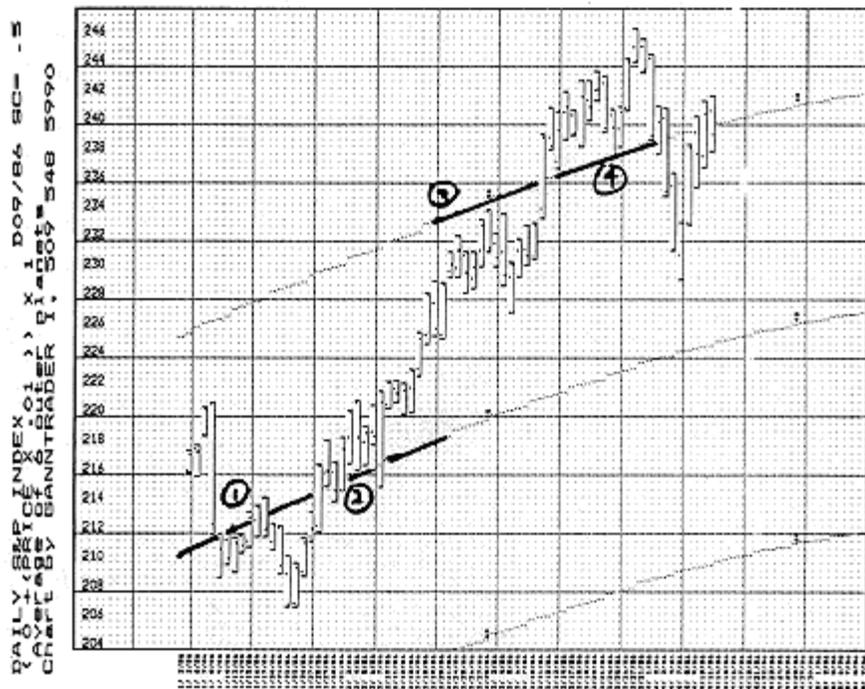


Figure 3:



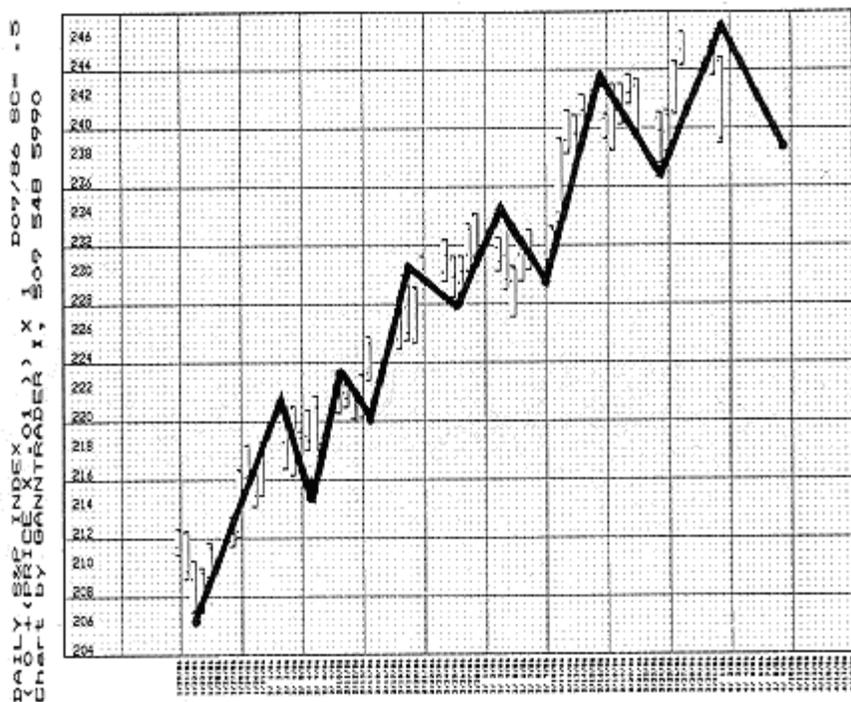
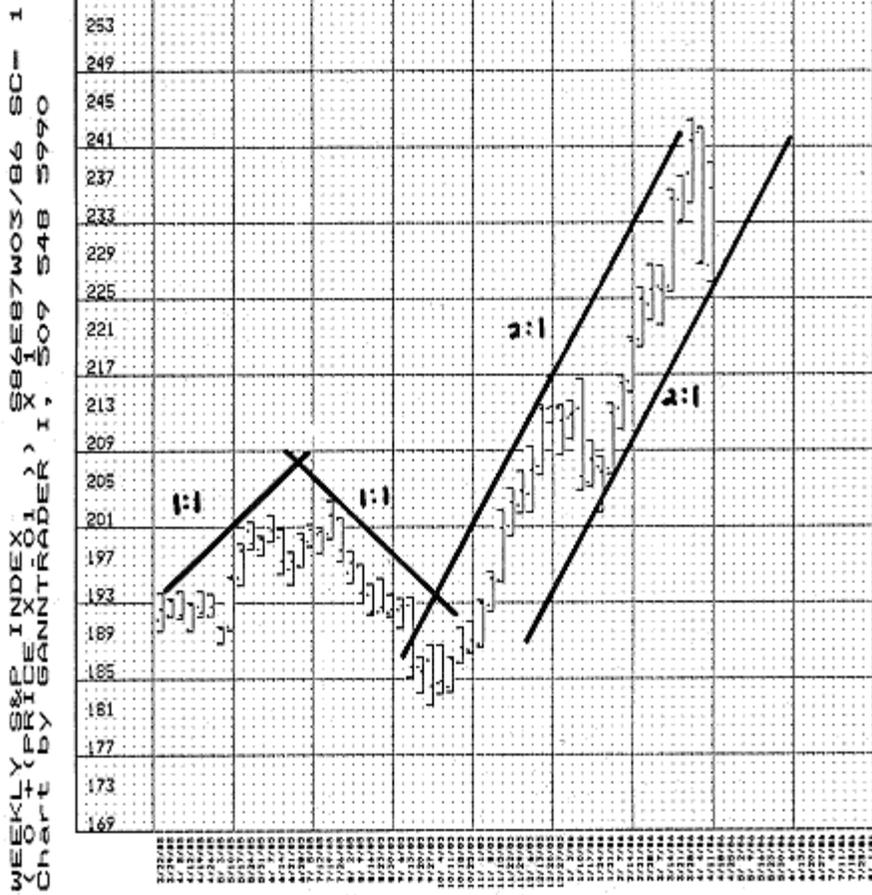


Figure 5:



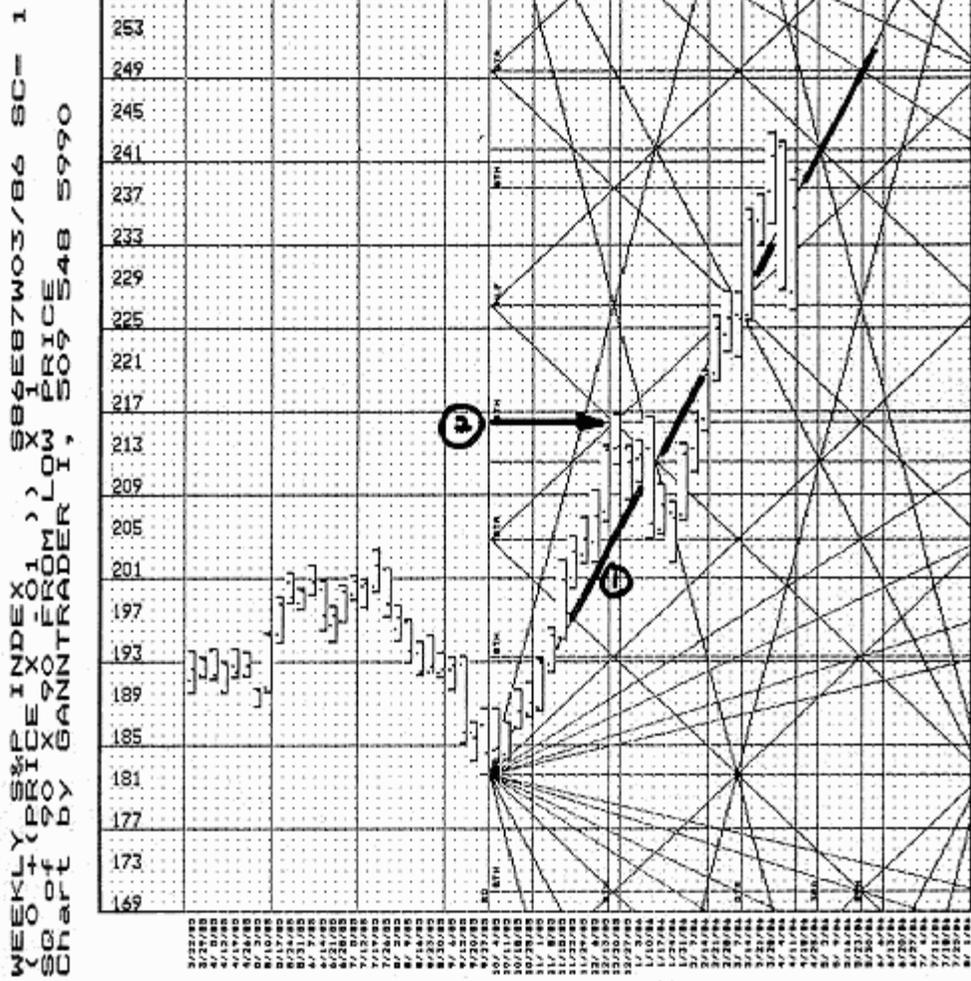


Figure 7:

# Generalship for consistent profits

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*by Vincent Cosentino*

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**R**odney Dangerfield would have loved it. After the July 7, 1986 record drop of 61.87 points in the Dow Jones Industrial Average, articles appeared crediting technicians with everything from making the right call to causing the slide. Headlines bellowed, "Market gurus jolt the Dow," and "Stock market's technical analysts get new respect after price drop. "Hey Rodney! **Respect!**"

Of course, not all observers were complimentary. One fundamentalist skeptic flung his gauntlet to the marble with, "I defy you to show me one technician who has made money consistently."

Have the fundamentalists lasered in on the technique which consistently flashes the bingo sign on the screen? Or, is technical analysis yet another victim of the infectious "bum rap" syndrome?

This difference in approach between security analysts has been in existence for many years. Assuming neither side files a law suit to establish the superiority of their claim, the debate seems likely to continue as long as there is a stock market.

However, in a marketplace where there is a dearth of certainties to begin with, it seems unwise to completely dismiss an entire area because it is perceived as inconsistent. Surely, if fundamental analysis yielded consistently superior profits, everyone would abandon all other analytical techniques in favor of it. If technical analysis were so ineffective, nobody would be using it.

With volumes already in print on both fundamental and technical analysis, I don't want to go into a lengthy discussion of each approach. But let's be clear about what we're discussing. The bedrock for technical analysis is the belief that prices move in a general direction over a period of time-trends. Also, historical similarities do repeat themselves in identifiable patterns.

Technical analysis seeks to ascertain the supply and demand for stocks by studying various indicators of market forces. These can be grouped as follows: trend-following, momentum, sentiment, and cyclical indicators.

Analysts seek to identify trends using charts, moving averages, or even tape-watching. They gauge the momentum (force of market movement) by keeping records on such things as the number of new highs vs. new lows and upside vs. downside volume. To identify market sentiment (expectation of investor groups such as insiders, investment advisers) they follow data showing the optimism or pessimism of these groups. Lastly, in cyclical analysis (the tracking of short-, intermediate- and long-term cycles), the analyst seeks to determine which cycle and what phase of the cycle the issue or index is in.

While technicians believe the market already reflects the anticipated economic environment, some fundamentalists believe that by applying various accounting and business measurements, they can appraise and forecast stock prices. These analysts study sales, earnings and dividends. They have computers scour financial reports looking for favorable profit margin trends and balance sheet ratios. They look at return on equity as a mark of management's effectiveness.

## **Unfortunately, analysis, like the best trained bird-dog, can do no more than point. Alone, it can't bring down the bird.**

Another group of fundamental analysts seek to identify companies with under-valued assets. Their intent is to buy and hold the stock for three, five or more years until the market recognizes this value.

Still others take a futuristic perspective. Using computers and mathematical formulas, these analysts work up a general economic overview, identify industry sectors and specific companies within these industries which will do best under this projected scenario. They contend that past performance has little to do with future results.

Great! So which approach makes money? Interestingly, some individuals have been successful selecting stocks via the technical method. Still others have had success with the fundamental approach. If you had been a trend-follower using charts, moving averages, tape-watching or whatever and spotted DeLuxe Check Printers at 50 and Rollins Environmental Inc. at 13 in November 1984, or Voronado at 40 in April 1985 when they were moving in an orderly, tight uptrend, you would have made money. At this writing, DeLuxe Check Printers, after splitting two for one, is at 69. Rollins having split twice (three for two and two for one) is at 31. Voronado is at 78.

If you were searching for undervalued assets and had identified Taft Broadcasting at 57 (as Mario Gabelli did in *Barron's* on May 14, 1984) as having a private market value of \$105 per share with bright fundamentals, your \$57 per share investment would be worth \$118 today.

Yet citing successes like the above creates a serious delusion. Subtly, it causes investors to believe that selecting the right stock is the entry-code to consistent profits. Unfortunately, analysis, like the best trained bird-dog, can do no more than point. Alone, it can't bring down the bird.

Despite the wide variety of analytical approaches and some individual success, the apples don't fall like they're supposed to fall. Whether an investor uses both technical and fundamental analysis, adds wave and angle analysis, throws a few darts, and maybe, reads a tea leaf or two, there is still no currently known method of analysis which can guarantee selecting winners every time. To have a chance at consistent profits, a system of market generalship is needed.

### **Dress the part**

Take a trip to your local costume shop and rent a general's uniform. If it's American-style and only has a lot of medals on the left side, ask for more medals. That way you can fill up the right side, too, like the Russian generals. After your wife and children have left for the evening, put your uniform on and look at yourself in the mirror. It will be pretty clear that you are with the High Command.

As you suspected, you are up against a superior and ruthless adversary--ant-armies of professional analysts and the savage "wolves of Wall Street." You have limited resources, a miniscule force and no supporting staff. At your back is the sea. Of course, you have no ships. Your opposition grows stronger every day. Wealth is power and attracts more power. It is clear you will have to do something, or you will soon be overwhelmed. Things look pretty grim.

As you look back into the mirror, you realize you did not achieve this high rank for nothing. You decide on an irregular type of warfare--a guerrilla action. The strategy starts to print out in your mind.

- 1) Your objective is to win the war. Not every battle. Not even consistent victories. You believe, using any generally accepted system of analysis, it's possible to pick some losing stocks and still make money on balance.
- 2) From your study and analysis of the enemy, you have identified suspected weak points. Battle-hardened, you know without a superior intelligence-gathering network to provide an insider's view, study and analysis give murky readings. Only in actual combat can one gauge the shifting strength and weakness of his foe. Locked swords provide the true test. This is your one certainty.
- 3) You divide up your forces and use patrols to probe for actual weakness. You will get more mileage out of your forces by avoiding extremes. Stocks under \$10 tend to be erratic performers. Those above \$45 usually move more sluggishly, and large percentage gains are harder to achieve.
- 4) Your opposition, classified in theory as an "efficient market," is vulnerable. You are looking for a breakthrough--a stock that will take off and give you a deep thrust.
- 5) As a general, you know if you plan to take a hill, you are going to have casualties. You have predetermined how much money you will risk on each individual stock selection. You use 10, 15, or 20 percent as a mental stop-loss point. If the foray turns out badly from the start, you break off this ill-fated engagement and close out the transaction per plan to minimize losses.
- 6) You are a disciplined military man. You have the grit to stick with the battle plan under fire. You don't wilt during the trial of warfare. You don't gamble on the outcome by expanding or waiving the stop-loss mark, hoping the contest will turn in your favor.
- 7) From your review of your overall success ratio, you calculate what plunder you'll need to make the assault worth trying. If you are right only half the time and cut losses at 10 percent, you are going to have to clear much more than 20 percent when you are right to be profitable on balance. You realize risk is proportional to the size of the objective.



- 8) As your raid reaches its objective, you review and redefine the objective. Is this enough for this strike? Your analysis will provide clues if this stock's price is becoming overextended and can no longer be sustained. It may be time to disassemble the enemy's electronics station and depart with it.

9) That was your toughest decision. You found a weakness. The temptation was to push forward for all that it was worth and score a big hit. You agonize over whether you broke off the operation too soon. But, from experience, you realize that's an imponderable. The enemy will soon send reinforcements to fill the void, and the balance will change. To come out ahead, you must cash in on your successes and attack elsewhere. Nothing has been accomplished until the spoils of victory (your broker's check) are safely in your camp.

10) *Winning consists in not losing big*, not risking your whole force on one big victory. You look to the stock market as an opportunity to take calculate risks, not gambles. You attempt to achieve a better return on investment than currently available elsewhere with comparable risk. Had it been your objective to become Chairman of the Joint Chiefs of Staff at age 25, your trajectory was clearly marked. Huge rewards are available to the successful in both the New York and California lotteries.

To have a chance at consistent profits, the ability to forecast stock prices must be subordinated to the jungle tactics of a wartime general.

*Vincent Cosentino holds a B.A. degree in economics from the University of Pittsburgh. Currently he is a registered investment adviser as well as editor and publisher of The Springfield Report (a technical analysis stock market newsletter).*

## In search of the perfect system

**J**ack Schwager, self-confessed skeptic and diligent debunker of "new and improved" commodity trading systems, is director of both research and managed trading for PaineWebber and is a not-too-recent convert to the ways of technical analysis.

Fifteen years ago, as an economics major fresh out of graduate school, Schwager began his career as a research analyst at Reynolds Securities with no previous experience with commodities. "But I wasn't into the job for more than a week," he says, "when I realized this was something interesting and something I'd like to make a career out of."

Since then, his self-taught fundamental style has given way to a hybrid approach that values both fundamental research and technical analysis in day-to-day trading. His rigorously tested techniques and experienced philosophies on trading are laid out in detail with other methodologies in his 1984 book, *A Complete Guide to the Futures Markets*.

***You were quite a fundamentalist early in your career, what happened to change your mind about its effectiveness?***

I became somewhat disillusioned with fundamental analysis as the years went by simply from a real-life trading standpoint. My main problem was that if your fundamental model was wrong for any reason--even if the model was right and you used the wrong input, or there was some sudden surprise or some structural change in the world--there was really no limit to how much you could lose with a fundamental model.

It wasn't well oriented to actually trading markets. It could tell you this is a market I should emphasize and be long or short in, and it still has a role in that respect. But from a trading standpoint, it was just much easier to apply technical analysis to making trading decisions.

I probably started out from the viewpoint that technical analysis, that chart analysis was all really a kind of sleight-of-hand, meaningless exercise that couldn't possibly have any use. Over the years, I've made a complete 180-degree turn. My initial introduction into technical analysis was traditional chart analysis, and only in recent years have I gotten into what you'd call trading systems.

***Then you feel technical systems have more to offer the trader than fundamental approaches?***

Actually, they're both kind of different glasses to look at the same thing. The real thing is the market and prices. Fundamental analysis is one approach, and technical analysis is another approach. But they're both observing the same item. If you could build a really good fundamental model, obviously that would be preferable because I think it would have better forecasting ability. The real problems with the fundamental approach, not to knock it, is that its practicability to trading is limited.

First, there's no timing factor. In other words, no matter how good your fundamental model is there's no way it tells you to buy today or sell today vs. doing the same thing a month from now. So even if you have a fundamental model, you still need something to give you the timing--and that falls back into the technical sphere.

Second, fundamental models--no matter how good--are always vulnerable to the surprise event which

completely upsets the apple cart. You can have a bearish fundamental model, but a surprise frost, say in coffee, obviously throws the whole trade out the window. So that's another possible major flaw.



*Jack Schwager*

Third, there can be structural changes--your model may not be appropriate anymore and you don't know it until after the fact. The best example: fundamental models told you when we had the initial break in late 1980 that markets were underpriced. Market prices seemed to be too low relative to projected ending stock-to-consumption ratios or whatever fundamental factors you were looking at. Of course, as we now know, market prices went a lot lower in 1981 and early 1982.

Now what was wrong, what had occurred in the real world, is that we had a phenomenal rise in real interest rates and all through the pipeline, in every industry, in every market, people wanted to hold less inventory. All the way from the raw commodities to the end user, everybody wanted to hold less inventory--what economists call a downshift in demand. Now you don't see a downshift in demand. You see consumption coming down, but it's not the same thing. What was previously inadequate inventory is now excess inventory. So you had prices going down because demand to hold inventory, in virtually all commodities, had shifted down dramatically.

If you had a model that anticipated the effects of high real interest rates on inventory psychology and you had that input, then of course, you'd get the inflection point if you weighted this factor properly and maybe you wouldn't have been caught by surprise. But these things are always more obvious after the fact and, since markets tend to anticipate, sometimes it's really hard to recognize a major structural change until it's too late. And that's another kind of problem with fundamental models--if you're wrong, if you make one mistake, let's say you say corn is a buy at \$3.50, then when it goes down to \$3, your model tells you it's an even better buy and on and on.

***Is there any way to limit losses or identify when you should get out of a position?***

Then you come back to some sort of technical approach. There's an inherent contradiction--in a fundamental model you have to be long-term by definition. I don't think it makes any sense to talk about a fundamental model applied to weekly prices or anything like that. So it has to be a long-term orientation. Probably a quarterly price model is as far as you could squeeze these things usually. So you make the decision that you should be long in this market and it goes down more, your model is still going to tell you to remain long. So the more the market goes against you the more intense your signal is to be in the wrong direction. There's no self-correcting process there. Sure, you could say money

management-wise if I lose a certain amount, then I'll get out. But that fights the basic methodology you're using.

Now the technical approach, unless you're using a straight countertrend approach, will self-correct. If your technical approach told you to be long in corn and the market starts going down at some point, most technical approaches--at least the trend-oriented technical approaches--will tell you to get out and usually reverse. So, that's what I mean in terms of real life: it's easier to apply technical approaches to trading than it is fundamental analysis.

One area that we're working on, and I don't know if it will prove fruitful, is to try to develop fundamental models and use them as a filter to say, "This is a market we should be emphasizing buying or selling," and combining that with technical approaches and getting a kind of a hybrid model. That's one area I'm particularly interested in researching. You get around the inherent problems of fundamentals by linking it to some kind of technical input for timing and money management. We're focusing on interest rates, T-bonds specifically. Again, it's really in the research stage. We've got some ideas, but if it works we'll try it on other markets.

***When you say technical analysis, don't you include regression models and statistical analysis, things that many traders would feel are a bit broader than the usual definition?***

Regression models and so forth are tools I usually use more for fundamental research. Now, we have developed some technical systems--I can think of one offhand that uses regression analysis, but it doesn't do anything that's radically different from systems that don't use regression analysis at all. As a methodology, for us, statistics and regression are more on the fundamental side than on the technical side.

***What technical indicators do you really find of value? You've expressed skepticism about some over time.***

I expressed skepticism about a lot of things--optimization, systems that are sold, technical indicators--and my skepticism all comes down to the same thing. If you take something that's accepted as true and you really analyze it in a black and white sense--you define it so it's precise and you let the computer test it with realistic transaction costs, slippage costs, whatever--you often find it doesn't hold water. That's where the skepticism comes from.

Let's take stochastics. I'm quite sure there have to be some useful ways to use stochastics to trade profitably. But every time we've tried some sort of specific scheme to use stochastics, the performance just isn't there. Even if it's profitable, it's not as profitable as a lot of other things we've done.

***As a matter of fact, one of our readers took exception to the comments you made on stochastics in the July 1986 issue. Nave you rethought your position in light of the points he made?***

It was a well-reasoned criticism. The basic criticism was that we allowed crossovers, changes in direction, to trigger signals and if we stuck more to the philosophy underlying stochastics in that we only sold the overbought situations and bought the oversold situations and looked for divergence, we'd do a lot better.

As far as divergence goes, it's a very imprecise thing. What is divergence? There is no single unambiguous, mathematical definition. In hindsight, you can always identify beautiful divergences. But if you really go through time and look at a chart, you'll see there's a lot of spots you might have thought were divergence, but it didn't end up being a divergence or it was divergence and it didn't work out.

But if you take the other criticism about only taking, say, sell signals when the market's overbought, if you actually got down to the charts and looked at what happened, what I found was that you probably ended up worse off.

For example, when you get into a good uptrending market you have lots and lots of crossovers which give you constant signals to be selling in overbought situations counter to the trend. My feeling was that accepting only sell signals in overbought situations would probably exacerbate the situation. What I came out with is that it might not be a bad idea to use that as a filter in a contrarian way and say that you only accept sells when the market was not in an overbought situation. We tested that out and it worked marginally. So in all the ways we ever tried using stochastics, we haven't come up with a way that really looked like anything.

That doesn't prove that stochastics can't be used profitably. It's just that a lot of basic concepts which you might want to apply to trading don't work. My point is don't just go on the assumption that these things work if you use stochastics or any other oscillator, and work strictly on that, that you're going to make money because you're not. I know categorically that it doesn't work. You'll pick 10 out of every 3 market tops or bottoms. Profits are possible, but your losses are going to be much worse.

Now, if you get more sophisticated--you say I'll test a range of values for stochastic moving average lines (instead of just the standard %K and %D values), require crossovers to be maintained for a number of days, apply filter rules to accepting crossover signals, we've tried a lot of schemes--that still doesn't work well enough. For the average trader looking at a stochastic crossover chart, it may get enticing to think this is a good way to trade the markets. He starts trading and finds that he's losing his money and he's not sure why. Well, the reason is, if you look at a chart, something like stochastics looks terrific because you get crossovers near tops and bottoms. What you don't see is that any scheme you could use can also give you lots of false signals, and those add up.

So I'd be delighted to have someone come to me and say, "Look you're all wet; here's a good way to use stochastics." I'd be very interested in that, and I'm sure there are ways of doing it. I'm just saying there's no obvious way I see to translate stochastics into a good trading scheme. My basic point is: Before you assume something works, check it out. It may not work.

***You said in that article that stochastics don't work better than moving averages, so is moving averages your basic guideline?***

Actually, moving averages are kind of a good basic comparison if you want to test a system. Comparing a system to crossover moving averages is reasonable because it's a good, generic type of a system.

***What's a great system?***

I have never found a great system--at least not up to the standards that I would apply to the word great. I'm still looking for a great system! We have systems that seem to work well over time. But to be great you'd need a consistency and a lack of volatility which we have never come close to . yet.

We've got a lot of research ongoing, but the ideas are only in the research stage.

***What sort of consistency and volatility are you talking about?***

Let's say you have a system you test without hindsight--that's critical--as best as you can, and it shows you average returns of 40%-50% a year under realistic assumptions. That's pretty good. But within that you might have a year of plus 100%, a year of minus 10%, and that minus 10% year might include a

drawdown of 35%. The point is, as long as you have those types of situations, you're going to run into some periods of time where you're going to have problems if you're in the managed money business. It seems to be an unavoidable part of it. We haven't come up with anything that gives very substantial returns and yet does not have the occasional drawdowns--and I think that's basically true of most of the industry.

***Have you tried systems sold to the retail traders?***

We've tried a few of them and the results were so disappointing that we put that research on the back burner. It just doesn't seem worth the effort. What basically happens with these systems, is what I'd call the well-chosen example effect. The examples in the system description look real good. Then, when you go program it, you find that in that particular instance it made money, but if you look at all markets over a broad period of time the system doesn't do well at all.

What I've also found in a lot of these descriptions is that they may show you five out of six winning trades in a given year, but when you program it, lo and behold there's another six trades that aren't in the illustration that would have occurred if you'd followed the rules--and the computer literally follows the rules.

Simulated results done by hand are extremely error-prone. I know from lots of personal experience. For example, I worked on a stochastic system with some modifications and a filter rule on a plane ride back from San Francisco. Eyeballing it, it looked very good, but when it was programmed, it was just barely marginal. On one example, the S&P, it seemed like it bought and sold a lot really close to the tops and bottoms of the major turns we had this year and it seemed like it was working very nicely. But what happened, when you really got down to it, was that the buys and sells were coming one or two days later than I assumed by eyeballing the chart. That made the difference from switching from short to long 600 points higher, or 1200 points or \$6,000 for a trade and you only need a couple of those to switch the results completely around. That's the kind of thing that happens when you try to eyeball a system, and with systems that aren't computer tested, that's a problem.

***You mentioned optimization before. What's your current opinion on that technique? Have you found any systems yet that put it to good use?***

Any system results which are based on optimization are just a total waste because you can optimize anything and come up with any result.

If you want to find out what worked best in the past, there's no better way than optimization. If you want to find out what's going to work best in the future, it's not going to really help you that much. Basically, if you pick the right neighborhood, if you have a rough idea what your parameter values should be, that's the best you can do.

Let's say you had a simple breakout system, with just one parameter, N, the number of days you look at for a breakout. For example, you buy on a 10-day high and sell on a 10-day low. If you come from Mars and you have no idea if N should be 10,000 or 1, then optimization will tell that number is probably somewhere between 20 and 80 or whatever. But if you have a sense of the market and know N should be between 20 and 80 and you try optimizing, you might get some markets at 22, some at 74. That's going to be of marginal value because that's going to tell you the past and when you try it--where 74 was the right number in the year past, 22 may be the right number in the year forward. Once you pick the right neighborhood, you can't really do a lot better with optimization.

I'm sure there are systems where optimization can improve results somewhat, but a lot of times when I tried the exercise of looking at optimizing parameter sets for future periods and comparing them to the average of all parameter sets on the computer run, I found almost no proof of any improvement. I feel very comfortable saying that optimization is at best, in most cases, of marginal value.

The big error people fall into is they assume that an optimized system is somehow representative of what's going to happen in the future. If you try 100 parameter sets in a computer run, what you should expect to see in the future, realistically, is the average of the parameter sets in that particular run. What people do is they take the top one and say that's what's going to happen.

No matter what system we're testing, I assume that the best I'm going to get is the average of all parameter sets on the run. When I first started doing systems development and analysis, I was trying to put together some performance estimates, and I made what I thought were reasonable assumptions. I said I'm smart enough to know I'm not going to pick the best parameters to trade in the future, but I can certainly pick the one that's at the low end of the top one-third percentile-number 67 out of 100. But I found out I had very little justification for picking anything better than number 51 or 52. From that point on, I took a median or average of all parameter sets as a realistic gauge of performance.

### ***Have you run across any exciting, innovative ideas for new trading systems?***

Most innovative ideas sound good, but when you test them, they don't work. I've had a lot of ideas of my own and tested them and they just don't work. It's a sobering experience, but when it happens you just have to take it as it is.

Now there are some more unique approaches out there--Elliott Wave analysis, for example--where some people who are using the methodology have made some very good calls. The trouble is, because of the subjectivity of the approach and the complexity, it becomes almost impossible to ever test that approach in any systematic way. So some of these approaches, which seem particularly interesting, you can't rigorously test because it's more the individual than any specific mechanical system that you could define.

I'm sure there are lots of approaches out there that I'm not familiar with, but offhand--other than approaches which depend on the individual trader--I haven't come across any super unique techniques. I've seen them advertised, but in most cases there's usually a big gap between what's advertised and what's true. I don't even know how good those things are because I will never put out the money to find out.

I don't throw money after any of them, but when they come down to 25 bucks I usually say, well... and we usually find it's not worth the \$25. Actually, John Hill of Futures Truth makes a good point in that it's a lot worse than the \$25 you're putting up because if you traded the system and lost \$25,000, the real cost would be \$25,025.

Still, in all, I can't say that I've purchased a system that's worth \$25. There are many purchased systems we haven't tested yet, but we put this project on hold because none of this testing was paying off. We just find that in our computer runs there is a big deviation between what's claimed or implied and what seems to be the case.

(I just want to add that I've only seen a small fraction of the systems offered for sale, so I don't mean to imply that all such systems are worthless. There may be some good systems out there, offered by legitimate vendors, and it would be unfair to them to draw broad generalizations because of some unscrupulous or naive system sellers.)

***Do you have any guidelines for the retail trader that might keep him alive until he becomes proficient?***

Some of this is hackneyed because it's said so much, but No. I is money management--or loss control, I guess you can use the terms interchangeably--whatever approach you use you have to be sure you have some sort of loss control. The most important guideline is to know where you're getting out before you get in. Pick your exit point before you pick your entry point. If you do that in every trade then you've greatly improved your chance of survival.

Realistically, too, I think you've got to have about \$25,000 that you can afford to lose to call it a trading account. Anything less than that, it's possible to trade, and I have made some money in the markets which was built up from a couple of thousand dollars, but realistically I think you need about \$25,000.

Actually, your trading system is no more than some kind of control because it will give you signals to get out of positions and in following it you have at least some sort of control over what's happening. If you're a gifted trader, and I've met some but there aren't many of them around--I'm certainly not a gifted trader, I'm not even a good trader--you can be successful by calling your own shots however you do it. Otherwise, the only realistic way to do it is to develop or find some sort of trading system that has a reasonable chance of doing well over time and just making sure you have the diversification and the loss control to enhance your survival.

I would say, for example, if someone just used the simple crossover moving average system, and had reasonable money management guidelines, they'd have a much better chance to do well over the long run than probably most people.

***But what use is crossover moving averages if you end up buying highs and selling lows a lot of the time?***

That is one of the weaknesses of that type of approach, but over the long term it still shows positive returns. In our tests, moving average systems work much better than many esoteric approaches. So it seems to hold water as a general approach, although it's a tough thing to follow because you will be buying high and selling low and you never will look smart. In fact, you can look dumb frequently and you have to be satisfied with the consolation that in the long run you'll make moderate amounts of money.

***Is looking smart important to a lot of traders?***

I think so, there's definitely ego involved and I think there's always the tendency to want to sell the high and buy the low, it's a natural human instinct. That's why it's very, very difficult to get in a market after it's been going in one direction for a long time. Let's say you have a market which has been in an uptrend for six months. If you believe it's going higher and you go long, you're already admitting that you've made a mistake because you could have bought it any time in the last six months at a better price. So when you start out you've already done something very stupid.

Having experience not just from my own, but other people's trading, I think it's just an instinct, first of all, to try to pick the high and pick the bottom, but moreover there's great difficulty getting into a market which has established a trend because it's like an admission that you've already goofed.

***Do you still trade personally?***

Right now, no. Only very marginally. A few years back, after I started losing back some of my trading profits, I took my money and put it into a house and some acreage and I've never regretted that. At this

point, I don't have enough liquid money to trade the market so I'm really just dabbling. If I ever built it up to some meaningful amount, then I could be trading again.

***What would it take to once and for all cure your skepticism?***

I'd like nothing more than somebody who's reading this interview to say "Hey, here it is you idiot! Here's a way to use stochastics that really works" or "Here's a system that uses optimization and look at the improvement." I just want to see the proof. I'd love to be proved wrong because that means there are methodologies that I haven't found. But in my limited creativity in looking for these things, I haven't come up with the so-called great improvements that these other approaches seem to imply and so I'm still a skeptic.

Intuitively, I'm also skeptical because I always come back to the same question--if the system's so great why the hell are they selling it. If I had a great system, I wouldn't sell it. I always have trouble with the question "Why are they selling it?" until I test the system and find it really doesn't perform as great as implied. So I'd like to be proven wrong, but I just haven't seen the evidence yet. In many cases, I really believe, in fact I'm sure, there are people using optimization effectively, and oscillators such as stochastics profitably. But for every one who is, there are probably 10 who are misusing these approaches.

***Is there anything we haven't covered that you'd like to comment on?***

Well, I would like to make a clarification. In the past, my articles and comments have often been misconstrued--as this interview might well be--by people who drew generalizations that I never intended. I'm not saying all systems being sold are worthless. I am saying that many are, and that buyers should exercise caution, and not extrapolate performance on the basis of well-chosen examples or simulations constructed using hindsight.

I am not saying that optimization has no value. I am saying that optimized results are not a realistic indication of potential future performance.

I am not saying that stochastics, or any other oscillator, is useless as a trading tool. I am saying that many straightforward applications of stochastics will not lead to trading success.

In a nutshell, my message is the same in all these cases: don't assume an indicator or system has value on the basis of some striking illustrations in a brochure or article. Test it before you trade it. You may be surprised by the results.

# In This Issue

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*by John Sweeney, Editor*

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I'm not going to discuss this issue's articles here. Instead I want to talk about capacity, "speculative capacity."

Although politicians rarely comprehend their economic function, professional speculators, whether institutional or individual, are essential stabilizing elements in any market. That is because they are the folks buying when the crowd is selling and selling when the crowd is buying. By definition, they must, if they are to survive, buy low and sell high.

As the financial markets have grown more complicated and larger, the need for speculators has necessarily grown apace. However, the supply of speculators has not grown. Thus we now see banks, insurance companies, and brokerages assuming the role while calling themselves "traders" or "arbitrageurs." Brokerages are not full of distinguished intellects but they far outshine banks and insurance companies for speculative brights. Nevertheless, as an example of crashes to come, we see a major brokerage suing because they were deceived in the Goodyear takeover. The question is, "Why were they speculating if they didn't know what they were doing?"

What the economy needs is more speculators who know what they are doing. The economy needs more speculative capacity to dampen the fluctuations of new and untried markets. Speculation and arbitrage by investment houses experienced in such risks should be encouraged. Instead of wiping out 90% of the new individual traders coming into the market, the brokerage industry should be limiting their trading until they get some seasoning. (Can you imagine a broker telling a novice trader, "Sorry, Joe, we just won't let you take any position that risks more than 2% of your trading capital until you've been with us for three years!") Banks and insurance companies should just get out of speculation entirely. If their directors can't smell it when they see it, the Fed or state regulators should remove them.

What can be done? For individuals, seasoning is essential. Thus the 2% rule mentioned above makes a lot of sense. It's too much to hope that academia will turn to teaching speculation but there may be money in it for private interests, certainly for the exchanges. I wouldn't go so far as to advocate special tax breaks but if the winds in the Beltway turn once again to dispensations for everyone else, why not for novice speculators too?

Speculators should find it in their own interest to enlarge their ranks, to heighten their political influence. Speculators can only survive as long as the markets are free. Given the rank political lust, particularly among Democrats, to run other people's lives, the markets we know today are not likely to last much longer unless their performance is so stellar that no possible criticism can be leveled. The Boesky affair is probably just the first excuse to start pounding nails in the free markets' coffins.

We've all known folks who started speculating but later faded from the scene. Think about how that happened and how it might be prevented. Consider developing a protege or three. The more of us speculators there are, the better for everyone.

*Good trading*

# Profitability of selected technical indicators: U.S. T-Bond futures

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*by Steven L. Kille and Thomas P. Drinka*

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In the December 1985 issue of this magazine, we reported the results of applying moving averages, momentum, %R, and Relative Strength (RSI) to five December corn futures contracts. We also reviewed the formulas and trading techniques for these popular indicators. For each, we presented the net trading profit or loss generated by the five most profitable parameter sets from exclusively long positions, exclusively short positions, and alternating long and short positions.

The purpose of this article is to review similar information for Chicago Board of Trade long-term U.S. Treasury Bond futures. Trading was simulated on the 1981-85 March, June, September, and December contracts. The simulations were conducted on the nearby contract-only, with roll-over occurring on the first trading day of the expiration month. We present trading results for the period of December 2, 1980 through December 1, 1985. Trades were made at the open, and a \$100 commission was charged per turn.

Since bond prices are quoted in 32nds, we converted all data into decimals. Severe distortions in calculated indicator values and profits per trade result if the raw price data is used. Distortions result because prices quoted in 32nds are not contiguous. For example, if the current price is 9131, then a one-tick move would generate a price of 9200, which the computer would interpret as a 69-point move, instead of the actual one-point move that it represents. By converting such prices into decimal equivalents, one can avoid problems which arise from using prices quoted in 32nds.

Figure 1 displays the parameter sets used to simulate trading. Under the two moving average technique, the short moving average was varied by 1-day increments from a 2-day to a 15-day (these iterations are described as "2(1)15" in the Figure). Similarly, the long moving average was varied by 3-day increments from a 6-day to a 60-day. Thus, a total of 266 parameter combinations were tested.

For momentum, 5,000 parameter combinations were tested. Days were incremented by twos, from six to 20; the sell parameter was incremented by 21s, from 100 to 604; and, the buy parameter was decreased by 21s, from - 100 to - 604.

The specifications in Figure 1 of parameter sets for HI/LO, %R, and RSI follow this format.

These are familiar indicators. Only the HI/LO may not be well known. The HI/LO oscillator takes into account high, low, and settlement prices. To calculate this oscillator, take the high, price of the latest trading day and subtract the settlement price of the previous trading day. Then divide that difference by the difference in the high price and low price of the latest trading day. When the oscillator has a high positive value, the market is considered to be overbought; when the oscillator has a high negative value, the market is considered to be oversold.

The simulations were optimized over five individual criteria: namely, total profit, short profit, long profit, average winning trade, and average losing trade. Figure 2 presents--for each of the six selected technical indicators--the parameter set that resulted in the greatest net trading profit. For example, of the 266 combinations of two moving averages that were simulated, the 3-day and 12-day combination--which was

the most profitable of the 266--resulted in net trading profit of \$26,630.

The HI/LO indicator resulted in the highest net profit among the six selected indicators. Over the 5-year optimization period, this indicator-- with the buy parameter at -0.20 and the sell parameter at +1.20--resulted in net trading profit of \$84,520. Of this total profit, \$50,310 was from the long futures positions, while \$34,210 was profit from the short positions only. Note that when the selected six parameters were optimized by short profit and by long profit this indicator also performed the most profitably.

A total of 158 trades were made; 101 of them were winning trades, and 57 of them losing trades. Of 1,268 tradeable days, positions were maintained for 1,218 days. From the 101 winning trades, a total net profit of \$148,030 was enjoyed, the average net profit per trade was \$1,466, and the largest winning trade was \$6,310. Among the 57 losing trades, the largest losing trade was \$5,110, while the average loss per trade was \$1,114. Finally-- among these 158 trades--the largest obtained equity amounted to \$85,250, the greatest unrealized loss amounted to \$5,130, and the largest drawdown was \$11,730.

**The simulations were optimized over five individual criteria: namely, total profit, short profit, long profit, average winning trade, and average losing trade.**

Figure 2 displays the trading results for optimization by short profit, long profit, average winning trade, and average losing trade, respectively. As noted above, the indicator resulting in the greatest profit from exclusively short positions and from exclusively long positions is the HI/LO, with the buy parameter at -0.20 and the sell parameter at +1.20.

Figure 3 displays the results of optimization by average winning trade. A 16-day RSI with buy parameter at 24 and sell parameter at 96 resulted in the highest average winning trade among the six selected indicators. There were only three trades during the 5-year test period; only one of these trades was a winning trade, and resulted in \$10,490 net profit, the highest average winning trade.

Figure 4 displays the results of optimization by average losing trade; that is, the parameter set resulting in the smallest average losing trade. A 6- day momentum, the HI/LO, and a 6-day RSI each resulted in only a few trades during the 5-year test period, but these were only winning trades.

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**Parameter sets of selected technical indicators used to evaluate 1981-1985  
U.S. Treasury Bond Futures**

Technical Indicator	Days	Parameter Set	
		Sell	Buy
Two Moving Ave			
Short MA	2(1)15	na	na
Long MA	6(3)60	na	na
Three Moving Aves			
Short MA	2(1)15	na	na
Intermed MA	4(2)30	na	na
Long MA	6(3)60	na	na
Momentum	6(2)20	100(21)604	-100(-21)-604
HI/LO	na	0.2(0.2)2.8	-0.2(-0.2)-2.8
Rel Strength Index	6(2)20	60(2)96	4(2)40
%R	6(2)20	4(2)40	60(2)96

Figure 1:

**Optimal Parameters for Treasury Bonds, 1981-1985**

		2MA	3MA	MOM	MOM	HI/LO	%R	RSI	RSI
Optimized By	Days	Total Profit	Total Profit	Total Profit	Short Profit	Total Profit	Total Profit	Total Profit	Short Profit
		Short Profit	Short Profit	Long Profit	Long Profit	Short Profit	Short Profit	Long Profit	Long Profit
Parameter Set	Days	3, 12	4, 26, 30	8	18	na	6	8	18
	Long	na	na	-142	-499	-0.2	84	38	32
	Short	na	na	289	520	1.2	8	86	74
Number of Trades		121	50	45	12	159	131	25	17
Days in Market	1,268	1,236	1,149	401	1,218	1,221	1,121	655	
Total Profit or Loss		26,630	29,400	42,990	27,020	84,520	34,590	37,320	21,750
Long Profit or Loss		21,730	22,560	31,380	10,490	50,310	26,130	31,750	12,320
Short Profit or Loss		4,900	6,840	11,610	16,530	34,210	8,460	5,570	9,430
Number of Winning Trades		50	24	29	7	101	87	16	9
Total of Winning Trades		102,720	74,890	85,080	31,720	148,030	113,690	64,120	41,140
Largest Winning Trade		6,680	9,680	6,900	8,840	6,310	4,810	11,030	9,770
Largest Obtained Equity		27,540	31,820	43,900	30,620	85,250	42,600	38,230	33,570
Number of Losing Trades		71	26	16	5	57	43	9	8
Total of Losing Trades		76,090	45,490	42,090	4,700	63,510	79,370	26,800	19,390
Largest Losing Trade		5,010	4,290	7,410	1,470	5,100	6,910	7,410	7,010
Greatest Unrealized Loss		2,910	4,400	7,750	4,780	5,130	7,190	8,540	8,540
Largest Drawdown		16,640	12,620	12,410	6,790	11,730	14,080	21,030	18,49

Figure 2:

<b>Optimization Criterion: Average Losing Trade</b>							
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>
Parameter Set	Days	2, 6	3, 4, 6	6	na	6	6
	Long	na	na	-373	-1.8	64	6
	Short	na	na	457	2.8	40	96
Number of Trades		224	184	5	2	197	1
Days in Market (out of 1,268 tradeable days)		1,268	1,258	144	46	1,262	65
Total Profit or Loss		-5,510	-11,250	27,840	5,090	-27,780	5,150
Long Profit or Loss		5,810	3,540	11,480	0	-23,470	0
Short Profit or Loss		-11,320	-14,790	11,480	0	-23,490	0
Number of Winning Trades		88	68	5	2	109	1
Total of Winning Trades		113,490	108,940	27,840	5,090	90,290	5,150
Largest Winning Trade		5,550	9,900	9,060	4,750	2,440	5,150
Largest Obtained Equity		20,350	7,520	28,970	5,500	2,840	6,970
Number of Losing Trades		135	116	0	0	87	0
Total of Losing Trades		119,000	120,190	0	0	118,070	0
Largest Losing Trade		3,070	3,570	0	0	7,720	0
Greatest Unrealized Loss		2,840	3,310	4,440	1,320	40,200	2,810
Largest Drawdown		25,760	22,890	4,440	1,320	40,200	2,810

na: not applicable

**Figure 3:**

<b>Optimization Criterion: Average Losing Trade</b>							
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>
Parameter Set	Days	2, 6	3, 4, 6	6	na	6	6
	Long	na	na	-373	-1.8	64	6
	Short	na	na	457	2.8	40	96
Number of Trades		224	184	5	2	197	1
Days in Market (out of 1,268 tradeable days)		1,268	1,258	144	46	1,262	65
Total Profit or Loss		-5,510	-11,250	27,840	5,090	-27,780	5,150
Long Profit or Loss		5,810	3,540	11,480	0	-23,470	0
Short Profit or Loss		-11,320	-14,790	11,480	0	-23,490	0
Number of Winning Trades		88	68	5	2	109	1
Total of Winning Trades		113,490	108,940	27,840	5,090	90,290	5,150
Largest Winning Trade		5,550	9,900	9,060	4,750	2,440	5,150
Largest Obtained Equity		20,350	7,520	28,970	5,500	2,840	6,970
Number of Losing Trades		135	116	0	0	87	0
Total of Losing Trades		119,000	120,190	0	0	118,070	0
Largest Losing Trade		3,070	3,570	0	0	7,720	0
Greatest Unrealized Loss		2,840	3,310	4,440	1,320	40,200	2,810
Largest Drawdown		25,760	22,890	4,440	1,320	40,200	2,810

na: not applicable

Figure 4:

# Statistical vs. practical significance

Let's look more closely at practical significance when using chi-square methodology. First, you need to specify two different hypotheses. They are frequently called the null and alternate hypotheses. In this case, the null hypothesis would be that prices are not random, and the alternate hypothesis would be that prices are random. What level would the chi-square statistic have to reach in order for you to reject the null hypothesis and accept that prices are random?

The probability that a particular experiment will result in rejection of the null hypothesis, calculated under the assumption that the null hypothesis is true, is called the significance level. This is the probability that you will reject the hypothesis that prices are not random when they are random. This error is often called a Type 1 error and the relative probability of this type of mistake occurring is set by the experimenter. For example, if you set the significance level at 0.05, it means that if you did this comparison 100 times, you might incorrectly reject the null hypothesis five times. If you set this probability at 0.01, you would make the mistake one time out of 100. (A Type 2 error occurs when you accept the null hypothesis when it is not true.)

Often there is little relationship between statistical and practical significance. For example, a recent study showed that if you made a major change in your diet (stopped eating eggs, milk, beef, etc.) it would cause a statistically significant decrease in your serum cholesterol level. But, this change would really alter your risk of developing atherosclerosis. So, the practical significance of the finding is rather limited.

Sometimes a comparison will yield a significance value that is not generally considered statistically significant; that is, the probability of a Type 1 error is greater than 0.05. But the comparison may have some practical significance. For example, the significance value for determining if price-earnings ratios for automobiles by year is dependent is less than 0.10. Most statisticians would not consider this value statistically significant. On the practical side, however, it may mean that the price-earnings ratios are dependent, and you would be wrong only 10 out of every 100 times you make this comparison. This provides you with some useful information that is not statistically significant in the usual sense.

# Trend of the trend

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by Gregory L. Morris

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Most indicators of trend are taken for granted even though many times they are used successfully by stock and commodity traders. It has been my experience that blindly following canned indicators can lead you into a false sense of security, especially if you begin using the indicator when it is correctly calling the market. If you begin using a trend-following indicator during its inevitable whipsaw period, you will lose faith and look for another indicator. Therefore, if you develop an indicator using some basic logic and reason which is related to known market action, you can have a little more faith in a particular indicator. There is also the argument of using a basket of indicators and/or using them in a tree structured approach. No doubt that is a safer approach, but it is not the purpose of this article.

It is accepted that the successful trader must identify and follow the trend of the market to be a consistent winner. There are, of course, many indicators available to help identify the termination of a trend and prepare you to reverse your positions. Adding even more confusion to the arena, you have to determine which type of trend is being identified: short, medium, or long. Again, this is not the purpose here.

I would like to share with you a simple trend-following technique that seems to work very well. It works because you must adapt it to the market you want to analyze. In other words, the parameters are going to be different for each market, whether it be stocks, commodities, mutual funds, or whatever. A complete explanation of the system will be discussed while being applied to the Dow Jones Industrial Average. I know what you're thinking--no one can trade the DJIA, so why use it? That's the very reason I have used it. I did not want it to look like I had culled hundreds of charts to find one that best supported this technique.

First of all, you must determine your trading objectives: short, medium, or long-term. Short-term (a few days to a few weeks) would rely on daily data for the trend information. Long-term (greater than six months) would use almost exclusively weekly data. Medium-term would use a combination of both. Then, of course, there are combinations of daily and weekly that you can use to put conditional restraints into your trading system. The technique of using longer-term indicators to determine which side of a shorter-term indicator to make your trade is usually a profitable trading strategy. However, for the purposes of this article, I will stick to the short- to medium-term.

Determining the dominant short-term cycle is necessary to obtain the smoothing parameters for this indicator. There are many good books available on cycles. One that I have found to be the most useful is *The Profit Magic of Stock Transaction Timing*, by J.M. Hurst (Copyright 1970). Despite the horrendous title, the book is exceptionally logical in its explanation of market cycles and how to identify them.

One method of determining cycles is to detrend the data. This is a simple concept involving the price data and a moving average. The moving average length is based upon the trend you want to follow. For short-term, a moving average of 25-35 days works quite well. Basically, you subtract the moving average from the price and plot the results. This is as if you had grasped the moving average line at both ends and pulled it tight so it looked like a straight line with the price data remaining in its same relative position to the moving average.

## **Most indicators of trend are taken for granted even though many times they are used successfully**

Of course you can always just count the days between lows from any daily chart or use sophisticated maximum entropy or Fourier analysis. Detrending just makes those lows stand out a little better.

Before I go any further, a look at moving averages might be a good idea. A moving average smooths a sequence of numbers such that the result is a reduction in magnitude of the short-term fluctuations, while leaving the longer-term fluctuations little changed. Obviously, the time span of the moving average used will alter its characteristics.

J.M. Hurst explains these alterations with three general rules:

1. A moving average of any given time span exactly reduces the magnitude of the fluctuations of duration equal to that time span to zero.
2. The same moving average also greatly reduces (but does not eliminate) the magnitude of all fluctuations of duration less than the time span of the moving average.
3. All fluctuations of greater than the time span of the average "come through," or are also present in the resulting moving average line. Those with durations just a little greater than the span of the average are greatly reduced in magnitude, but the effect lessens as periodicity duration increases. Very long duration periodicities come through nearly unscathed.

For this indicator you need to identify the short-term cycle for the market you are analyzing. Detrending the data as mentioned earlier will assist you in identifying market lows and finding the dominant short-term cycle. Once the cycle has been identified, select an exponential average equal to one half of the short-term cycle. For the Dow Jones Industrial Average, the short-term cycle is 14 to 15 days. Therefore, you should use seven days for your exponential average. Most software programs allow you to work with periods instead of smoothing constants when dealing with F exponential averages. Periods are somewhat easier to grasp than smoothing constants. The reason behind using an average equal to one half of the short-term cycle is to maximize the price movement without smoothing the dominant cycle.

Only through years of use and experimentation have I been able to determine the second part of the equation: That is, the length (or period) of the second exponential average used with this trend-following indicator. Simply stated, use a period six times the value of what you used for the short-term average. If you used seven days for the short one, then use 42 days for this one. I suppose, for credibility, I should have told you that by using six times the short average you were applying the principle of "half-dozening" which, of course, everyone knows about. But, in case you don't, *half-dozening* refers to the completely arbitrary rule of using a longer term average equal to six times the short average. This was found after many years of experimentation.

The relationship between these two is similar to the Moving Average Convergence Divergence (MACD) first written about by Gerald Appel. Merely subtract the longer period average from the short period average and you are left with an oscillator that will give quicker and more timely signals than your standard two-moving-average crossover system. Buy and sell signals are generated by using an arithmetic moving average on this oscillator. Again, by much testing, I have found that the period for this average should be three times the value of the short-term exponential average. In this example, that would be 21 days.

That's it: a simple trend-following indicator that works. [Figure 1](#) shows the Dow Industrials and this indicator over the last 14 months with the buy and sell signals identified. Note how the cursor will help you identify actual crossovers by showing the value of the indicator and the value of the moving averages. [Figure 2](#) shows the same information but only for the last seven months.

## Blindly following canned indicators can lead you into a false sense of security

An additional technique to help avoid or reduce whipsaws is to construct a trading band around an arithmetic moving average that uses the same period as the buy/sell average discussed above (21 days). This trading band is on the price action itself and the percentage for the band is one that will encompass most of the data or at least 90 to 95% of the data. The best buy and sell signals occur when the price action is at or near the limits of the trading band. Obviously, buy signals should be accompanied by price action at or near the lower band and sell signals at or near the upper band. If it is near the center or near the opposite side, you ignore the signal given by the oscillator. If the price action is outside of the trading band, the signal is probably premature. That's the nature of momentum and is another subject entirely.

[Figure 3](#) shows the Dow Industrials with trading bands of 4.5 percent on the top plot and the indicator with the new buy and sell indications at the bottom. Note that the indicator plot was changed to just a line plot instead of the histogram plot as shown in [Figure 1](#). Again, the last seven months are shown for better detail (see [Figure 4](#)). Notice the reduction of signals when applying the trading bands to the system.

Remember, determine the dominant cycle. Select the short exponential average equal to one half of that cycle. Use a longer term exponential average equal to six times the short one. Then place an arithmetic moving average over the difference between the two exponential averages. The length of the arithmetic average should be three times that of the short exponential average. Use trading bands to help filter out some of the whipsaws. Whipsaws are a fact of life in a trend-following indicator--accept them and you will always be on the right side of the market. If you start with a series of small losses, you will really get excited when the big moves come.

I have prepared a small list of parameters that I have discovered to be the best (so far) when utilizing this technique. The first number is the short exponential average, the second number is the long exponential average, and the last number is the arithmetic moving average used on the oscillator and for the trading bands.

Daily stock market indices:	7 / 42 / 18-21
Weekly stock market indices:	8 / 56 / 24
Weekly mutual funds:	5 / 30 / 15
New York silver (CSI Perpetuals):	6 / 36 / 18
Most daily individual stocks:	7 / 42 / 18-21
Weekly mutual funds (long-term):	11 / 66 / 33

### Selected Parameters

Just to show you that this can work elsewhere, [Figure 5](#) shows a sell signal just before an 11.88 point drop in the S&P 500 in September 1986.

These are just a few examples of the parameters what I have found to be fairly reliable. As a stand-alone indicator, this one works quite well. However, if used with a basket of indicators, overall results improve significantly.

*Gregory L. Morris is the president of G. Morris Corporation, which is engaged in technical analysis consulting and software development.*

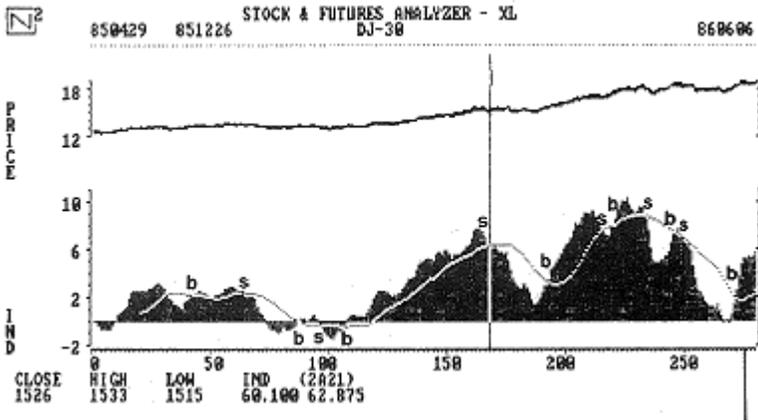


Figure 1:

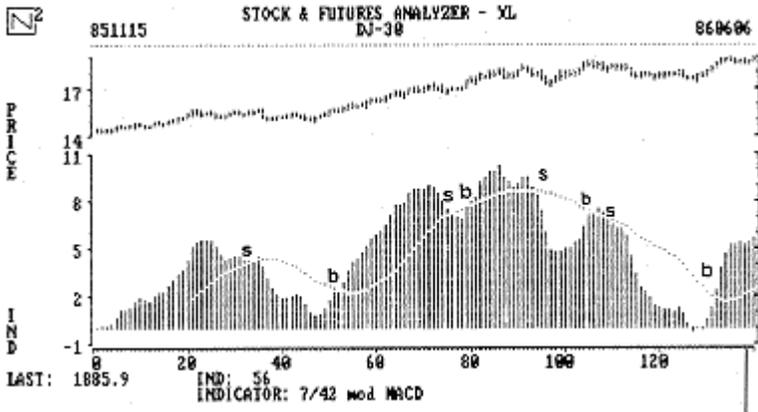


Figure 2:

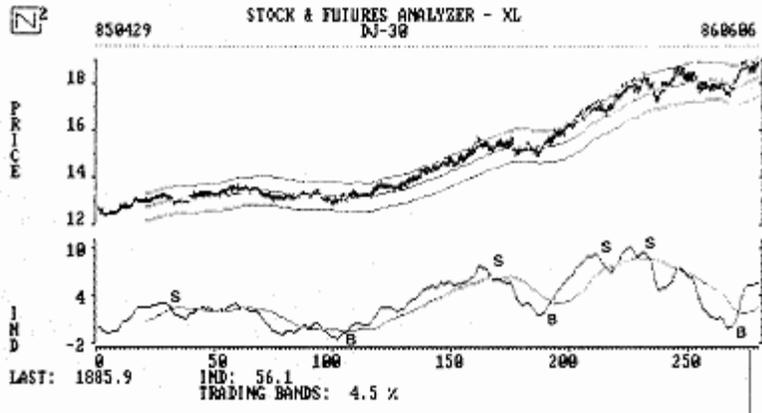


Figure 3:

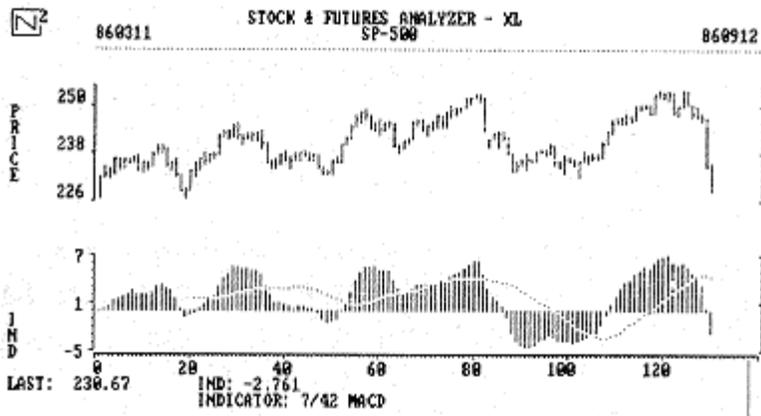


Figure 4:

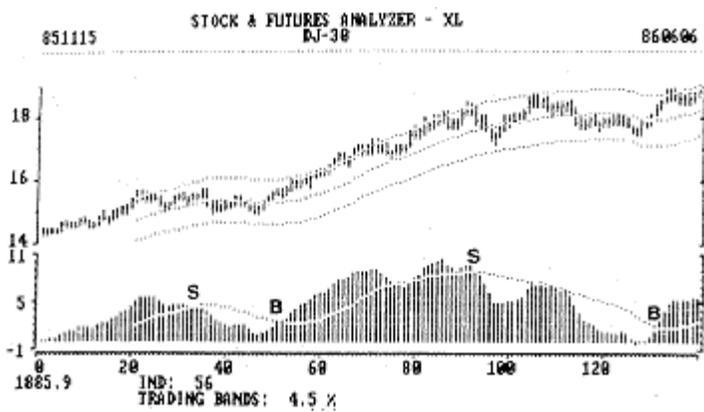


Figure 5:

# A complete computer trading program

## *(part 1)*

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by John F. Ehlers

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This is the first of four articles that give a description and computer listing, enabling you to perform technical analysis with your computer. In the second article I will cover the basics of reading data from a standard format and plotting price history on a graph. The third article will allow you to selectively plot moving averages and J. Welles Wilder's Parabolic System over the price history. The fourth and concluding article will give the computer listings to calculate Commodity Channel Index (CCI), Directional Trend Indicator (DTI), or Relative Strength Index (RSI) below the price history so that they can be compared.

When finished the program will produce charts similar to my *Summit* program, shown in [Figures 1 through 3](#). [Figure 1](#) shows the price history along with the CCI plot. The arrows are BUY signals produced by the CCI. The date and price are displayed to the left of the chart for the indicated horizontal and vertical cursor positions at the edge of the chart. The dominant cycle was selected as 14 days because I had previously measured the dominant cycle using my *MESA* program. The selectable options are at the left of the chart. [Figure 2](#) shows the moving averages for the dominant cycle and half dominant cycle as well as the RSI and its BUY/SELL signals. [Figure 3](#) shows the Parabolic System and the DTI plots.

Make no mistake. This is not a one evening project! Hopefully the results will be worth your effort if you embark on writing the complete program. Possibly you can pick up some programming ideas if you already have a plotting program and are interested in different ways to approach the problem.

### **Computer compatibility**

The program is written in Applesoft BASIC, and will play directly on any of the Apple II computers having at least 48K of memory and one disk drive. I have tried to write the program in generic BASIC statements wherever possible for ease of translation to other machines.

### **Shape table**

One of the problems programmers have with the Apple II family of computers is that there is no natural way to mix graphs and text on the high-resolution graphics displays. However, John Rogers of Madison, WI developed a handy machine code program in 1980 that allows you to type text on your high-resolution graphs with the same PRINT, HTAB, VTAB, etc. commands that you use for normal text. The characters are created as shapes and then these shapes are used to produce characters on the high-resolution graphics screen.

### HIGH-RES-TEXT/3

```

JCALL -151
*0000,8400
8000-A5 E4 C9 20 F0 05 C9 40
8008-F0 01 40 20 FC FB 0A 00
8010-00 01 65 27 CA 00 00 01
8018-18 69 33 85 36 90 03 EA
8020-E4 37 A5 34 18 69 40 85
8028-38 65 EE A5 37 69 01 85
8030-39 69 01 65 EF A9 00 85
8038-ED 65 F0 20 EA 03 60 4C
8040-C9 A0 90 04 25 32 05 ED
8048-84 35 A8 8C F9 48 A5 25
8050-48 A5 24 48 A5 28 48 A5
8058-29 48 98 C9 A0 00 04 A8
8060-30 69 EA 64 FA B4 FB A0
8068-00 AA 30 02 A0 7F B4 FC
8070-29 7F 85 FE A9 00 06 FE
8078-2A 06 FE 2A 06 FE 2A 18
8080-65 EF A8 A5 FE 65 EE 85
8088-FE 90 01 C8 84 FF A2 98
9090-A5 26 85 2A A5 29 29 03
9098-05 E4 85 2B A0 00 81 FE
00A0-A5 FC A4 24 91 2A 71 2A
00A8-18 A5 FE 69 01 35 FE 70
00B0-03 E4 FF 18 A5 2B 69 04
00B8-85 2B CA 00 0F A6 FA A4
00C0-FB E4 24 A5 24 C5 21 00
00C8-1F 90 19 C9 80 F0 19 C9
00D0-0A F0 19 EA C9 8C 00 04
00D8-A9 20 05 ED C9 8B 00 04
00E0-A9 00 85 ED 19 90 9A EA
00E8-A9 00 85 24 E4 25 A5 25
00F0-C5 23 90 73 EA C6 25 A5
00F8-22 48 68 48 20 24 FC A5
8100-28 85 FE A5 29 29 03 85
8108-E4 95 FF 68 69 01 C5 23
8110-80 32 EA 48 20 24 FC A5
8118-28 85 2A A5 29 29 03 85
8120-E4 05 2B A2 07 A4 21 88
8128-81 2A 91 FE 8B 10 FF 18
8130-A5 FF 69 04 85 FF A5 2B
8138-69 04 85 2B CA 10 E6 30
8140-89 70 29 EA A0 00 A5 20
8148-85 2A A5 29 29 03 05 E4
8150-85 2B A2 0B A9 00 91 2A
8158-18 A5 2B 69 04 85 2B CA
8160-00 F2 C8 C4 21 90 DF A5
8168-25 20 24 FC 68 85 29 68
8170-85 2B 68 85 24 63 85 25
8178-A2 F9 68 48 4C F9 F0 48
8180-48 84 FA 4A A5 28 85 2A
8188-A5 29 29 03 05 E6 85 2B
8190-0A A2 0B A4 24 01 2A 49
8198-55 91 2A 1B A5 2B 69 04
81A0-05 2B CA 00 F0 A6 FA 68
81A8-20 1B FD 4B AA A5 28 85
81B0-2A A5 29 29 03 05 E6 85
81B8-2B BA A2 0B A4 24 B1 2A
81C0-49 33 91 2A 18 A5 2B 69
81C8-04 85 2B CA 00 F0 68 A6
81D0-FD F0 1E AE A1 FA 00 2C
81D8-C9 C0 F0 0B C9 CC 80 24
81E0-C9 C9 90 20 A6 FA 48 A9
81E8-8A A6 FA 20 ED F0 4C 35
81F0-FD C9 9B 00 04 A2 F0 86
81F8-FD C9 8D 00 E7 48 A5 23
8200-48 C0 20 EA A2 00 86 FD
8208-C9 C0 F0 4A EA C9 C8 F0
8210-65 EA C9 C8 F0 E7 C9 C6
8218-00 CA 0B A4 24 A5 25 48
8220-20 24 FC A5 28 85 2A A5
8228-29 29 03 05 E6 85 2B A2
8230-08 A9 00 91 2A 18 A5 2B
8238-69 04 85 2B CA 00 F2 C8
8240-C4 21 90 DF A0 00 68 69
8248-00 C5 23 90 02 A5 25 20
8250-24 FC A6 FA 68 60 48 A5
8258-22 85 25 A0 00 64 24 F0
8260-8E 20 58 FC A9 C0 80 9C
8268-20 42 FC A9 C6 38 95 20
8270-9C FC A9 C5 30 8E A9 8A
8278-20 ED FD A9 A0 A6 FA 60
8280-00 00 00 00 00 00 00
8288-00 00 00 00 00 00 00
8290-00 00 00 00 00 00 00
8298-00 00 00 00 00 00 00
82A0-00 00 00 00 00 00 00
82A8-00 00 00 00 00 00 00
82B0-00 00 00 00 00 00 00
82B8-00 00 00 00 00 00 00
82C0-00 00 00 00 00 00 00
82C8-00 00 00 00 00 00 00
82D0-00 00 00 00 00 00 00
82D8-00 00 00 00 00 00 00
82E0-00 00 00 00 00 00 00
82E8-00 00 00 00 00 00 00
82F0-00 00 00 00 00 00 00
82F8-00 00 00 00 00 00 00
8300-00 00 00 00 00 00 00
8308-00 00 00 00 00 00 00
8310-00 00 00 00 00 00 00
8318-00 00 00 00 00 00 00
8320-00 00 00 00 00 00 00
8328-00 00 00 00 00 00 00
8330-00 00 00 00 00 00 00
8338-00 00 00 00 00 00 00
8340-00 00 00 00 00 00 00
8348-00 00 00 00 00 00 00
8350-00 00 00 00 00 00 00
8358-00 00 00 00 00 00 00
8360-00 00 00 00 00 00 00
8368-00 00 00 00 00 00 00
8370-00 00 00 00 00 00 00
8378-00 00 00 00 00 00 00
8380-00 00 00 00 00 00 00
8388-0B 0B 0B 0B 0B 0B 00
8390-14 14 14 00 00 00 00
8398-14 14 3E 14 3E 14 14 00
83A0-0B 3C 0A 1C 29 1E 0B 00
83A8-06 26 10 08 04 32 30 00
83B0-04 0A 0A 0A 2A 12 2C 00
83B8-0B 0B 0B 00 00 00 00
83C0-0B 04 02 02 02 04 08 00
83C8-0B 10 20 20 20 06 00
83D0-0B 2A 1C 08 1C 2A 08 00
83D8-00 0B 08 3E 0B 08 00 00
83E0-00 00 00 00 08 08 04 00
83E8-00 00 00 2E 00 00 00 00
83F0-00 00 00 00 00 00 00 00
83F8-00 20 10 08 04 02 00 00
8400-1C 22 32 2A 26 22 1C 00
8408-0B 0C 00 00 06 06 1C 00
8410-1C 22 20 18 04 02 3E 00
8418-3E 20 10 18 20 22 1C 00
8420-10 18 14 12 3E 10 10 00
8428-3E 02 1E 20 20 22 1C 00
8430-88 04 02 1E 22 22 1C 00
8438-3E 20 10 08 04 04 04 00
8440-1C 22 22 1C 22 22 1C 00
8448-1C 22 22 3C 20 10 0C 00
8450-00 00 08 00 08 00 00 00
8458-00 00 08 00 08 04 00 00
    
```

Mr. Rogers' program is called "HIGH-RES-TEXT/3" and is now in the public domain. Writing this binary program is quite a bit of work, but it is included here because you may wish to use this approach in other applications where you want to put text on the graphs that you draw. This routine is only required for those of you using an Apple computer.

Listing 1 contains the complete machine language program and shape table for generating both upper and lower case text on an Apple II computer high-resolution graphics screen. The following procedure should be used to enter and save the binary file.

The numbers on the far left of the assembly listing are Hexadecimal addresses, and the numbers

immediately to the right are the contents of those addresses. To enter, get into the Monitor (CALL -151) and type **6000:**. Now type the contents **A5 E6 C9 20 F0 05 C9 40 F0 01**. You can enter up to 85 bytes (pairs of numbers) before overflow occurs. Before you have typed this many, hit Return and continue with a colon and more pairs of data bytes.

To save the program, you need the starting address and the length of the file. These are \$8000 and \$680, respectively. Assuming you are back in BASIC (by pressing CTRL-C Return from the Monitor) and have your disk drive ready, type **BSAVE HIGH-RES-TEXT/3,A\$8000,L\$680**. To aid in this somewhat laborious procedure, you may wish to refer to your Apple II Reference Manual.

This complete computer program (revised by Jack K. Hutson), along with an explanatory example BASIC program, is available on disk directly from *Technical Analysis of Stocks & Commodities* magazine for \$49.95. Please reference Volume 5 disk. An IBM version of this program is available directly from John Ehlers, P.O. Box 1801, Goleta, CA 93116.



"But surely Dr. Feinman, at 100 dollars per hour you can find that I'm latent something or other"



Figure 1

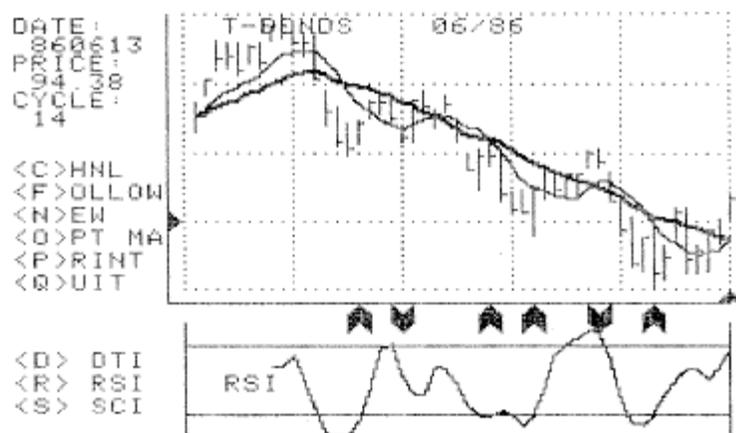


Figure 2

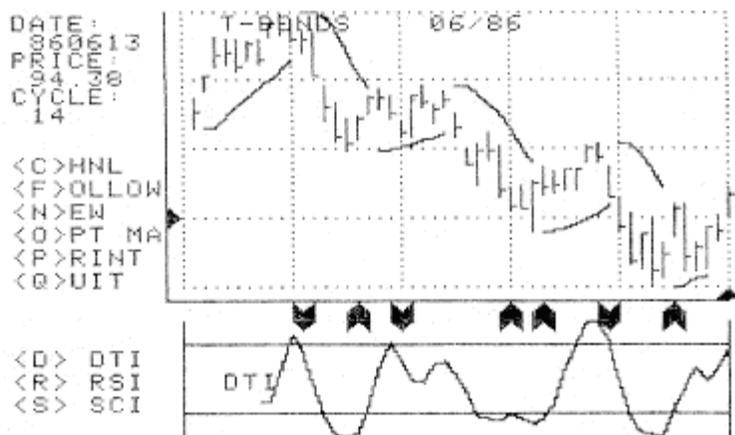


Figure 3

# Assessing Risk On Wall Street

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by Robert W. Hull

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Thomas A. Rorro

Sobaro Publishing Company, 1984

**Price:** \$17.95 (202 pages)

Thomas A. Rorro's book, *Assessing Risk on Wall Street*, is indeed a bridge between the investment communities' personalized approach to the market on the one hand, and the theory of investments as presented in the academic literature on the other. He combines his own particularly well-thought-out approach to risk and return, using methodology found in the academic literature, to finally arrive at a practical method of assessing the financial risk associated with an investment.

The approach that is developed to determine the return on an investment instrument is to calculate the annualized rate of return for various investment instruments. This allows for comparisons to be made between them. This annualized percentage return is calculated for four different investment vehicles: common stock, convertible stock, the put option, and the call option. For each of these instruments, Rorro begins with simple numerical examples, proceeds to show these results graphically, and finally generalizes from each of these examples by developing an equation representing the relationship between final value and the price of each instrument.

A more interesting technique is developed to measure the risk associated with a particular investment. Here, Rorro uses the concept of a statistical distribution of stock prices to be used to describe the random nature of the price. To accomplish this, he assumes a lognormal distribution of the ratio of consecutive (weekly) stock prices. The assumption of a lognormal distribution allows a transformation via taking logarithms to construct a normal distribution. The use of this theoretical distribution parallels what is found in the literature and also allows for the calculations of an expected profit, the variability of this profit, and the probabilities that can be assigned to certain profitable outcomes.

A selection criterion can then use these figures so that only individual investments with both a high probability of profit and a high expected profit can be included in an investment portfolio.

In addition to providing a carefully reasoned means by which return and risk can be practically measured, *Assessing Risk on Wall Street* provides an excellent review of the nature of each of the previously mentioned investment instruments. These are first described, then examples are worked out, graphs are drawn, and finally equations are derived for each of these instruments. This material could provide a very thorough review of these instruments even if it was intended as an introduction to the measure of risk which follows.

The concept of a hedge is developed early on in the book as a technique of taking positions in several instruments simultaneously. This concept is also mentioned at other points where the reader is apparently supposed to see that the hedge could be effective in trading. The concept of hedging does indeed allow for risk reduction, but at the cost of reduced potential profits. The use of the technique developed to measure risk as it might be applied to a hedge situation did not seem to be as fully developed as when

applied to other financial instruments.

Rorro has also included, in a rather textbook-like style, a few mathematical exercises involving calculations that are left to the reader. I felt that these exercises were beneficial in that they helped to reinforce the ideas that he had just presented. However, many answers were not provided, and being less than perfectly confident of my own calculations, I would have preferred some sort of answer key or solution.

The implementation of the assessment of these measures of return and risk, to stock or hedges, to be included in a portfolio will require the utilization of a computer. The techniques have been made available to be implemented on all personal computers with spreadsheet capability. Online access to the techniques is available via The Source at nominal rates. The author will also provide free spreadsheet instructions. All these means by which the techniques can be implemented certainly put the techniques quickly into the hands of the interested investor.

The academic references incorporated throughout the book demonstrate the author's awareness of the academic literature. He refers to academic contributions regarding the random nature of stock prices and the efficient market theory. These references certainly make the reader more confident that the author has researched the subject and incorporated that research into his own method of analysis. This is particularly noteworthy because all too often popular books on trading strategies appear to present the author's peculiar approach with no regard to the myriad studies that have investigated market performance.

In summary, the serious student will certainly benefit from this book. It is one that the serious investor will want on his bookshelf.

*Robert W. Hull, Jr. is on the faculty in the Business Systems and Analysis Department of the College of Business at Northern Illinois University. He teaches courses in statistics, forecasting, and economics.*

# Changing tides in the investment software market

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by *Thomas A. Rorro*

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**R**emarkably, the investment software industry is on the threshold of a major transition. In the near future, it will no longer be economical to buy investment software. Instead you will be dialing up and renting the capability from one of the national timesharing services. Even today, we see the genesis of these changes. They are beginning slowly at first but the economics are such that the tide must sweep the marketplace.

To explore the issues which surround the investment software industry, let us consider the techniques described in the three previous articles entitled "Assessing Risk on Wall Street" (*Stocks & Commodities*, Oct., Nov., Dec. 1986). These articles present the Random Walk theory of investment analysis in a form which is suitable for computer implementation. Given these articles, let us assume that the reader has developed a desire to use this analysis technique or a similar capability.

## **In the near future, it will no longer be economical to buy investment software.**

There are three ways to make such an analysis technique available to the individual investor. These can be described as the traditional build, buy, or rent options which are standard in business decisions.

Each option has its advantages and disadvantages. However, as technology evolves, the relative value will change. It is therefore prudent to consider all the alternatives available at the time you enter the marketplace.

### **Build**

Given a suitable description of the technique and spreadsheet program, an investor should be able to develop a implementation which will run on his computer. The third article in the "Assessing Risk on Wall Street" series explains the details of a spreadsheet implementation for the Random Walk theory. The implementation will require a moderate amount of literacy on the part of the investor and moderate commitment of his time.

Spreadsheet programs have significantly enhanced our ability to computerize investment analysis. In the general case, however, it takes a moderate amount of time to extract the details necessary for implementation from the available literature. The speed of execution and utility of the program will depend on the investor's hardware and the spreadsheet program's efficiency. The implementation is also subject to errors during the programming process. But, in the final analysis, the investor will own the program and be able to change it to suit his needs. This approach provides a capability for a relatively small initial commitment of both time and financial resources.

To be useful, the process requires data. This data can be entered by hand from a year's supply of

newspaper financial sections or can be downloaded from a timesharing database. The manual approach is very time consuming, while the database approach can cost as much as \$5.20 for 52 weeks of closing price data. The database costs can mount up over a year's time and can easily be more than \$200 per year for small investors.

The requirement for computer proficiency on the part of the investor, the lack of technical documentation of sufficient quality, and time considerations have driven the investor to purchase investment programs rather than develop them.

### **Buy**

The purchase of investment software programs currently appears to be the approach of choice by both the software industry and the investing public. The information and education requirement is limited for both the salesman and the customer to what it takes to sell the software package. This is well within the capabilities of a sales force and far less than the level of information required to actually program an implementation. Little computer or stock market literacy is required on the part of the investor in order to have the capability running on his machine.

There are several major drawbacks for the investor, not the least of which is the cost. Programs with a serious level of complexity, similar to the Random Walk theory analysis, cost from \$400 to \$600. Many investors find this cost prohibitive, especially if they are not completely convinced that the technique has merit. In general, there is no inexpensive way to test the analysis over an extended period of time without purchasing the software.

The high purchase price of the software breeds other problems because it reduces the volume of sales and also leads to a high incidence of software piracy. This causes the supplier to add copy protection to the program. This, in turn, burdens the investor by making software less convenient to use and the added complexity dictates higher prices. Finally, the investor must still fuel the program with data and this results in a significant recurring cost on top of the initial purchase price. What has been created is a destructive market spiral for investment software.

The investment software industry is quite complicated. A block diagram of the business relationships is displayed in [Figure 1](#). The investment software industry is modeled after the publishing industry. The investor, (i.e., user) purchases the program from the retailer for a nominal \$400. The retailer keeps approximately 50 percent of this amount for his part and pays the distributor the remaining \$200. The distributor compensates the developer approximately 12 percent of the initial \$400 (i.e., \$50). The distributor uses the remaining \$150 to cover the costs of his initial investment to publish the program and fund most of the advertising and production of the disks and documentation.

The developer of the software provides program support to the distributor and minimum advertising perhaps in the form of personal appearances to promote the product. The user receives program support from, the distributor. As discussed previously, the user is also required to buy data to fuel the program either from the distributor or from one of the online services.

Perhaps there is a simpler and more cost-effective solution to the supply and demand problem. This leads to our final alternative.

### **Rent**

At the onset, the reader may be skeptical of using online software. However, there are many reasons

which make this approach advantageous. A few of the key considerations are:

**Time:** The investor need not spend time programming his computer. His time can be spent productively evaluating and making sound investment decisions over a larger range of securities.

**Quality:** The online software is always the most current and compatibility problems are minimized.

**Access:** By using the electronic mail feature of the timesharing system, the investor can be in direct contact with the software developer and other users to resolve questions and problems. He can also participate in an online forum to discuss program improvements and candidate investments.

**Speed:** Since timesharing systems' computers are much more powerful than most personal computers, the processing time can be reduced significantly. A spreadsheet implementation of Random Walk theory using SuperCalc on an Apple computer takes more than 10 minutes to execute. The same process on a timesharing system's computer is executed in under one second.

**Data:** Data is required in order to fuel the analysis. The timesharing system can provide the data automatically from its database with minimum intervention by the user. If your analysis capability is resident on our computer, the alternative of manual entry grows more difficult as the need for historical data increases. The other alternative is to go online and download the historical price data. But, if we must go online for the data, why not buy the finished analysis rather than just the raw data?

**Costs:** The online approach to investment analysis provides the investor with the capability to test investment techniques at relatively low cost. The purchase of equivalent software can cost from \$400 to \$600, while online use can be as low as \$1 per run.

In addition, because of the nuances in the copyright laws, the recurring cost of the data to fuel the analysis can be substantially reduced using the online approach. The timesharing service can negotiate a bulk data contract with their database supplier at substantially reduced rates. Since raw data is not sold directly to the user, there is no need for the user to pay data charges. The savings in data costs can be so dramatic that it may be less expensive, on a recurrent cost basis, to run investment software online rather than use your own implementation.

Within the online investing concept, the market relationships are significantly streamlined as displayed in [Figure 2](#). The user has access to both supplier and the software developer via the electronic mail feature which is standard on most timesharing systems. In a sense, the user is dealing with the developer through the medium of the timesharing system. Billing is done automatically to the user's credit card and data is provided directly from the database. The costs will depend on the number of times the capability is used. However, considering that the up-front cost of the software is negligible and that the data charges are included, the rental fees can be substantially less than the previous alternative (see [Figure 3](#)).

If I have accomplished my goal, online investing may look promising. But what has changed to make it viable now? The answer is telecommunications; technology advances, only recently available, have made online processing a serious contender in the investment software marketplace. At 11 characters per second (110 baud) the screen is filled in 16 seconds. In addition, 240 characters per second (2400 baud) modems are here today and their price is already falling. For many applications, 1200 baud is sufficient to provide the user with the necessary utility to perform the analysis remotely. The cost savings of the resulting efficiencies can be passed on to the user.

Today, there are limited applications which take advantage of online investing. Software which

implements the techniques of Random Walk theory analysis is currently available online at The Source, a national timesharing system. The program is simply a tool which an investor can use to determine the value of an investment. Of all the commercial timesharing systems, The Source is in the forefront of innovation, but soon the rest will follow.

Capitalism seeks the most economically efficient process and because of this, online investing is the wave of the future. I hope to meet you online in the future. Good luck with your investments.

*Thomas A. Rorro is the author of the book Assessing Risk on Wall Street, a registered investment advisor and founder of the Washington Chapter of the American Association of Individual Investors Computer Group. For more information regarding Profiteer, the software implementation of the Random Walk theory, contact The Source at 800-336-3366, or in Virginia at (703) 821-6666.*

## THE SOFTWARE SALES INDUSTRY

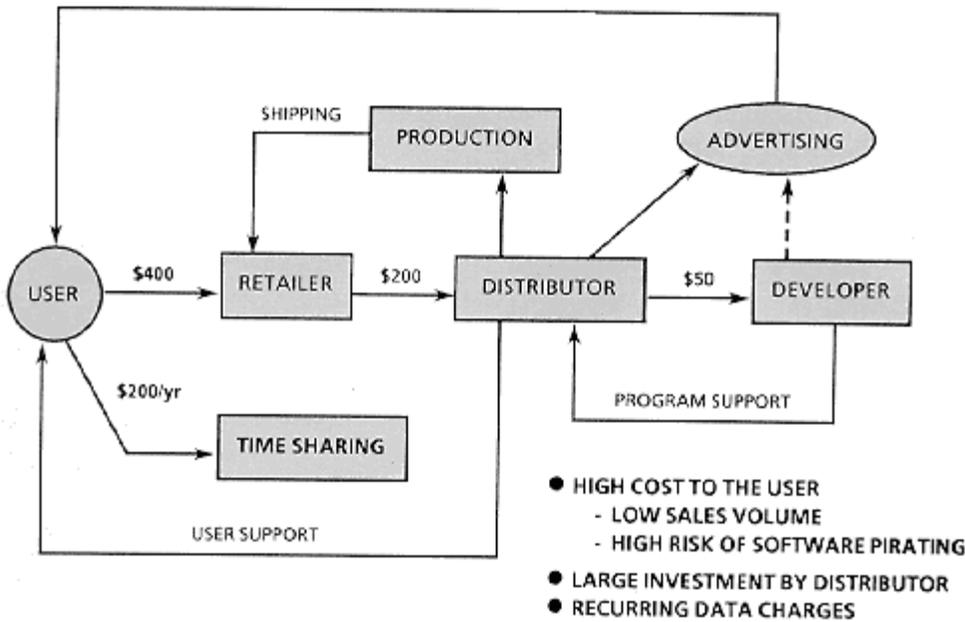
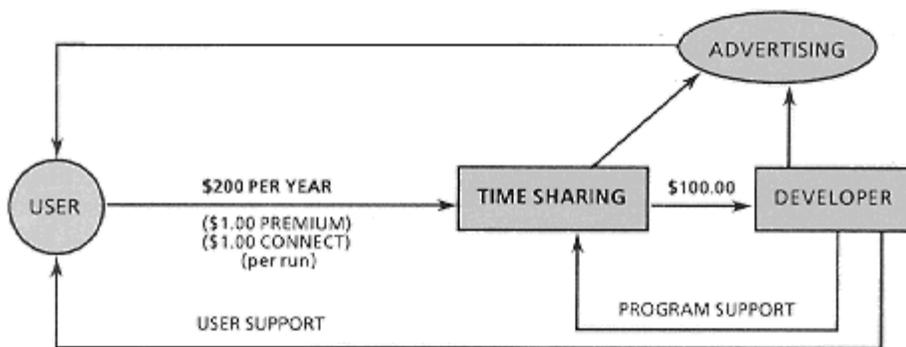


Figure 1:

## THE TIME SHARING INDUSTRY



- LOW INITIAL COST TO THE USER
- LOW INVESTMENT BY THE TIME SHARING SYSTEM
- SIMPLIFIED EFFICIENT INDUSTRY STRUCTURE
- NO ADDITIONAL DATA CHARGES

Figure 2:

### COST COMPARISON SUMMARY

#### FOR A \$100,000 PORTFOLIO

	Year	1	2	3	4	5
<b>Build Software</b>						
Software*		\$300	\$20	\$20	\$20	\$20
Connect & Data		\$200	\$200	\$200	\$200	\$200
<b>Buy Software</b>						
Software		\$400	\$50	\$50	\$50	\$50
Connect & Data		\$200	\$200	\$200	\$200	\$200
<b>Rent Software</b>						
Software		\$0	\$0	\$0	\$0	\$0
Connect & Data		\$200	\$200	\$200	\$200	\$200

Figure 3:

# DJIA/NYSE Auto/Cross-Correlations

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by Frank Tarkany

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**T**his article investigates auto/cross-correlations for the weekly Dow Jones Industrial Average (DJIA) price close and the New York Stock Exchange (NYSE) total volume from January 9, 1897 to December 27, 1985. Using the correlation coefficient and chi-square statistic, I discovered an almost random relationship between price and volume. This confirms my previous research (*Technical Analysis of Stocks & Commodities*, October/November 1986)

## Correlations

A correlation coefficient shows the degree of linear relationship between any two variables. The coefficient has a range of values from -1 (a "negative" correlation indicating an inverse relationship) to 0 (no correlation, a non-evident relationship) to +1 (a "positive" correlation). Low values (those close to zero) indicate weak relationships while high values (those close to +1 or -1) indicate strong relationships. The correlation coefficients of the different lags tested in an auto-correlation (testing whether values in a given series are related to other values in the same series) indicate whether the time-dependent variable generating the series has statistically significant cyclic components.

For example, say you did a cross-correlation relating the volume changes to price changes which occurred two weeks earlier. Here, volume change is the "lagged" variable. If the correlation coefficient equals +1 then you could say that when price goes up, volume goes up two weeks later -- the lagged time. Also, when price goes down, volume goes down two weeks later.

If, on the other hand, the correlation coefficient is -1, then you could say that when price goes up, volume goes down two weeks later and vice versa.

## Technique

The PASCAL programs used in this study computed the + or - change between data points in each data series. The + or change series were then lined up for all possible lags. Comparing lined up changes between the data series resulted in either a "++", a "-+", a "+-", or a "--". The number (frequency) of occurrences of these categories was counted. Using the counts, a correlation coefficient and chi-square statistic was then calculated for each lag. The chi-square value was then used to determine if the lag possessed statistically

significant correlation. Auto-correlations were produced by lining up price changes with price changes and volume changes with volume changes. Cross-correlations lined up price changes with volume changes. Details of this technique were published earlier in Clifford J. Sherry's article "A Simple Analogue of Auto- and Cross- Correlation" (*Stocks & Commodities*, November 1985).

A chi-square greater than the 95% confidence level of 3.84 was used as a screen for statistically meaningful correlations. The total number of weekly price and volume changes from January 9, 1897 to December 27, 1985 was 4,622 (our "N" value). Correlations were investigated for lags of 0 to 2,311 weeks (that is,  $N/2 = 4,622/2 = 2,311$ ).

## Results

Figure 1 indicates the number of lags and the percentage of all lags (2,311) that were found to be statistically significant at the 95%, 99%, and 99.5% chi-square confidence levels. Overall, only 6.3% of the 9,244 possible combinations were found to be statistically significant at these levels.

Immediately, we wish to know if the few significant correlations clustered about some particular lag(s). Inspection of the tabular output and charting the correlation coefficients against lag showed no clustering for cross/auto correlation of volume. Similarly, charting the confidence levels against lag showed the confidence levels achieved distributed randomly over the entire range of lags tested. Moreover, positive and negative correlation coefficients appeared to alternate randomly as lag was varied for cross/auto correlation of volume.

## Conclusions

Cross correlations for the weekly DJIA price close and NYSE total volume and auto-correlations for total volume from January 9, 1897 to December 27, 1985 indicate almost random relationships.

*Frank Tarkany has worked for the last 20 years in computer software applications, mainly in the military weapons systems and scientific fields. Frank's GALAXY software company sells a daily (from 1897 to present) DJIA closing price and NYSE total volume database.*

<b>Number of lags by confidence level (% of total lags)</b>				
	95%	99%	99.50%	Total
Volume Over Price (2,311 lags)	101 (4.4%)	9 (0.4%)	12 (0.5%)	122 (5.3%)
Price Over Volume (2,311 lags)	82 (3.6%)	10 (0.4%)	13 (0.5%)	105 (4.5%)
Price Over Price (2,311 lags)	85 (3.7%)	14 (0.6%)	14 (0.6%)	113 (4.9%)
Volume Over Volume (2,311 lags)	154 (6.7%)	24 (1.0%)	62 (2.7%)	240 (10.4%)
<b>Total 9,244</b>	<b>422 (4.6%)</b>	<b>57 (0.6%)</b>	<b>101 (1.1%)</b>	<b>580 (6.3%)</b>

Figure 1:

# In search of the cause of cycles

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by Hans Hannula, Ph.D.

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*Ed. Note. Many successful investment practitioners use techniques which are, to the academic world at least, unorthodox. As part of **Stocks & Commodities'** effort to investigate market phenomena from every conceivable aspect, this article offers a truly unorthodox approach which has been extensively researched. We hope the propositions and evidence presented here will stimulate even more thought and research in the future.*

People have, for centuries, noticed cycles in many things, including the stock market. My own interest in cycles and their application to the market began in the early 1970s, when I read Dewey and Mandino's *Cycles, The Mysterious Forces That Trigger Events* and Hurst's *The Profit Magic of Stock Transaction Timing*. Since then, I have studied cycles and used them regularly in my trading. My greatest successes have been in using them to call the 1982 and 1984 market bottoms. While cycles have been a practical tool for me, I have always been bothered by a lack of understanding of why they occur.

Recently, I uncovered significant evidence of the cause of these "mysterious forces." Now, many people, such as Peter Eliades, an investment advisor from Los Angeles, have suspected the answer. In response to a *Newsweek* question about what causes cycles, he said, "I'm not real sure, and it sounds kind of freaky, but if pushed to the wall I'd have to say it has to do with astronomical configurations that affect behavior on a mass basis." (See also *Technical Analysis of Stocks & Commodities*, December 1986.)

What I have found is not at all "freaky," but direct evidence that the planets are the cause of cycles. My research led me to a time series I call the Master Clock, which is derived solely from an astrophysical (not astrological) model of planetary motion and which shows a direct relationship to major market cycles.

Astrophysics should be distinguished from astrology. The latter is the practice of relating events on Earth to observations of the positions of the planets from the earth, a practice which originated when people thought the earth was the center of the universe. The astrophysical relationships I've used for simulation are heliocentric.

Further, the astrophysical relationships used here were suggested by the observation that they cause alterations in the flow of the sun's radiation to the earth. In my work, I've hypothesized a solar radiation mechanism, simulated it using known orbital and physical information, and then compared the results to cycles others have identified, particularly those in the market.

## **Persistent cycles in the Dow**

With a personal computer, I first programmed a comprehensive set of tools to do cyclic analysis. Among the first tools was a Fast Fourier Transform (FFT) program [Glass], which was used to produce [Figure 1](#), showing the frequency spectrum of the Dow Jones Industrial Average over time. This plot is the result of 46 different FFT runs at approximately 0.2 year intervals covering 20 years of market history. To see the relationships of these spectra over time, [Figure 1](#) shifts each run upward a bit, showing a "stack" of plots. Thus, the lefthand amplitude scale, which labels the bottom plot, should be thought of as shifting upward as well, as the plots stack.

From this plot, it was obvious to me that there are strong cycles in the Dow, with peaks near 208 weeks, 124 weeks, 89 weeks, etc. Further, these cycles are persistent. If one looks "up the valleys" on this plot, some cycle drift can be seen, but the peaks remain quite stable. Other plots were run covering the first 85 years of this century, and they are similar.

### **Separating out the cycles**

With cyclic behavior established, I separated out individual cycles using the technique of Finite Impulse Response (FIR) digital filtering [Hurst][H]. (See sidebar.) FIR digital filters' usefulness is limited by the need for a large number of points to be selective while the larger the number of points the more the delay in output. [Figure 2](#) illustrates the first of these limitations.

But good results can be obtained. [Figure 3](#) shows the response curves of two overlapping filters used to extract the 124 and 208 week cycles from the Dow. The filtered cycles are shown in [Figures 4 and 5](#), plotted below the Dow. The corresponding peaks and valleys can be seen. Also note that the amplitude changes of the 100-160 week cycle is most recently 90 or more Dow points, while the 160-300 week amplitude change is as much as 170 Dow points. These sizable moves are important to both traders and investors.

If one looks carefully at [Figures 4 and 5](#), the delay effect can also be seen. Both filters have their last output in late 1982, although data runs into 1986.

[Figures 4 and 5](#) also show why cycles have gone in and out of vogue as a market tool. The real cycles are not constant amplitude or even constant frequency. Rather, they fade in and out, always returning to the basic pattern, but frequently disappearing just when a trader has decided to bet on one.

Notice, for example, the difference in amplitude in the 1977 and 1981 peaks of the 160-300 week component in [Figure 5](#). The cycle ending in 1977 accounted for about 170 Dow points, and the very next one accounted for only 80 points. Any technician expecting this cycle to be 170 points stood to lose a lot of money.

Also note the extra long 1965-1969 cycle in the 100-160 week component in [Figure 4](#). The cycle, which had been very consistent in duration, suddenly nearly doubled in length. Again, technicians counting on constant cycles could have lost a lot.

This variability has caused not only a disenchantment, but a debate about whether cycles really exist or are the artifact of the analysis techniques themselves. Believers, like myself, worked to develop ways to cope with the variabilities and the filter delays, with reasonable success. All of these techniques were merely enhancements to basic techniques. To go beyond this called for a different approach.

### **A brand new approach**

In 1975, a friend with a solid scientific background told me about his studying the effect of planets on earthly cycles. His basic theory is that the planets, as they orbit the sun, cause a stirring effect in the mass of gasses that make up the sun. This is caused by each planet pulling the part of the sun nearest it just slightly, distorting the shape of the mass. These distortions cause movements in the gasses, which affect the amount of radiation given off by the sun. This radiation, in various forms, travels from the sun to the planets.

**The possibility that planetary positions could affect the markets is not new. W.D. Gann, Foster, Bradley, Jensen, LCDR Williams and others have all used various forms of astrology to interpret and predict market behavior.**

One form, the particles making up the solar wind, travel in paths that are steered by the planets. This solar variation in radiation causes a variety of changes in the earth's environment, such as heating effects, electromagnetic effects, and various weather changes [McCormac]. These environmental changes, in turn, could cause changes in human behavior, which should be most detectable in data that reflect mass behavior, such as the CPI and the markets.

Particular planetary configurations are significant in this theory. When two planets are on opposite sides of the sun, they stretch it into an elongated form. This is called opposition. When two planets are in line on the same side of the sun, their forces combine to distort the sun toward them. This is called conjunction. When two planets are at 90 degrees to each other, they distort the sun into an unbalanced triangle. This is called quadrature. These configurations are shown graphically in [Figure 6](#).

As the planets rotate, these configurations recur at regular intervals, leading to a whole variety of planetary cycles. These subtle distortions cause tidal waves in the sun's gasses, just as the moon's pull causes waves in earth's oceans.

What excited me about the my friend's theory, was that these effects should all be measurable and scientifically verifiable. I revisited my Dow spectrum ([Figure 1](#)) with a view toward analyzing it to see if planetary forces could be involved. My basic approach was to compute all the cycles the planets could make, and then look for relationships between them and the market cycles.

[Table 1](#) is just one of many tables of the synodic relationships between Mercury (M), Venus (V), Earth (E) and Jupiter(J). I was looking for some exact integer relationship between an earthly cycle, such as the Dow 208 week cycle, and the planetary cycles. In Column 4, it is important to look at the fractions. A fraction of .3333 indicates three of that planetary cycle coincide with exactly one cycle of the earthly event and so might be related to it. The more frequent these relationships, the more likely it is planetary cycles could be affecting the earthly cycles.

Examination of column six shows that practically all of the possible synodic periods of Mercury, Venus, Earth, and Jupiter could cause a nominal 208-week cycle on earth. Similarly, a table for the 124-week results shows that there are many nearby planetary cycles that could cause 124-week earthly cycles.

However, the problem is that there are so many planetary cycles involved that it is difficult to precisely isolate a planetary cycle and relate it to an earthly cycle. What is really "out there" are not single cycles, but whole families of them, slipping by each other slowly, sometimes adding in phase to make a powerful cycle, sometimes canceling each other to make the cycle disappear, just to keep us mortals guessing. That is one reason why the spectral peaks in [Figure 1](#) are so broad.

### **An astrophysical computer model**

In dealing with this complexity, I finally recognized that one limitation of the approach was an indirect technique. It was based on trying to draw conclusions from the data itself. Instead I decided to build a computerized model of the solar system.

The first part of the model calculates the planet's positions. This is possible if one knows certain constants, and what time and date it is. Then astrophysical forces, such as the gravitational pull on the sun, can be programmed. These forces can be computed over any time period, giving a graph of the gravitational force. With such a model, the forces may be individually computed and examined for relations to another time series, such as the Dow. Since the only variable input to this model is time, it is good for past, present, or future. Any relationships to a market discovered can then be used for predicting future market moves.

I have analyzed and compared many, many forces, looking for direct linkage to market action. Finally, one emerged which worked well. It is the sum of all the planetary "stirring" forces on the sun. Each planet exerts a gravitational force on the mass ("blob") of gas which is the sun. As the planet moves, the force changes direction, causing that "blob" of gas to spin. An equation for this stirring force can be derived from the universal law of gravitation. The resulting equation for the stirring force of one planet is

$$F=K M /R^3$$

where K is an arbitrary constant to adjust for units of measure, M is the mass of the planet, and R is the distance it is from the sun. The mass of the gas "blob" has been taken as 1 mass unit. K is determined by whatever system of units are used (metric, English, etc.) . If one is not interested in using any particular units, computation can be simplified by setting K to one.

Computing the stirring force of each planet, and then adding all of them together gives the total stirring force acting on the sun. This calculation was added to my planetary position program and produced a file of the stirring force versus time. I tried various moving average filters seeking a relationship with the Dow.

There was a particularly strong cycle of about 1.6 years which I now call the Master Clock for reasons which will become clear. It's value became apparent one day when I happened to plot the stirring force, filtered successively by 125, 33, 13 and 7 week moving averages, versus the Dow 160-300 weekly data. This is shown in [Figure 7](#).

### **The master clock as a synchronizer**

Examination of [Figure 7](#) shows something rather astounding. The Dow 160-300 week cycle (top trace) has peaks and valleys that synchronize, even when they slip, with the Master Clock (bottom trace). The triangles mark these "lock in" points. [Figure 8](#) shows the same effect for the Dow 100- 160 week cycle, although there are two points (circles) that did not lock in.

This suggests that the following is occurring: things on earth behave as normal dynamic systems, having a "natural response" of their own. External forces cause a "forced response." When the two are in step, strong motion occurs. This is completely in keeping with the engineering theories of dynamic systems [Cannon] (2).

The Master Clock cycle immediately provides a valuable tool for this cycle work. It can be used to overcome the delay effect of digital filters by extending the filter output up to date and even into the future. This is shown in the two dotted line extensions of the top traces in [Figure 7](#) and [Figure 8](#). One takes the average cycle length and adds it to the most recent cycle top or bottom, and tries to find the Master Clock high or low that might provide a synchronization point in this vicinity.

I used this technique to call the nearly simultaneous bottoming of these two cycles in 1982, and the market bottom in 1984. These have proven to be very significant historical bottoms.

### **THE MASTER CLOCK AND CLASSIC CYCLES**

I next asked how the Master Clock cycle matched other known cycles. The Foundation for the Study of Cycles [Wilson] has cataloged cycles in a myriad of things for many years. If the Master Clock is really a great synchronizer, those cycles should relate. Dewey and Mandino give many cycles in their book [Dewey-1]. Some of these are shown in [Figure 9](#).

The Master clock is plotted at the top with vertical lines drawn through each high and low. The 2-3 Year and 3-6 Year cycles are the two Dow cycles just shown, idealized as triangular waves. The 10.7 Year cycle is the actual sunspot cycle that occurred over this period, taken from NOAA data. The remaining cycles shown are from page 191-196 of Dewey and Mandino.

Close examination of [Figure 9](#) shows the result: all of the cycles synchronize with the Master Clock. Indeed, this synchronization of all these cycles with the astrophysical model is what suggested the term Master Clock. Only something like the planetary system and its related astrophysics could produce such a result. I believe the cause of the cycles we see on earth clearly lies in the heavens.

Currently, my research is focused on using the model to help identify turning points at which particular markets reverse trend, [Figure 10](#) shows one recent result, a set of major turning points computed for the Dow for any point in time.

### **Conclusion**

I am still amazed at the Master Clock. Derived completely from an astrophysical model, it nevertheless relates directly to cycles extracted from real market data. Further, it has been shown to relate to weather [Larson], and many of the classic non-market cycles. It is a new step in cycle work.

But as encouraging as these results are, we are just beginning to understand the real nature of market cycles.

*Hans Hannula is an engineer and programmer with over 20 years experience in technical stock trading. He is currently an associate of MicroMedia, a firm specializing in microcomputer analysis and trading software. A disk with a file of the Master Clock values is available from the author for \$15 through MicroMedia (303) 452-5566.*

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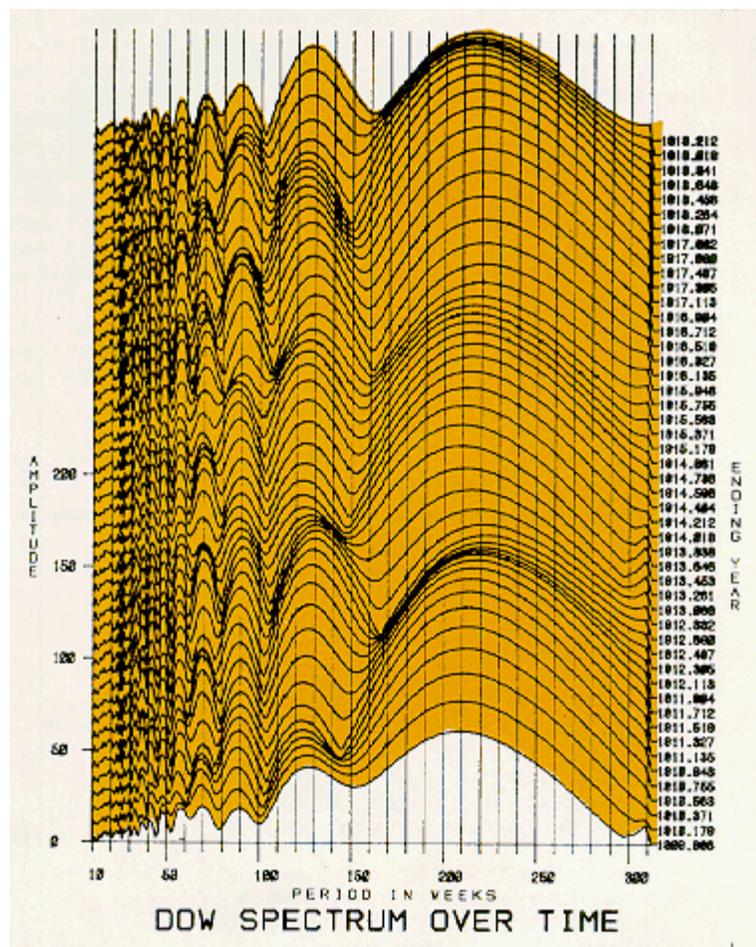
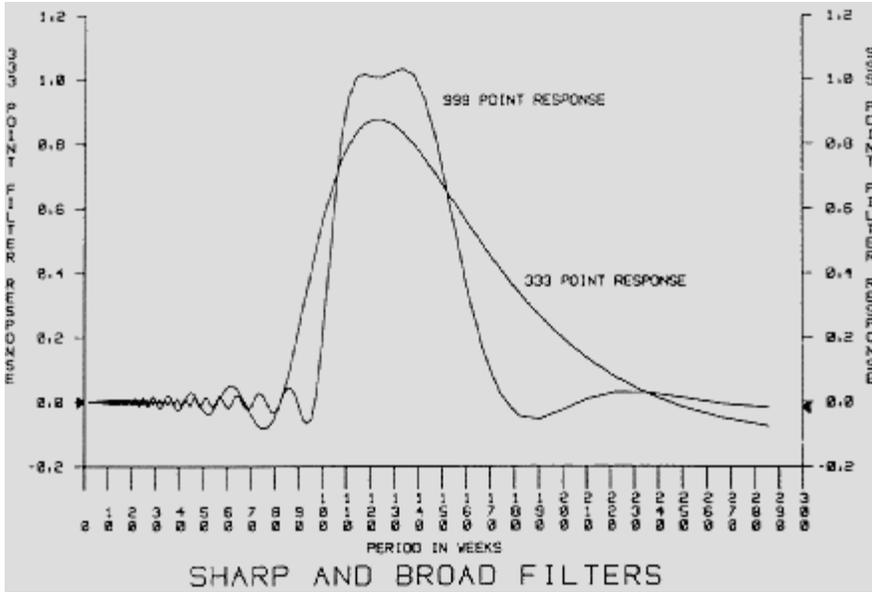
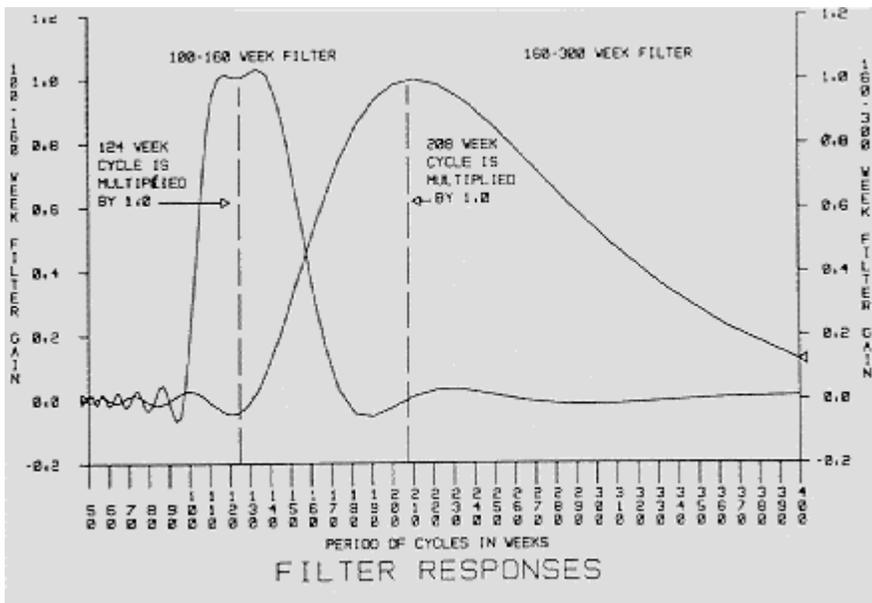


Figure 1:



**Figure 2:** To get a very selective filter requires a lot more filter weights than a less selective filter. The filter using 999 points is considerably more selective at filtering out the 124 week cycle than the filter using just 333 points. However, the filter's output -- the most recent result -- is delayed by one half the number of data points used in the calculation. A filter is simply a specially weighted moving average, whose result should be plotted in the center of the data covered. So the 999 point, highly selective filter will have its most recent output 500 weeks (9.6 years) before the most recent data point. One is forced to trade off selectivity for delay in output.



**Figure 3:**

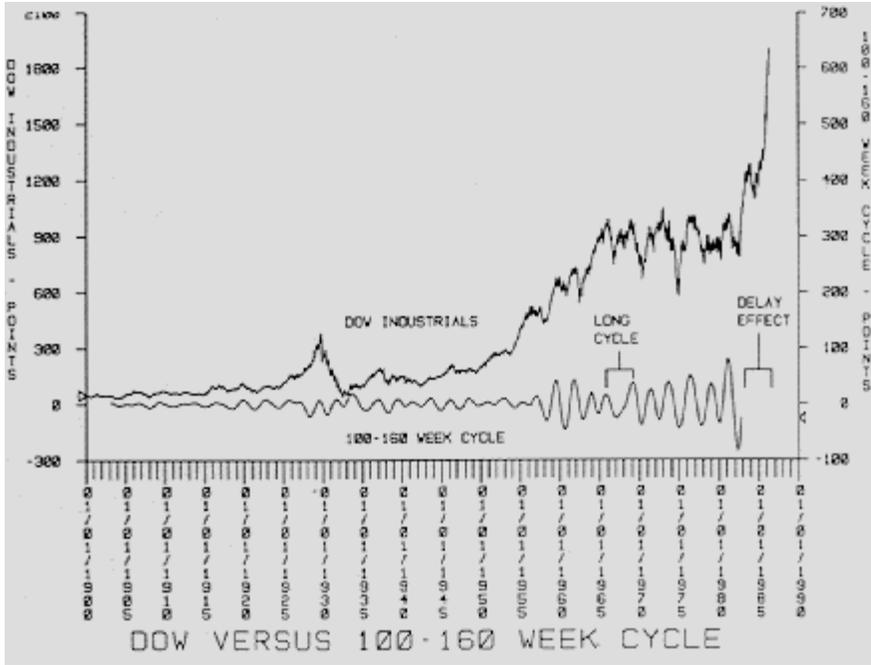


Figure 4:

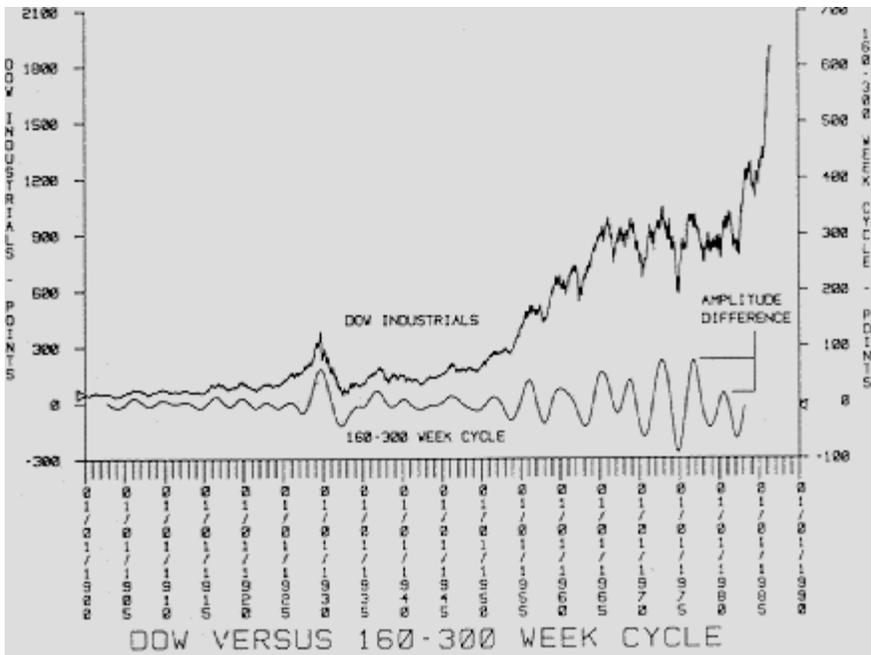


Figure 5:

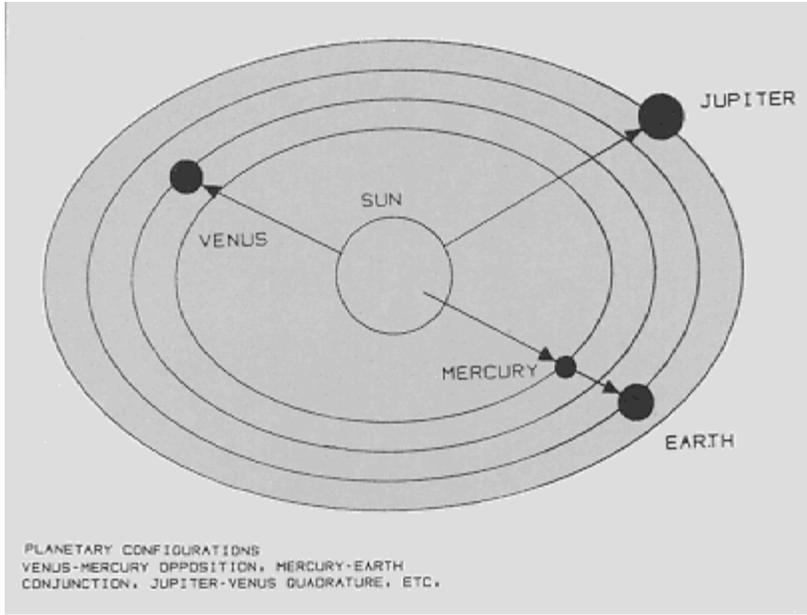


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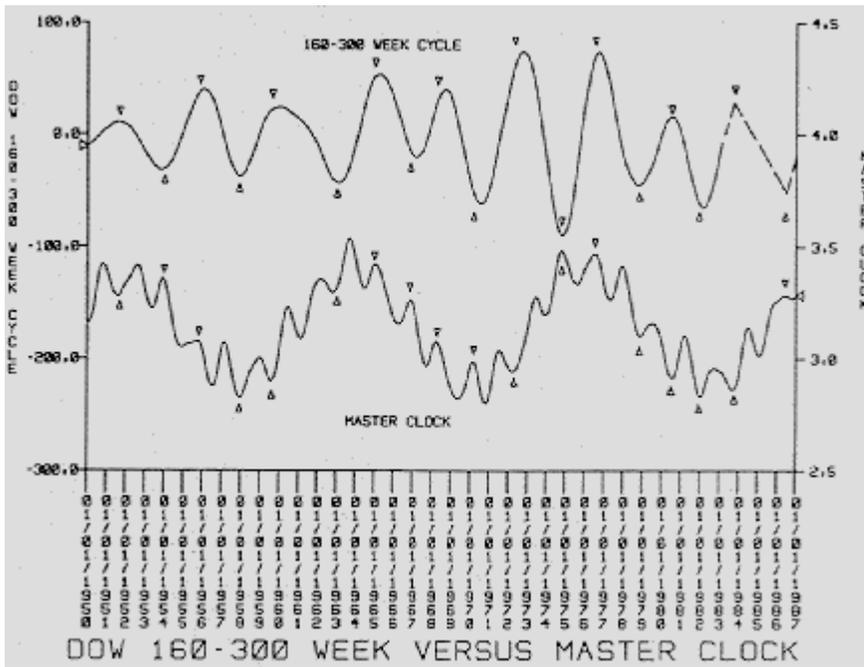


Figure 7:

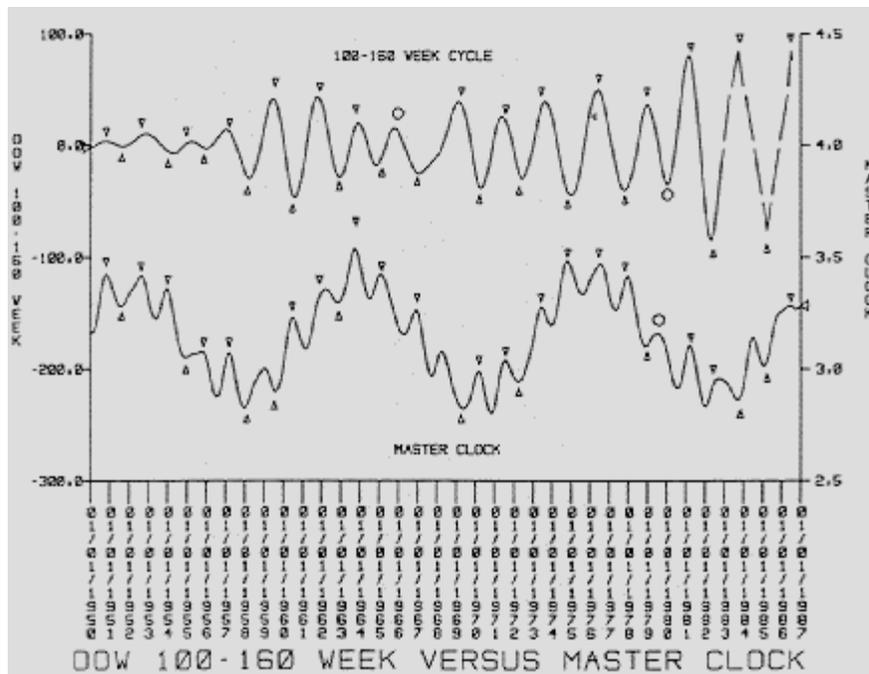


Figure 8:

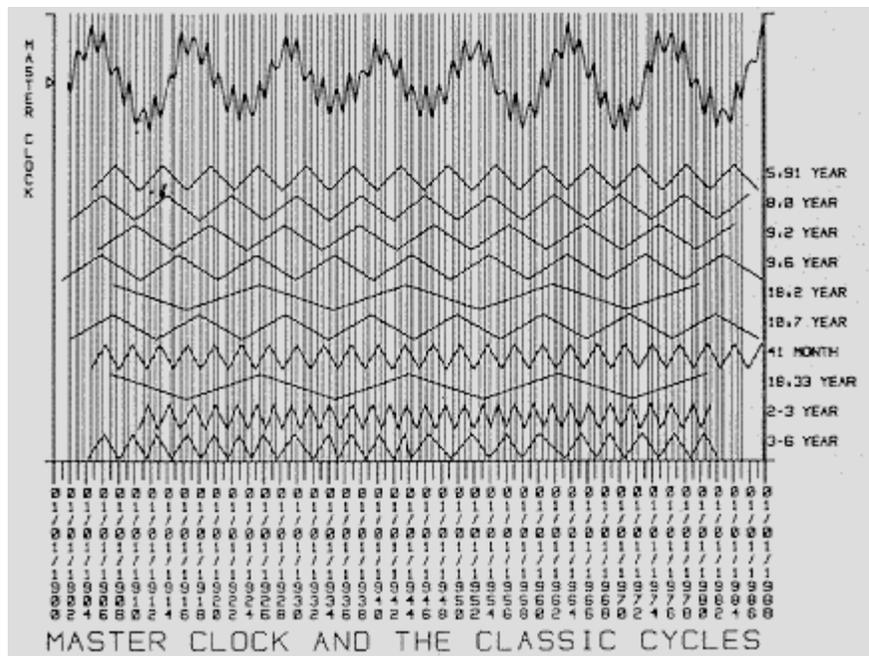


Figure 9:

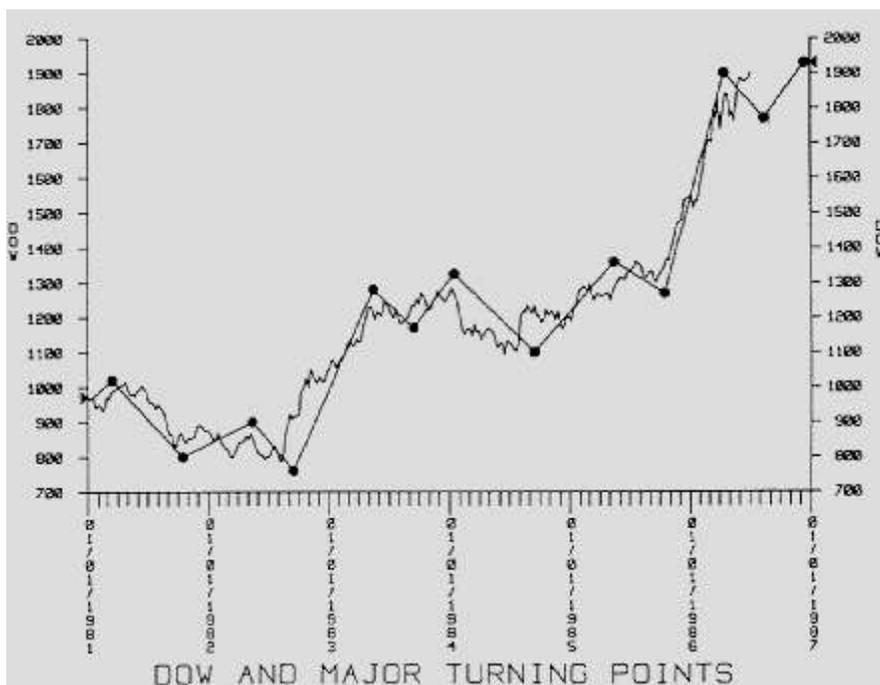


Figure 10:

TEST PERIOD = 208 WEEKS

COL ROW	SYNODIC 1	YEARS 2	WEEKS 3	RATIO 4	EXACT RATIO 5	EXACT WEEKS 6
1	M	0.24085	12.56742	16.55072	16.500	207.363
2	V	0.61521	32.10133	6.47948	6.500	208.659
3	E	1.00004	52.18156	3.98608	4.000	208.726
4	J	11.86223	618.9649	0.33604	0.333	206.115
5	MV		20.65286	10.07124	10.000	206.529
6	ME		16.55439	12.56464	12.500	206.930
7	MJ		12.82788	16.21468	16.250	208.453
8	VE		83.42026	2.49340	2.500	208.551
9	VJ		33.85727	6.14344	6.250	211.608
10	EJ		56.98572	3.65004	3.667	208.967
11	M(VE)		14.79655	14.05732	14.000	207.152
12	M(VJ)		19.98599	10.40729	10.500	209.853
13	M(EJ)		16.12317	12.90068	13.000	209.601
14	V(ME)		34.18152	6.08516	6.000	205.089
15	V(MJ)		21.36577	9.73520	9.750	208.316
16	V(EJ)		73.51268	2.82944	2.750	202.160
17	E(MV)		34.18152	6.08516	6.000	205.089
18	E(MJ)		17.00931	12.22860	12.250	208.364
19	E(VJ)		96.41440	2.15735	2.250	216.932
20	J(MV)		21.36577	9.73520	9.750	208.316
21	J(ME)		17.00931	12.22860	12.250	208.364
22	J(VE)		96.41440	2.15735	2.250	216.932
23	(MV) (ME)		83.42026	2.49340	2.500	208.551
24	(MV) (MJ)		33.85727	6.14344	6.000	203.144
25	(MV) (VE)		27.44844	7.57784	7.500	205.863
26	(MV) (VJ)		52.95578	3.92781	4.000	211.823
27	(MV) (EJ)		32.39267	6.42120	6.500	210.552
28	(ME) (MJ)		56.98572	3.65004	3.667	208.967
29	(ME) (VE)		20.65286	10.07124	10.000	206.529
30	(ME) (VJ)		32.39267	6.42120	6.500	210.552
31	(ME) (EJ)		23.33250	8.91460	9.000	209.993
32	(MJ) (VE)		15.15893	13.72128	13.750	208.435
33	(MJ) (VJ)		20.65286	10.07124	10.000	206.529
34	(MJ) (EJ)		16.55439	12.56464	12.500	206.930
35	(VE) (VJ)		56.98572	3.65004	3.667	208.967
36	(VE) (EJ)		179.8315	1.15664	1.250	224.789
37	(VJ) (EJ)		83.42026	2.49340	2.500	208.551

## In This Issue

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*John Sweeney, Associate Editor*

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Lately, I've been talking to you. The reason you haven't heard me was that your personal chances of being one of those randomly selected from our subscriber lists are about 1 in 250. Nevertheless, I'm learning a lot.

I needed to learn what you wanted to see in the magazine. We'd gone by our own judgment in the past--that and the few comments we'd get in the mail. However, as the volume and quality of material available has grown, picking and choosing articles from the many candidates has become tougher and tougher.

We'll be doing this continuously now, but we've learned a lot already. Subscribers have been uniformly positive about the content and approach of the magazine. While few can use everything in the magazine, most check every article at least cursorily. They don't see anything competitive with it.

Specifically, The Liquidity Report is considered obscure. The interviews are good only if the interviewee is good. The statistical articles appeal to about half those interviewed; same for the BASIC sub-routines and programs. (Not always the same set of people though.) The technical level (really, the amount and complexity of quantitative material) is probably about right: maybe a third think it's over their heads, about half enjoy it and the remainder think its not sufficiently rigorous.

Interviewees uniformly enjoy seeing new technical indicators and/or revisions or improvements of old indicators. We'll be doing more of that in the future, you can be sure!

Similarly, conversations nearly always turned to the psychological side of trading and many wondered if more could be done in this area. It can. There are new voices in this area and, I think, work of solid value to individual traders can be published. You'll be seeing more of that here.

Look. We can't do a good job for you if we sit in a vacuum and I can't talk with 12,000 people either. If you've got an area you'd like explored, give me a call. I'm at 206-938-0570 from 9-12 PST, plus several hours either side of that window. The talks I've had so far have generated a lot of interesting material you'll be seeing in the magazine, so don't feel hesitant to shoot your stuff our way.

*Good trading.*

# Letters To S & C

## Hamon Praise

Editor,

You recently published a letter critical of J.D. Hamon's *Advanced Commodity Trading Techniques*. I have used Mr. Hamon's book religiously for approximately six years and strongly recommend it to anyone interested in trading futures. Whatever successes I have experienced in the markets are directly attributable to Mr. Hamon.

Sincerely,

WILLIAM G. RHYNE

*Atlanta, GA*

## More Praise

Editor,

Just a note in response to Mr. Kremer's letter relating to J.D. Hamon's book *Advanced Commodity Trading Techniques*, and in particular to Mr. Kremer's implication that Mr. Hamon be grouped among the "charlatans" of the futures industry.

I have had the pleasure of reading the book in question and of favorably reviewing the work in the Product Corner of my newsletter, *Systems and Forecasts*. I found the book quite interesting, with many useful chart reading and pattern recognition concepts for futures traders. Mr. Hamon did not purport the work to be a "trading system" as such. It is not--but is no less useful as a result, especially compared to many trading systems now being marketed which sell for thousands of dollars but which have very little in the way of redeeming features.

I do not know Mr. Hamon well, but I know him well enough to know that he is an honorable person. Mr. Kremer certainly has the right to decide for himself what he expects for his \$65, but I am certain that Windsor Books has provided him with his full refund and promptly which is all anyone can expect and certainly more than the typical system slicker provides. For the cost of postage, he has been able to secure a free look at Mr. Hamon's contributions.

I fully agree that steps should be taken to identify fakes and charlatans, but I do believe that we should discriminate between what we personally may not like and what is fraud.

Sincerely,

GERALD APPEL

*Great Neck, NY*

## Letters Comments

Editor,

Your Letters to *Stocks & Commodities* in the December issue was most interesting. You made the point of making a deal with the developer of a method rather than stealing it. From my personal experience I know this is a fruitful way to go. In my case, Dr. Andrews gave me full rights and refused to take any money. I received the rights only after proving that I understood them.

The letter from J.D. Hamon was most interesting. He said that he spends a lot of time and money and does not trade. My experience is that actually trading what you preach makes a lot of difference. He once told me that he was the expert on the Andrews methods and that they cannot be made mechanical. Well, he is entitled to his opinion and if he saw an article I wrote for *Stocks & Commodities* called "The After Christmas Story" he would take his foot out of his mouth.

The letters to the editor also covered the Delta Society and their method. I have seen it along with the literature. I examined the rules that come with it. Some are good common sense like, do not risk more than 10% of your account on any one trade. The one that puzzles me is the one that said: "Do not use this by itself. Use it in conjunction with something else." My question is what else is it used with?

Perhaps when I evaluated it, I picked commodities that it did not work with or a time period when it did very poorly. What I did was I got the computer printout that Wilder sent out for the Deutchemark, Swiss Franc, and T-bonds and examined the results in January and February of 1986. What it seemed to do was pick days where the trend continued consistently.

Your magazine really provides traders with useful information and I recommend it to The Andrews/Reinhart Course members. Since the choice is read a magazine that is put out by traders, or read *Futures* which is probably written for the vice president of Orange Juice at some big firm, yours comes out far in front.

Since your magazine gives the courtesy of telling the other side of the story, perhaps Wilder can tell us: Use it with what?

Sincerely,

RON JAENISCH

*Sunnyvale, CA*

## Dragon Computing

Editor,

Recently I have started subscribing to your magazine. Like most traders, I am interested in using computers for drawing charts, etc. At present I am using a Dragon 64 computer which uses a 6809 chip which is the same as a Tandy Color computer (plus an Epson H1-80 plotter). Although I have written a few simple trading programs, I am now interested in buying a decent professionally written Stocks Analyzer Trading System which I can use as a base to add on ideas of my own now that I am familiar

with Microsoft Color Computer Basic.

Can you recommend, or give me the address of, software houses that sell this type of product for a Dragon or Tandy Color Computer?

I see that your magazine carries advertisements for software for the IBM PC, but nothing for the Tandy/Dragon, and I would have to buy a PC replacement. Do you have any ideas?

Yours sincerely,

T.W. WALKER

*Bedminster, England*

*I have never heard of a Dragon 64 computer, but if, as you say, it is compatible with a Radio Shack Tandy Color computer, it is on par with the older Apple II+ computers that have been used for years successfully to draw charts and run stock and commodity analysis. In fact, one of our staff writers (Dr. Warren) uses a Tandy Color Computer for his own program development. The following is the address of a company you may wish to check with:*

*Dynacomp*

*P.O. Box 18129*

*Rochester, NY 14618*

*(716) 671-6167*

*If in fact your computer is compatible with a Tandy Color computer, you will find that there are quite a number of routines available. Perhaps other readers of **Stocks & Commodities** can tell us if they have heard of any good programs for trading with your type of computer.*

### **Using Spreadsheets**

Editor,

I very much enjoyed the "Spreadsheets-A Universal Technical Analysis Program" article by Stuart G. Meibuhr which appeared in your September 1986 issue.

Although Mr. Meibuhr revealed the formulas necessary to calculate TRIN, he was not as helpful in explaining how to calculate the Simple Box Ratio, Ease of Movement, and Welles Wilder's RSI. These were shown in Figure 8 on page 49 but there were no input formulas to explain how they were calculated. I use Lotus and I agree with the author that if you come up with the formulas that there is almost nothing that cannot be calculated in a spreadsheet.

Would it be possible for you to contact Mr. Meibuhr and see if he would share this information with us? Thank you for your help and we enjoy your excellent publication.

Sincerely,

WILLIAM E. TAYLOR

Houston, TX

*Regarding your question about the formulas to calculate the Relative Strength Index (RSI) and the volume analysis parameters, I had hoped readers would go to the original literature of J. Welles Wilder and Richard Arms. The article was meant to show several possible uses of market or stock or option data within the Lotus 1-2-3 program, rather than teach how to do certain types of analysis.*

*The RSI was described in the October and December 1986 issues of **Stocks & Commodities**. I've printed out portions of my worksheet for the time described in the article and the formula behind each cell. The RSI in my 1-2-3 does not exactly give the same answer when data from Mr. Wilder's book were input. That's because Mr. Wilder's RSI was calculated with exponential moving average formulas rather than simple moving averages. In his day, he did not use computers and the exponential moving average is much easier to calculate on a hand calculator than is a simple moving average. The difference in the resultant RSI is meaningless, however.*

*I must admit I no longer have the time to update several worksheets designated in this format. I find that it is easier to do these calculation and charts through a program dedicated to technical analysis. Many such charts have the RSI as a predefined formula. Only the extensive CompuTrac system will calculate a chart for the equivolume of Arms. I like to do volume analysis and a spreadsheet just takes too much time for data input. I also like Larry Williams' method of volume analysis which is similar to David Bostian's formula. Several technical analysis programs have these built-in.*

*I hope this will answer your questions. Good success.*

Stuart Meibuhr

### **Alpha-Beta Program**

Editor,

I refer to your article (postscriptum) in the December 1986 issue in which you mentioned that there is a BASIC-version available containing an alpha-beta routine. I am interested in this pro gram. Please send me some information. Thank you very much for your kind co-operation.

Sincerely,

KARL KLEMENT

Vienna, Austria

*Dr. Warren's Alpha-Beta filtering method is fully described in the June and December 1986 issues of **Stocks & Commodities**. In the December issue Dr. Warren reviewed the accomplishments of the Alpha-Beta filtering method over the past year.*

*In an effort to help **Stocks & Commodities** subscribers implement the Alpha-Beta filtering method on their home computers, Dr. Warren and I published (in the December 1985 issue) a short, generic BASIC*

*computer subroutine. The subroutine is not a stand-alone program and it is not written to run in any one particular system (such as CompuTrac). It is relocatable by renumbering the line numbers and does not use any input or output that would confuse different types of computers. In fact, this routine was written on a Tandy computer and transferred via telephone to an Apple II computer with no problems at all.*

*If we attempted to publish input and output routines as well, we would have to publish the same routines rewritten for all computers. We have chosen to just publish the required working portion, the computational algorithm.*

*The articles and documentation associated with this routine are contained in Volume 3 and are available as a set of seven issues (384 pages) for \$79 (plus \$C.50 for ground shipping). In addition, for those of you working on an Apple computer, we have an Apple II computer disk available for \$49.95 that contains all the subroutines and programs published in both Volumes 3 and 4. If you are interested in just this one routine, it would be relatively easy to manually type in this well remarked BASIC subroutine from the pages of the magazine.*

### **Hamon Responds**

Editor,

I am most unhappy with the dirty trick you did to me in your December issue. Why would you do something like that? More than likely it is because the owners of that magazine are peddling some tool boxes to traders and they do not want system vendors to sell anything. Your December issue came in the mail today. Along with it was a letter from a client praising my books and asking for more help. I was glad I had just read his letter when I saw the derogatory letter you published. It occurred to me that you might not like having some critical letter I receive about your magazine being published in my work. I suspect there are some who will demand their money back from you when you publish some article they do not like.

In my possession are many letters and notes of phone conversations from people who paid a high price for a tool box computer program for traders only to find that they did not know how to use it and lost a lot of money trying to learn. Why do these vendors put out so much hype about the great money-making possibilities of their tool box without telling people there are no instructions with the tool box on how to be a successful trader? This seems to be false advertising to me; but I feel sure they have good lawyers who have worded their advertising carefully so as not to infringe on the letter of the law.

One of the programmers working with me put out the original tool box back in 1973; and as far as I am concerned it is still the best. But he only sold three of them and did no advertising. He is a very conscientious man. When he sold one to a broker, this person lost a great deal of his customer's money trying to learn how to use these tools. How can a craftsman learn his craft simply by buying tools? It is impossible. Yet, we constantly see glowing ads and various other sales gimmicks being used to sell tool boxes to just anyone who will put up the money.

On the other hand, I have heard from a number of good traders who use tool boxes in their trading who say they are successful. But, I have also noted that they already knew a lot about trading before buying the tool box. Tool boxes in themselves are good, but they should be sold with a warning to beginning traders that it usually takes a long time to learn to become a successful trader, and the tools are no better than the craftsman who uses them.

Apparently you are relatively new to the commodity business and the success of the magazine has gone to your head. But you had better wake up to the fact that you have a lot to learn. Incidentally, I have some critical letters about your magazine, too.

I did not think that you would publish the letter I wrote without my permission. So I need to say that since the bitter experience I had 10 years ago with brokers and money managers I have since found a number of these who are very good and I appreciate them a lot. They do not hound me to trade, nor do things to churn my account. I know of money managers who never advertise, hold seminars, nor do any of the common publicity stunts. Yet, they always have a waiting list of people who would like them to manage their money.

Some of my broker friends are real pros in market analysis and I value highly their opinions on technical analysis; but I never want any help from anyone putting on a trade. I resent the constant phone solicitation from the beginners who are given a sales pitch and a phone list. Doctors and other professionals are not allowed to practice on people until they have served at least two years of internship. Yet, beginners in our profession are allowed to work after a month or two of study, if they pass the exam.

The object of my early writings was to stimulate traders to do the work necessary to learn to trade. Some wanted to be "spoon-fed," but I am enclosing a copy of a letter from one who realized that learning was not just reading. This is only one of many. My first book sold 5,000 copies the first five years it was out. This is comparable to Larry Williams' and Welles Wilder's records.

It seems you have decided to try to cull out those you do not like among the systems vendors. Do you realize that twice as much money is lost by traders taking the poor advice of these new account solicitors?

I cannot help but wonder why you have been picking on me. You say you want to hear from me again in the near future. Well I hope I never hear from you anymore. From now on when I am asked about your magazine I am going to quote a client of mine who said, "It is run by some eggheads who publish a lot of things I do not understand."

J.D. HAMON

*Pasadena, TX*

*This is a compilation of the complete text of four letters received from Mr. Hamon. See S&C, October 1986 when we asked for a review copy of J.D.'s system. We also received the following on a flyer with one of the letters:*

We originally called this the "House of Gann" then decided to rename it the "House of Money."

It is the things you do not know that make the difference! The old pros kept their best methods to themselves, or put them out in such an obscure fashion few learned what to do. Two of the best Gann students in America have already said they never saw anything like this in any of their studies of Gann. Here are some of the headings:

How to construct the House of Money

Finding money rhythm lines

How to recognize a bottom

House of Money tops

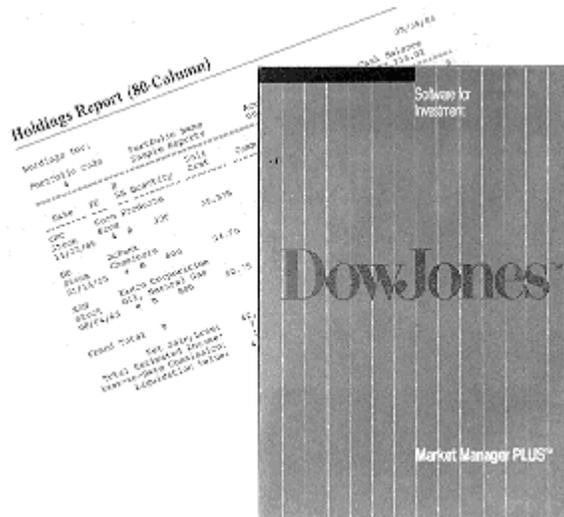
How to trade the House of Money

Money rhythm lines for 1987

Some trade by trade descriptions

This trading system teaches one to stick to the basics that are most important. There is nothing exotic or hard to do. Just buy some good charts and watch the trades unfold. To get your copy contact J.D. Hamon, Box 3352, Pasadena, TX 77501.

# Market Manager PLUS



## Dow Jones News/Retrieval

P.O. Box 300  
Princeton, NJ 08540  
(609) 452-2000

**Price:** \$299 IBM, \$249 Apple II or Macintosh

**Databases:** Dow Jones

**T**his product is for the stock, bond or option activist who needs a device to keep track of all his activity. It will price your portfolio (or 256 of your portfolios) automatically and produce reports on your holdings, gains/losses, transactions, price alerts and upcoming important dates (i.e.: going long-term on a capital gain [fond memory!] and options expiration).

This is not Dow Jones' technical analysis package--that's *Market Analyzer PLUS* which also holds your hand if you merely wish to browse through Ma Dow's EXTENSIVE set of databases. Market Manager PLUS (MM+) is for the nuts and bolts of keeping your own portfolio or your clients' up-to-date. One quirk to keep in mind: If you're a futures trader, forget this one--it won't handle that part of the financial world, which is odd, given the pre-eminence of the Chicago pits these days.

Having fired MM+ up on a particularly sodden Pacific Northwest day while being in a solidly grumpy mood, I expected damn little. It's tough to get excited about accounting! But, I have to admit that this program is *really* smooth.

I tried every imaginable key combination to bomb it. I tried to get lost in the menus. I chopped the power in mid-data collection. I fed it garbage at most conceivable input points. Unfortunately for my foul mood, MM+ handled all this with aplomb and considerable politeness. Having trashed the manual once I read

the installation section, I found that the on-screen helps carried the day. I could almost always "ESCape" to the main menu or whence I had come. I grudgingly commend the boys in the back (*Ed. Note: TELEWARE, Inc.*) who put this thing together.

So it runs. So what? Lots of programs run. What does it produce?

To get a taste of this, I decided to fire up a conservative stock portfolio (Cray, Texas Instruments, Teledyne, Upjohn) on this beauty and see what value it might hold for the trader. Dow Jones News/Retrieval sends you sample reports, but somehow they don't carry the excitement of talking about your wife's money!

Some of the on-screen results are shown in [Figures 1-3](#). From the first, you can see the basic choices of the main menu. Each of these selections is, in turn, "menuized" to the nth degree and the almost-traditional IBM F1 help key is available as well.

You can easily crank out reports of holdings, realized gains and losses ([Figure 3](#)) and the old IRS Schedule D. Even more vital is the audit trail ([Figure 2](#)) of transactions so you can figure out what you did wrong when you input information. I never found a glitch in the automatic portions of the program--pricing, calendars, calculations, price alerts and so on. All problems came from my input errors, and straightening these out requires the audit trail!

The trickiest source of error is identifying offsetting trades from short sales. Sometimes the program will ask you which shares to offset; sometimes it doesn't. You'll have to be careful when you're entering the closing or reversing trade. In [Figure 2](#), you'll note that my Teledyne sequence is all turned around. Fixing this sort of thing is fairly easy because ([Figure 1](#)) there are good utilities for editing holdings and transactions. Once that's done, the program will adjust all related numbers. You have excellent control here.

The program does try to simplify input, the biggest bugaboo. It eliminates needless repetition by remembering the stocks, industries and portfolios with which you are working. Anything that can be calculated or looked up is handled by the program, thereby reducing your keystrokes. About all you need to tell MM+ once you're up and running is whether a transaction is a buy or sell, the number of shares and the commission.

In fact, about all I would like that isn't here is the ability to set this program up to run at 3 a.m. without my being there. That would make pricing completely automatic, a helpful feature particularly if you're a broker using this for umpteen client portfolios.

What we have here is a typical Dow Jones product: premium priced, solidly built. Sort of a Buick. You can count on it to do its job well. Its limits (no futures) come with the design and you're not likely to find sports car handling as an added bonus. This product easily beats our previous pick for account management, *Winning on Wall Street* (available from SCIX Corp., 800-228-6655), because it's so thoroughly menuized and much simpler to use. The downside to that is that *Winning on Wall Street* will throw in solid technical analysis and data management for less money. Our recommendation: MM+ if all you need is the portfolio management.

Dow Jones Market Manager PLUS

```
#####
/ WORK WITH PORTFOLIOS :yy/   CALL DOW JONES      :yy/   PRODUCE REPORTS. /
#####
/ Buy or Sell /              / Call Dow Jones /      / Holdings /
/ Change Holdings /          / Price Automatically /    / Security Cross Ref /
/ Delete Holdings /         / Price Manually /          / Gain/Loss /
/ Post Cash/Div/Int/Fee/   / View Prices /            / Transaction /
/ Delete a Sell /          / View Saved Text /         / Price Alert /
/ Edit Portfolio Info /    / Communications Setup /  / Portfolio Master /
/ Edit Security Info /    #####
/ Edit Industry Info /    #####
/ Distribute Div/Int /
/ Record Stock Split /
/ Erase Portfolio Data /
/ Available Data Space /
#####
```

Figure 1

Transaction for:

From 01/01/01 to 11/12/86

Portfolio Code	Portfolio Name	Account Number	Cash Balance
1	Marysira	542461196	-69,393.50

Type	ID	Date	Description	Comm	Amount	FSM12
Buy	1	10/10/86	120 TXN @ 0.00	126.35	-126.35	
Buy	1	06/24/86	1,200 TDY @ 147.50	543.75	-177,543.75	
Short Sell	1	07/07/86	300 CRY @ 89.375	536.24	26,276.26	
Short Sell	1	07/22/86	200 CRY @ 92.125	368.50	18,056.50	
Buy	1	08/12/86	150 UPJ @ 86.625	259.88	-13,253.63	
Buy	1	09/03/86	75 UPJ @ 92.1251	138.18	-7,047.56	
Buy	1	10/01/86	50 UPJ @ 88.50	125.00	-4,550.00	
Short Sell	1	04/30/86	400 TXN @ 139.00	1,112.00	54,488.00	
Short Sell	1	06/02/86	200 TXN @ 138.25	553.00	27,097.00	
Buy	1	08/08/86	600 TXN @ 110.00	1,320.00	-67,320.00	
Buy	1	08/11/86	400 TXN @ 112.125	897.00	-45,747.00	
Sell	1	09/11/86	400 TXN @ 116.375	931.00	45,619.00	
Buy	1	02/21/86	200 TDY @ 334.75	736.45	-67,686.45	
Sell	1	02/24/86	200 TDY @ 346.50	796.95	68,503.05	
Short Sell	1	03/24/86	200 TDY @ 354.75	815.93	70,134.07	
Buy	1	03/25/86	200 TDY @ 349.25	803.28	-70,653.28	
Short Sell	1	07/15/86	200 TDY @ 316.00	726.80	62,473.20	
Buy	1	07/16/86	200 TDY @ 314.00	722.20	-63,522.20	
Buy	1	07/16/86	200 TDY @ 318.00	731.40	-64,331.40	
Sell	1	07/25/86	200 TDY @ 320.75	737.73	63,412.27	
Buy	1	08/11/86	200 TDY @ 316.50	727.95	-64,027.95	
Sell	1	08/12/86	200 TDY @ 323.00	742.90	63,857.10	
Short Sell	1	09/02/86	200 TDY @ 316.875	697.12	62,677.88	
Buy	1	09/03/86	200 TDY @ 314.875	692.73	-63,667.73	
Changed Fr	1	11/12/86	Securities named CRY	0.00	0.00	
Changed To	1	11/12/86	Securities named CYR	0.00	0.00	
Changed Fr	1	06/24/86	1,000 TDY @ 147.50	453.13	147,953.13	
Changed To	1	06/24/86	200 TDY @ 147.50	339.25	-29,839.25	
Delete Buy	1	10/10/86	120 TXN @ 0.00	126.35	126.35	
Changed Fr	1	06/24/86	200 TDY @ 147.50	339.25	29,839.25	
Changed To	1	03/25/86	200 TDY @ 349.25	772.08	-70,622.08	
Changed Fr	1	07/16/86	200 TDY @ 318.00	731.40	64,331.40	
Changed To	1	07/25/86	200 TDY @ 318.00	731.40	-64,331.40	
Sell	1	07/28/86	200 TDY @ 320.75	705.66	63,444.34	
Del Sell	1	07/25/86	200 TDY @ 320.75	737.73	-63,412.27	
Totals					-69,393.50	
					Federal	0.00
					State	0.00
					Municipal	0.00
					Other1	0.00
					Other2	0.00

Figure 2

Realized Gain/Loss for: From 01/01/01 to 11/12/86

Portfolio Code	Portfolio Name	Account Number	Cash Balance			
1	Marysira	542461196	-69,393.50			
Security Name	Quantity	Buy: Date	Price	Comm	Amount	S
		Sell: Date	Price	Comm	Amount	Gain/Loss L
Texas Instruments	400	08/08/86	110.00	880.00	44,880.00	
		09/11/86	116.375	931.00	45,619.00	739.00S
Teledyne	200	02/21/86	334.75	736.45	67,686.45	
		02/24/86	346.50	796.95	68,503.05	816.60S
Teledyne	200	06/24/86	147.50	90.62	29,590.62	
		08/12/86	323.00	742.90	63,657.10	34,266.48S
Teledyne	200	03/25/86	349.25	772.08	70,622.08	
		07/28/86	320.75	705.66	63,444.34	-7,177.74S
Total Long:					0.00	
Total Short:					28,644.34	
Net Gain or Loss:					28,644.34	

Figure 3

# Personal Options Advisor

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*by Hans Hannula*

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## **MarketSoft**

432 South Dearborn St., Suite 609  
Chicago, IL 60603  
(312) 648-0400

Personal Options Advisor, Release 2.0

**Hardware Requirements:** IBM PC,XT, AT or compatible, 256K memory, DOS 2.1 or later, Color Graphics or Hercules monochrome graphics card recommended.

**Price:** \$248 + \$2 shipping.

**O**ptions trading has become one of the favorite ways for smaller traders to participate in the market. Potential profits are large. Doubles or triples are not uncommon. The risk is limited to the money you put up to play the game.

But as most of us have found, the game can be pretty rough. One thing that makes it so rough, is that the fair value of an option is a complex thing, containing both a part that is based on the option strike price and the underlying stock, index, or commodity price, and a second part called the premium, which is a charge for how much time is left in the option.

Given the price history of the underlying stock, index, or commodity, it is possible to compute a theoretical price for an option. All the big players in the game sit in front of a screen which is constantly showing the computed fair value of all options they wish to monitor. When a price moves too far from this computed value, they make their move, confident that the price will return to be close to the theoretical value.

Now you, too, can sit in front of a screen and look for these profit opportunities, using a program called the Personal Option Advisor (POA). It is simple to use, and gives you all the tools you need to trade in **futures** options in one nice package. It does not handle stock options.

Using a fast menu-driven approach, it provides functions to compute the price of one or more options, compute a matrix of option prices vs. futures prices, analyze various option spreads (both in text and graphic mode), and estimate a future's volatility (needed for price calculation). In addition, there is an optional on-line tutorial which contains about 30 typed pages of very useful information about options, from an explanation of the basics to a discussion of all of the various spread strategies.

The Personal Option Advisor uses the Black-Scholes model to compute an option's theoretical value. Professors Black and Scholes were able to show that an option's price must lie within certain boundaries

or arbitrageurs would be able to reap risk-free profits, forcing the option back to the model's predicted value. The model is fairly complex, and not easy to calculate by hand, but is very powerful and useful for one reason--it works. I was anxious to see how well it worked, so I tried it on the XMI index option.

### **Volatility analysis**

One of the model's required inputs is the volatility of the underlying future. It is used to compute the probability that the option will reach the strike price before the expiration date. While there are many ways to estimate the volatility, one of the easiest is to simply calculate the percentage change in future price over a given time frame. The POA will do that for you for several time periods. All you have to do is enter the future's price history. This must be entered by hand, and no means to download are provided, but I did not find that a major problem.

[Figure 1](#) shows the POA screen for the XMI. I entered the price data in the bottom part of the screen. Then at the touch of a button, POA calculated the 2-week, 1-month, 3-month, and 5-month volatilities, as well as the standard deviations of price moves for one day, one week, one month, and three months. These standard deviations are useful for setting stops. They may be set at some multiple of the standard deviation that you consider most important.

### **Option price analysis**

Armed with the volatility, I was ready to compute some theoretical prices. I was particularly interested in the theoretical price of the January 360 call. On November 11, the day I did the calculation, the XMI had closed at 360.15, and the option at 10.25. Using the 3-month volatility computed for that day (16.84), I computed the screen shown in [Figure 2](#). The POA computed a value of 10.28 for the option, just three cents off the actual close. Not bad, considering my limited experience. One clue that I did pick up here is that maybe the big traders use the 3-month volatility in their program.

While [Figure 2](#) shows only one option, POA will compute a whole screen full of options for you, letting you compare them to the going prices. POA will not only compute the theoretical price at the current futures price, but at three other prices as well. This is great for seeing what the option value should be at various prices of the underlying future. For even more price levels, the POA provides an option price matrix.

### **Option price matrix**

[Figure 3](#) shows POA's option price matrix for the XMI on November 11, 1986. After entering the information in the top three lines on the strike prices and put/call symbols in the first two columns, POA instantly computed the matrix of theoretical prices as shown.

The value of this matrix became apparent when I looked over actual closing prices of XMI options that weekend. I had reason to believe the market rally begun on the prior Wednesday would continue, so I was looking for a good call to purchase. The XMI had closed at 363.89. The matrix showed the January 365 call valued at 7.82 with the XMI at 360 and at 10.17 with the XMI at 365. To my surprise, I found the option had closed at 6, far below its theoretical value.

On Monday, I placed my order to buy two options at the open. I got in at 7.375. Within 20 minutes, the call had reached the theoretical price as the big players' computers detected the bargain, and they rushed in to buy. The option closed that day at 9.5, while the POA gave a theoretical price of 9.55. Who would

believe it? A little trader with the POA beat the big traders with their supercomputers!

That \$400-plus gain gives you an idea of what can happen if one learns to use the POA well. Its cost can be recovered in a single trade.

### **Spread analysis**

There are many different ways to reduce the risk in option trading by using spreads, which are combinations of put and call purchases designed to trade off risk and reward. With a properly designed spread, you can profit whether the market goes up or down. To establish these positions, one must estimate the gain/loss of a proposed spread over several futures price levels. The POA does this very easily and quickly.

Figure 4 shows the screen for an XMI spread of buying one January 360 call and one January 360 put. As shown, no matter which way the XMI moved, the trade would be profitable if the XMI moved more than two points. But also observe that the gain could be reduced over a straight put or call trade, provided you were lucky enough to guess which way the future was headed.

With POA, many spread strategies can be tested in advance and spreads can be used to establish the risk/reward ratio appropriate to your goals. Using these techniques, even investing pension funds or your mother's money in options may make sense. If spreads excite you, the section on spreads in the on-line tutorial will be most helpful.

The graphic spread function plots the spread gain/loss vs. future prices. This is a screen plot, and works fine, but is not an essential function for use of the POA. The plot cannot be saved or output to a printer, so is not useful away from your computer. If you do not have the necessary graphic hardware, you can get along fine without this function. A more useful one might be to plot the curve on a matrix printer.

### **Other features**

One other nice thing the POA does for you is to hide the DOS file system from you. Each function can save and recall up to 50 screens of information, simply by using a screen number. The on-line menu allows you to display the directory of the screens saved for that function. These can then be loaded, updated and resaved. One annoyance, however, is that screens cannot be copied to another screen. This could be useful for computing price matrices with several volatility and interest entries without having to re-enter all the identical data.

The manual is complete, but is written in a fairly terse style. All the information is there, but there are several areas which could be improved for novices. For example, an important entry required for the price model is the interest rate. A section on which interest rate to use and where one might find it in *The Wall Street Journal* or *Barron's* might be useful.

### **User survey**

As part of my review, I interviewed five users of the Personal Option Advisor. They had been using the program for two to eight months. All were satisfied with the product and all recommended it to others. All were using the program daily whenever they were trading options. They were tracking from one to 40 different options with POA.

I asked the users to rate the Personal Option Advisor in four areas on a scale of 1 (worst) to 10 (best).

(See chart.)

AREA	USER					SCORE	AVG.
	1	2	3	4	5		
Ease of use	7	7	10	10	7	8.7	
Reliability	10	7	10	10	7	8.8	
Support	na	na	9	na	8	8.5	
Functionality	7	7	8	5	7	6.8	

Three of the users passed on rating support because they had not needed any. This is a tribute to the quality of the programming. Only one user reported any program quirks, and wasn't even sure that what he thought might be quirks were the fault of the software. I saw no quirks in my use of the program.

The low score in functionality indicates that the users want more features. Several asked for a means to read in ASCII data and output ASCII data to a spreadsheet. Two wanted to be able to print out the spread

graphics, while another wanted to do this with his spreadsheet program, if possible. One wanted the program to monitor an on-line ticker and constantly compute theoretical values. Another wanted larger matrices, more ranges in the spreads and, in general, just more data storage capacity. But all seemed to feel that POA was a very good standalone program. It does what they expected.

Interestingly, four could not recall the price. One recalled that it was priced well. Another could not imagine anyone doing a multiple option strategy without something like POA. Another, who had been trading for 10 years, claimed he learned a few new things about options and that, alone, was worth the price of the program.

**The bottom line**

My favorite interview question is always, "Do you think it has made you any money?" I got two "yes" answers, two "I make the money, but POA helps," and one user who hadn't used it long enough to say. To those responses, I can add a "yes" on my part.

Given that profitable experience with the Personal Option Advisor, as well as the endorsement of the users surveyed, I would recommend that if you trade options, you give it a try. The software is a nice package, easy to use and one trade can pay for it. That's not a bad deal.

Happy trading!

*Hans Hannula is an engineer and programmer with over 20 years experience in technical stock trading. He is currently an associate of MicroMedia (303-452-5566), a firm specializing in microcomputer analysis and trading software. His current interests are in stock options, commodities, and the effect of the planets on the markets.*

XMI		Volatility Analysis					Page: 30				
		Avg Price	Volatility	---- 1 Standard Deviation Move ----							
				1 Day	1 Week	1 Month	3 Month				
2 Week		356.0	24.46	5.51	14.57	24.63	42.66				
1 Month		356.3	17.72	3.99	10.57	17.86	30.93				
3 Month		351.3	17.93	3.98	10.54	17.81	30.85				
5 Month		350.3	16.79	3.72	9.84	16.63	28.81				
Week	Mon	Tues	Wed	Thurs	Fri	Mon	Tues	Wed	Thurs	Fri	
11/10/86	359.00	360.15	360.42	353.57	356.47	354.48	346.36	349.36	356.74	363.89	
10/27/86	350.27	350.34	350.91	356.91	357.42	360.59	360.32	360.62	359.31	358.13	
10/13/86	343.52	343.86	350.30	351.55	351.11	346.32	345.10	346.46	350.94	348.99	
9/29/86	335.23	337.66	341.20	341.30	339.24	341.10	340.79	344.06	342.55	341.91	
9/15/86	340.52	341.10	339.21	340.52	336.71	341.33	342.18	343.66	337.15	337.93	
9/ 2/86	Na	357.01	360.25	366.83	363.55	361.73	361.87	361.09	344.47	338.90	
8/18/86	358.06	355.60	360.62	360.79	361.50	358.46	365.78	366.29	365.51	365.00	
8/ 4/86	341.97	342.34	343.73	342.82	342.02	346.56	350.94	353.03	353.71	356.61	
7/21/86	341.26	345.41	345.01	343.49	346.19	338.67	337.83	342.21	342.11	339.78	
7/ 7/86	349.93	347.47	349.09	349.90	347.87	342.38	339.78	340.19	340.49	340.05	
6/23/86	356.22	358.67	359.88	359.46	360.22	362.13	364.19	365.00	362.48	Na	
6/ 9/86	348.89	348.67	350.77	349.18	355.75	356.42	355.91	357.37	354.48	358.73	
5/27/86	349.62	354.03	355.84	355.05	Na	352.19	354.54	353.21	355.46	354.45	
5/12/86	337.32	337.14	342.93	335.13	333.08	332.25	337.17	336.05	341.15	343.02	
4/28/86	349.22	345.48	337.71	336.02	334.98	339.49	338.27	336.19	336.82	337.38	

F1=Help F2=Index F3=Next Page F4=Prev Page F10=Calc <esc>=Exit

**Figure 1**

```

xmini Options Valuation V2.0 Page: 3
Futures Price : 360.15 Interest : 8.00 Calculate in $'s:
Today's Date : 11/11/86 Volatility : 16.84 $'s/point : 100
Expiration : 1/16/87 Price Format: Decimal

Theoretical Value in Points
Strike Last Theo Edge Delta Imp-Vlt Current @ @ @ @
360.0 10.25 10.28 -0.03 0.52 16.8% 10.28 0.00 0.00 0.00
    
```

Figure 2

```

xmi Options Price Matrix Page: 2
Today's Date : 11/21/86 Expiration : 1/16/87 Vary: Price By : 5
Interest rate: 8.00 Beg : 350 End: 380
Volatility : 17.93 Price Format : Decimal
Str P/C @ 350.00 355.00 360.00 365.00 370.00 375.00 380.00
340.0 p 5.47-33 4.02-26 2.89-20 2.04-15 1.40-11 0.94 -8 0.62 -5
345.0 p 7.41-41 5.60-33 4.14-26 3.00-20 2.12-15 1.47-11 1.00 -8
350.0 p 9.75-49 7.55-41 5.72-33 4.25-26 3.10-21 2.21-16 1.54-12
355.0 p 12.48-57 9.89-49 7.68-41 5.85-33 4.37-27 3.20-21 2.30-16
360.0 p 15.60-64 12.62-56 10.03-49 7.82-41 5.98-34 4.49-27 3.30-21
365.0 p 19.07-71 15.73-64 12.76-56 10.17-49 7.96-41 6.11-34 4.61-27
370.0 p 22.85-77 19.19-71 15.86-64 12.89-56 10.31-49 8.09-41 6.24-34
375.0 p 26.90-83 22.95-77 19.30-71 15.99-64 13.03-56 10.45-49 8.23-41
350.0 c 9.75 51 12.48 59 15.60 67 19.07 74 22.85 79 26.90 84 31.17 88
355.0 c 7.55 43 9.89 51 12.62 59 15.73 67 19.19 73 22.95 79 26.99 84
360.0 c 5.72 36 7.68 44 10.03 51 12.76 59 15.86 66 19.30 73 23.06 79
365.0 c 4.25 29 5.85 36 7.82 44 10.17 51 12.89 59 15.99 66 19.42 73
370.0 c 3.10 23 4.37 29 5.98 36 7.96 44 10.31 51 13.03 59 16.12 66
375.0 c 2.21 17 3.20 23 4.49 29 6.11 36 8.09 44 10.45 51 13.17 59
380.0 c 1.54 13 2.30 18 3.30 23 4.61 30 6.24 37 8.23 44 10.59 51
    
```

Figure 3

```

xmi spread Spread Analysis (c) MSI 1985-86 Page: 2
----- Spread -----
Today's Date : 11/11/86 Volatility : 16.84 B/S Size Strike P/C Price
Futures Price : 360 Calculate in $'s: y b 1 360.0 p 10.25
Price-Incr : 2 $'s/Point : 100 b 1 360.0 c 10.25
Expiration : 1/16/87 Price Format : Decimal
Interest rate : 8.00 #Days: 7 #Times: 1
66 Days until Expiration. Cost of trade is $ 2050
Date 352.00 354.00 356.00 358.00 360.00 362.00 364.00 366.00 368.00 370.00
11/11/86 $ 65 $ 28 $ 3 $ -9 $ -9 $ 2 $ 26 $ 61 $ 108 $ 165
    
```

Figure 4

# Profitability of selected technical indicators: Silver

---

*by Thomas P. Drinka and Steven L. Kille*

---

In previous issues of this magazine, we reported the results of applying moving averages, momentum, %R, and Relative Strength Index (RSI) to Chicago Board of Trade corn and long-term U.S. Treasury bond futures. The formulas and use of these popular technical indicators were reviewed.

In this issue, we report similar information for Commodity Exchange of New York (COMEX) silver. Trading was simulated on the 1981-1985 March, May, July, September, and December contracts. The simulations were conducted on the nearby contract only, with rollover occurring on the first trading day of the expiration month we present trading results for the period of December 2, 1980, through December 1, 1985. Trades were made at the open, and a \$100 commission was charged per turn.

Figure 1 displays the parameter sets used to simulate trading. Under the two moving average technique, the short moving average was varied by one-day increments from a 2-day to a 15-day (these iterations are described as "2(1)15" in the figure); similarly, the long moving average was varied by three-day increments from a 6-day to a 60-day. Thus, a total of 266 parameter combinations were tested.

For momentum, 32,256 parameter combinations were tested. Days were incremented by twos, from four to 30; the sell parameter was incremented by 25s, from 25 to 1,200; and the buy parameter was decremented by 25s, from -25 to -1,200. The specifications in Figure 1 of parameter sets for HI/LO, %R, and RSI follow this format

These simulations were optimized over five individual criteria: namely, total profit, short profit, long profit, average winning trade, and average losing trade. Figure 2 presents--for each of the six selected technical indicators--the parameter set that resulted in the greatest net trading profit. For example, of the 266 combinations of two moving averages (Figure 1) that were simulated, the 2-day and 15-day combination--which was the most profitable of the 266--resulted in net trading profit of \$78,035.

A set of three moving averages resulted in the highest net profit among the six selected indicators. Over the five-year optimization period, the 13-, 28-, and 48-day moving averages resulted in net trading profit of \$90,740; of this total profit, \$1,120 was from long positions, while \$89,620 was from short positions. A total of 36 trades were made; 21 of them were winning trades, and 15 of them losing trades. Of 1,260 tradable days, positions were maintained for 1,236 days. From the 21 winning trades, a total net profit of \$127,375 was enjoyed, the average net profit per trade was \$6,065, and the largest winning trade was \$36,550. Among the 15 losing trades, the largest trade was \$5,350, while the average loss per trade was \$2,442. Finally, among these 36 trades the largest obtained equity amounted to \$103,590, the greatest unrealized loss amounted to \$8,850, and the largest drawdown was \$30,640.

**During the test period, the 6-day RSI generated only two trades, both of which were winning trades.**

Figure 3 displays the results of optimization by average winning trade. A 16-day RSI with buy parameter at 4 and sell parameter at 76 resulted in the highest average winning trade among the six selected indicators. There were only three trades during the five-year test period; two of these trades were winning trades, and resulted in average net profit of \$19,000.

Figure 4 displays the results of optimization by average losing trade; that is, the parameter set resulting in the smallest average losing trade. During the test period, the 6-day RSI generated only two trades, both of which were winning trades. The other five selected indicators resulted in minimum-valued average losing trades ranging from \$1,289 to \$2,069. (see *Figure 4 page 20.*)

One general result of this study is noteworthy. Only five of the selected indicator/parameter-combinations reported in [Figures 2-4](#) resulted in profit from long trades during the five-year test period; and, these profits are nearly negligible. As a rule, profit was taken from short trades only.

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**Parameter Sets of Selected Technical Indicators****Used to Evaluate 1981-1985 COMEX Silver**

Technical Indicator	Days	Parameter Set	
		Sell	Buy
Two Moving Aves.			
Short MA	2(1)15	na	na
Long MA	6(3)60	na	na
Three Moving Aves.			
Short MA	2(1)15	na	na
Intermediate MA	4(2)30	na	na
Long MA	6(3)60	na	na
Momentum	4(2)30	25(25)1200	-25(25)1200
HI/LO	na	0.2(0.2)2.8	-0.2(-0.2)-2.8
%R	4(2)30	4(2)40	60(2)96
RSI	4(2)30	60(2)96	4(2)40

**Figure 1:**

**Optimizing by total profit**

Technical Indicators	Two Moving Averages			Three Moving Averages			Momentum			Relative Strength		
	Long / Short / Total Profit	HI/LO	%R	Total Profit	Short Profit	Long Profit	Total Profit	Short Profit	Long Profit	Total Profit	Long Profit	Short Profit
Parameter Set: Days	2,15	na	20	13,28,48	8,30,42	13,28,45	16	14	14	12	8	4
Long	na	-2.4	96	na	na	na	-1200	-750	-1075	8	8	8
Short	na	0.4	14	na	na	na	300	375	425	60	76	66
Number of Trades	132	34	53	36	38	40	46	59	44	22	13	50
Days in Market	1,260	1,243	1,099	1,236	1,210	1,204	1,011	1,131	905	728	490	1186
Total Profit and Loss	\$78,035	84,525	48,235	90,740	88,945	88,510	63,160	52,795	61,960	83,180	35,725	68350
Long Profit or Loss	\$4,820	-5,850	-23,445	1,120	-2,090	2,730	4,360	-16,915	-1,335	3,900	11,625	17175
Short Profit or Loss	\$82,855	90,375	71,680	89,620	91,035	85,780	67,520	69,710	63,295	79,280	24,100	85525
# of Winning Trades	55	22	37	21	20	24	28	37	29	18	11	30
Total Winning Trades	\$195,775	138,860	126,275	127,375	129,100	123,985	123,480	141,555	120,975	102,600	48,390	135,690
Largest Obtained Equity	-\$93,630	86,785	48,335	103,590	99,920	99,860	63,370	53,005	62,090	83,390	36,750	68,560
Largest Winning Trade	\$16,400	36,550	9,800	36,550	36,550	36,550	12,500	12,500	12,500	36,550	16,650	19900
# of Losing Trades	76	12	16	15	18	16	18	22	15	4	2	20
Total of Losing Trades	\$117,740	54,335	78,040	36,635	40,155	35,475	60,320	88,760	59,015	19,420	12,665	67,340
Largest Losing Trade	\$4,400	15,100	24,150	5,350	5,100	5,350	15,400	16,000	16,000	10,990	8,225	12,600
Greatest Unrealized Loss	\$5,000	20,750	24,050	8,850	8,850	8,850	20,500	20,750	20,750	20,750	18,500	20,750
Largest Drawdown	\$23,080	40,065	29,000	30,640	32,810	28,660	24,740	25,400	22,140	38,965	32,615	38,455

**Figure 2:**

<b>Optimization Criteria: Average Winning Trade</b>						
	<b>Two Moving Averages</b>	<b>HI/LO</b>	<b>%R</b>	<b>Three Moving Averages</b>	<b>Momentum</b>	<b>Relative Strength Index</b>
Parameter Set: Days	15,60	na	26	8,26,57	16	16
Long	na	-2.4	96	na	-1175	4
Short	na	1.8	4	na	1125	76
Number of Trades	43	20	36	35	25	3
Days in Market	1,260	599	974	1,194	655	134
Total Profit and Loss	67,905	-15,455	16,070	64,955	15,125	33,560
Long Profit or Loss	-9,935	-38,000	-40,990	-13,260	-16,310	0
Short Profit or Loss	77,840	22,545	57,060	78,215	31,435	33,560
Number of Winning Trades	17	9	21	16	12	2
Total of Winning Trades	121,810	65,225	99,480	126,205	81,690	38,000
Largest Winning Trade	36,550	24,050	10,300	37,050	13,650	20,600
Largest Obtained Equity	96,350	36,525	23,805	93,900	18,265	33,660
Number of Losing Trades	26	11	15	19	13	1
Total of Losing Trades	53,905	80,680	83,410	61,250	66,565	4,440
Largest Losing Trade	6,200	16,600	24,150	7,140	24,150	4,440
Greatest Unrealized Loss	8,850	20,500	24,050	10,000	24,050	7,350
Largest Drawdown	46,215	63,830	25,345	37,590	25,250	13,400

Figure 3:

<b>Optimization Criteria: Average Losing Trade</b>						
<b>Indicator</b>	<b>Two Moving Averages</b>	<b>HI/LO</b>	<b>%R</b>	<b>Three Moving Averages</b>	<b>Momentum</b>	<b>Relative Strength Index</b>
Parameter Set: Days	2,6	na	4	2,4,12	6	6
Long	na	-0.2	62	na	-25	4
Short	na	0.4	34	na	25	96
Number of Trades	269	292	277	124	263	2
Days in Market	1,260	1,249	1,245	47,535	1,258	85
Total Profit and Loss	30,945	14,325	-2,690	-25,620	-49,885	7,315
Long Profit or Loss	-28,115	-38,350	-47,170	73,155	-69,730	7,315
Short Profit or Loss	59,060	52,675	44,480	78,215	19,845	460
Number of Winning Trades	103	157	166	168,165	143	2
Total of Winning Trades	241,205	240,465	233,705	16,400	192,215	7,315
Largest Winning Trade	20,550	12,400	7,900	81,225	7,900	4,190
Largest Obtained Equity	62,500	26,305	26,485	93,900	0	10,375
Number of Losing Trades	163	130	109	120,630	117	0
Total of Losing Trades	210,260	226,140	236,395	6,400	242,100	0
Largest Losing Trade	8,100	15,900	20,750	6,500	16,400	0
Greatest Unrealized Loss	5,000	17,850	20,650	33,590	20,500	4,450
Largest Drawdown	32,335	35,340	40,565	37,590	60,535	6,725

Figure 4:

# How digital filters work

Filters are tools for "tuning into" parts of the total energy contained in an information stream. For example, all of the information transmitted on the AM radio stations near you arrives at your car radio. If you tried to listen to it all, you would hear a terrible, useless din. But with your radio's dial, you can adjust the "center frequency" of the radio's filter, and select the one station you want to hear. In essence, the filter operates as an electronic door, which can be slid along the dial, letting some of the energy through. If the door is shaped properly, only one station at a time can get through.

In a similar fashion, the information contained in a series of numbers, such as stock prices, can be selected based on how frequently they change. The popular moving average is a special case of such a filter. In general, a filter consists of a set of "weights" (set to 1 for the moving average) by which each data point is multiplied. Then all these multiplication products are added, and the sum is divided by the number of points in the filter, to give an output for one point in the filtered data. After computing one output point, the filter weights are slid forward one date, and the process repeated.

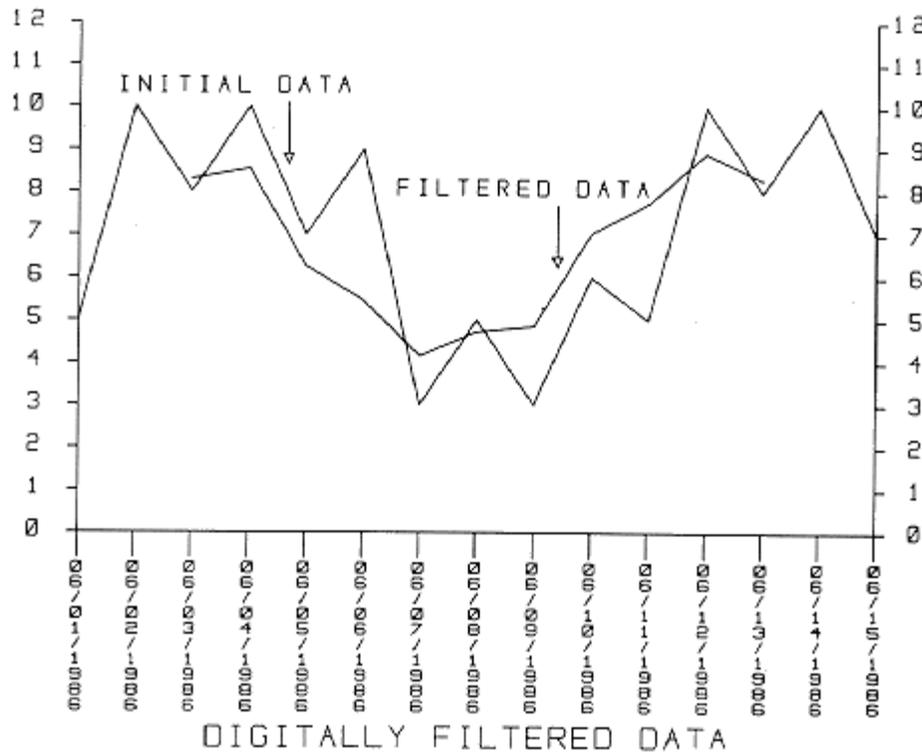
For example, the data shown below can be filtered with a 5 point filter, using weights of .1, .4, 1.0, 1.5, and 2.

The next filter output can be calculated by sliding the weights down one day, and repeating the process of multiply, add, and divide. Try it. The next filter output should be 8.54. If you continue to calculate these digits, you are digitally filtering the data. If you plot the data and your filter's output, you will get the plot above. Notice how nicely this filter selects a slower moving cycle in the data and eliminates the faster cycle. With proper choice of filter weights, the faster cycle could be extracted. (See also Technical Analysis of Stocks and Commodities, Volume 1, pp. 74-80.)

DATE	DATA	WEIGHTS
6 1 1986	5.0	X .1 = 0.5
6 2 1986	10.0	X .4 = 4.0
6 3 1986	8.0	X 1.0 = 8.0
6 4 1986	10.0	X 1.5 = 15.0
6 5 1986	7.0	X 2.0 = 14.0
6 6 1986	9.0	
6 7 1986	3.0	41.5 / 5 =
6 8 1986	5.0	= Filtered
6 9 1986	3.0	data for 6/3/86
6 10 1986	6.0	
6 11 1986	5.0	
6 12 1986	10.0	
6 13 1986	8.0	
6 14 1986	10.0	
6 15 1986	7.0	

## Footnote 1:

It is like spinning a bicycle wheel. It spins at a given rate. When you stroke it, if you stroke too slowly, you slow it down, if you stroke too fast, you speed it up. But if you keep stroking, eventually the wheel will synchronize with your stroking. Market cycles behave in this manner. The only problem is that there are many planetary forces stroking the wheel. Sorting them all out is the trick.



Sidebar Figure 1:

# SWEENEY AGONISTES

I must start off this issue with an apology. In the November 1986 issue, Frank Tarkany published evidence of non-randomness and serial dependence in Dow Jones prices. The Figure 7 we published, which estimated the trading windows at confidence levels from 95% to 99.5% was just a repeat of Figure 6. Below is the correct Figure 7. Frank's article, which defines the time horizon within which we may reasonably expect to define effective trading strategies, clearly deserved far better treatment. Once again, my apologies for this error.

Recently revived is the Foundation for the Study of Cycles (124 South Highland Avenue, Pittsburgh, PA, 15206-1666 (412) 441-1666) with a new director, Dr. Jeffrey Horovitz, and a new push from its board to expand membership and promote the study of cycles.

The Foundation is a nonprofit organization founded in 1941 by Edward R. Dewey and functions as the world's clearinghouse for information on cycles research. To boot, their publication, *Cycles*, is, if I may say so professionally, an interesting mix of fresh research, reporting on current cyclical analysts' thought, and listings from the Foundation's large publication list. The last issue covered every thing from your personal emotional cycles to 1987 financial market cycles.

As we've presented evidence here of dependence in some time frames for stock prices, it looks to us as though cyclical analysis may be one of the most fruitful avenues for studying this behavior. If so, the Foundation's vast files and ongoing publications will be vital.

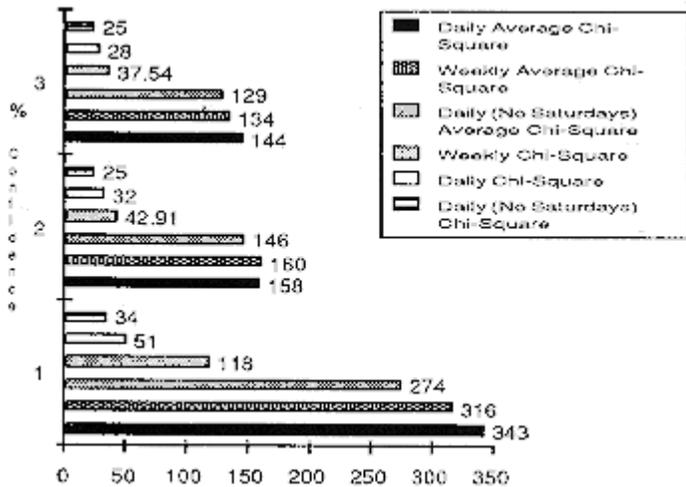


Figure 7: Dow Jones Industrial Average non-random window by confidence level.

# Wyckoff in action

## (part 2)

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*by David Weis*

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In Part 1 of this article (*S&C*, June 1986), we recognized at point #12 ([Figure 1](#)) that large operators were accumulating bonds prior to an upswing. The conservative point-and-figure count AB ([Figure 2](#)) indicated potential for a move to 63-28. Long positions were recommended for the opening on April 8 with protective sell stops placed beneath the low at #10. The following discussion dissects the volume/price behavior during the subsequent mark-up and distribution phase that evolved over a 13-day period.

April 8. June bonds open at 61-11 before moving to a low of 61-09. Based on an entry price of 61-11, we are risking 7/32nds for a gain of at least 2 1/2 points. After opening lower, prices steadily move higher throughout the session. It is noteworthy to mention here that tick volume has a U-shaped pattern. Tick volume is heavy in the opening 45 minutes and tapers off toward mid-day. From this lull in activity, trading increases until the final rush of volume in the closing hour.

Whenever the volume at mid-day is heavier than on the opening time period, traders should be alert as something significant is usually happening. On April 8, the mid-day tick volume at #13 is heavier than on the opening. This occurs as the bond market breaks through the resistance at 62-12. Demand has overcome supply and the mark-up stage is in full gear. In the last 90 minutes, there is the usual profit taking, but the market refuses to give ground.

April 12. Bonds gap higher to #14. Volume is again heavy, but there is no influx of selling on the subsequent correction. At #15, June bonds trade for 45 minutes in a 4/32nd range suggesting the pressure is off. By the end of the session, prices close on a firm note at 63-17.

April 13. On the opening at #16, June bonds rally to 63-27, thereby fulfilling the conservative point-and-figure objective. Volume on the opening is heavier than at any point in the uptrend and appears climactic. Prices close well off the high as operators are taking profits. This sequence of behavior tells the tape reader to take profits or at least raise sell stops to 63-12 (beneath the low of the opening time period). Prices hold for several hours but the re-test of 63-27 fails to generate another upwave. Volume is not increasing which suggests demand is tired. The market forms a small apex as the forces of supply and demand reach a temporary point of equilibrium.

At #17, the range is narrow and volume contracts. Prices must rally immediately or the sellers will have the upper hand. The tape reader would raise the sell stop to beneath the low at #17. If the trader is aggressive, a break would warrant a short position with buy stops placed at 63-28. The market moves downward off its hinge as supply overcomes demand.

April 15. The market opens lower at #18, but finds support as prices close on the high of the period. Volume is the heaviest since prices topped at #16, suggesting a minor selling climax has occurred. There is little or no follow through on the upside as prices stay close to the low of the opening time period. In the last 45 minutes at #19, the bond market penetrates the opening support level but closes well off the

low. If the sellers are in control, the market should open lower on the next day.

April 15. Instead of continuing lower, prices rally on the opening at #20 and volume is heavier than at any point in the correction from #16. Demand has asserted itself again putting bonds in a spring position. This opening rally was met with selling as prices closed off the high. If the next pull-back is on light volume and holds above the low at #19, we will know the market is about to spring upward.

At #21, the market is on the springboard. The behavior is ideal: a narrow range, the lightest volume in days and prices close in mid-range. There is no more selling pressure. (Compare the behavior from #18 to #21 with the price action from #1 to #3.) Any existing short position must be covered at once (netting a half-point gain) and longs established; stops are placed 1/32nd below #19. On the point-and-figure chart, the congestion along the 62-28 line (DD) projects a minimum target of 64-12; the maximum objective is 65-04. From #21, bonds steadily move higher without attracting supply.

April 16. The bond market moves unobtrusively upward until the burst of activity on the closing. Prices reach 64-13, the first point-and-figure objective; volume is heavier than at any time since the low at #1. While there is no evidence of topping action, this behavior is an indication that large operators are unloading part of their long position on strength. Stops on long positions should be raised to 63-15.

April 19. On the opening at #22, bonds drop more than in any time period since the rally from #10; volume is as heavy as on the previous day's closing. This is more evidence that large interests are taking profits.

In the second time period, the selling ceases. Notice that the resistance line across the high at #16 serves as support. With the absence of selling, bonds rush to new highs at #23. Volume expands on the rally and contracts on the pullback. At the close at #24, the buyers make a large effort to push the market higher as indicated by the increase in volume.

April 20. In the first 45 minutes, at #25, bonds open higher, encounter resistance against the previous day's high and reverse downward. The heavy volume on the decline adds to the bearish picture that is forming. The tape reader would take profits on long positions. A short position also could be established with buy stops placed 1/32nd above the high at #25.

Bonds decline into the area of previous support at #22 and on top of the previous resistance line. The lack of volume on this decline warns the tape reader to take profits on any shorts at the close. The heavy volume on the close suggests that other traders have spotted the weakness in bonds and are selling the market. Since prices gave little ground in the last 45 minutes, we can assume the operators are supporting the market in order to build a larger short position. Another test of the high is possible.

April 21. The market opens strong and makes a new high at #27. If the uptrend is to remain intact, there must be followthrough. Instead, at #28, bonds sell off and volume remains heavy. This is bearish behavior and the light volume rally at #29 indicates demand is tiring.

**April 23. The market makes another surge toward the highs on the opening at #32, however, it is met by new selling as prices end the time period on the low.**

Looking across the chart from #29, bonds have persistently met supply around the 64-24 level (#23, #25,

#27, #28). For all the effort to move higher, the rally to #27 exceeded the previous high by only 3/32nds. This represents shortening of the upward movement and an upthrust (the opposite of a spring). The heavy selling at #28 quickly negated the move to new highs.

With this bearish behavior and the tired rally at #29, a short position is warranted. Buy stops are placed 2/32nds above the high at #27. The bond market begins to slide lower until the collapse in the last time period at #30. *Given the bearish behavior which preceded it*, the fall at #30 is a major sign of weakness and not a washout. It indicates that sellers have gained the upper hand.

April 22. Bonds open unchanged and make a lackluster attempt to rally. On the pull-back to #31, there is no evidence of selling pressure; therefore, the tape reader takes profits on the short position. Bonds rally on the close as the sellers have backed off.

April 23. The market makes another surge toward the highs on the opening at #32, however, it is met by new selling as prices end the time period on the low. By the end of the day, all of the opening gains are erased as the bonds close unchanged. The sign of weakness still looms heavily on the tape reader's mind, but there is no evidence that the downtrend is ready to resume.

April 26. Bonds open lower at #33 as the sellers make a strong effort to break the market. However, the minor uptrend line drawn across #30 and #31 checks the decline. Prices rally away from the danger point and push higher on the close. The closing rally stops against a downtrend line drawn across the tops at #27 and #32. It is obvious now that an apex is forming but on a larger scale than experienced at #17.

April 27. Again the market opens lower at #34 on heavy volume. Prices manage to close off the low of this time period as demand is still present. During the next three time periods, the price ranges narrow and volume dries up. The bond market is in position to rally out of the apex. The force of the demand will tell whether or not buyers have gained the upper hand in this struggle.

At #35, the bond market moves slightly above the apex and the previous day's high. Volume remains light and prices close unchanged for the time period. The tape reader recognized that demand is exhausted. Counting only a portion of the top along the 64-12 line (EE on the point-and-figure chart), the reader projects a conservative objective of 62-16. Short positions are established and stops placed 1/32nd above the high at #32.

On the next time period, volume is heavy as bonds fall beneath the low of the day. The distribution phase is complete. June bonds declined to 62-15 on May 4.

From the beginning of the upwave (#10) to the conclusion of the distribution phase (#35), we have concentrated only on volume/price behavior. During this time, other traders worried over money supply, CPI and conflicting stories about budget talks. Also, Henry Kaufman released one of his pronouncements about the future of interest rates. We considered none of this information. The trader who isolates himself from everything but the market and takes the time to study what the market is saying about itself can duplicate the trading techniques developed 80 years ago by Richard Wyckoff.

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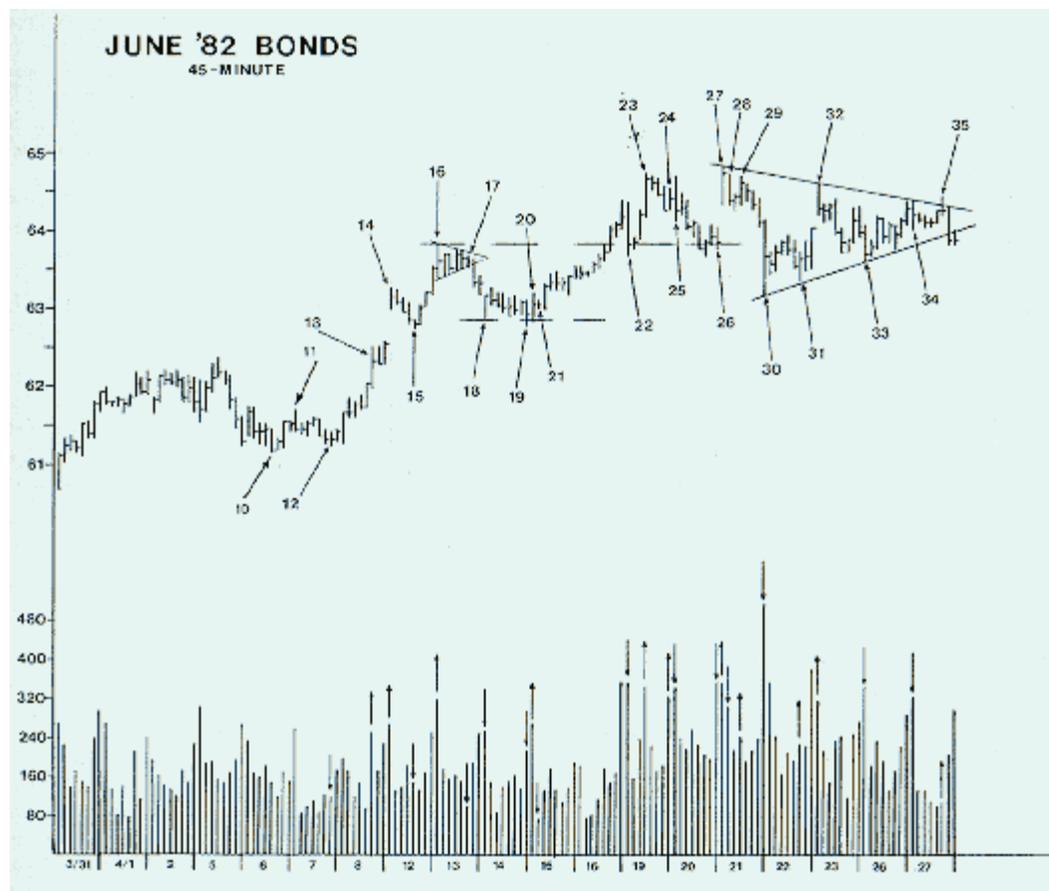


Figure 1:

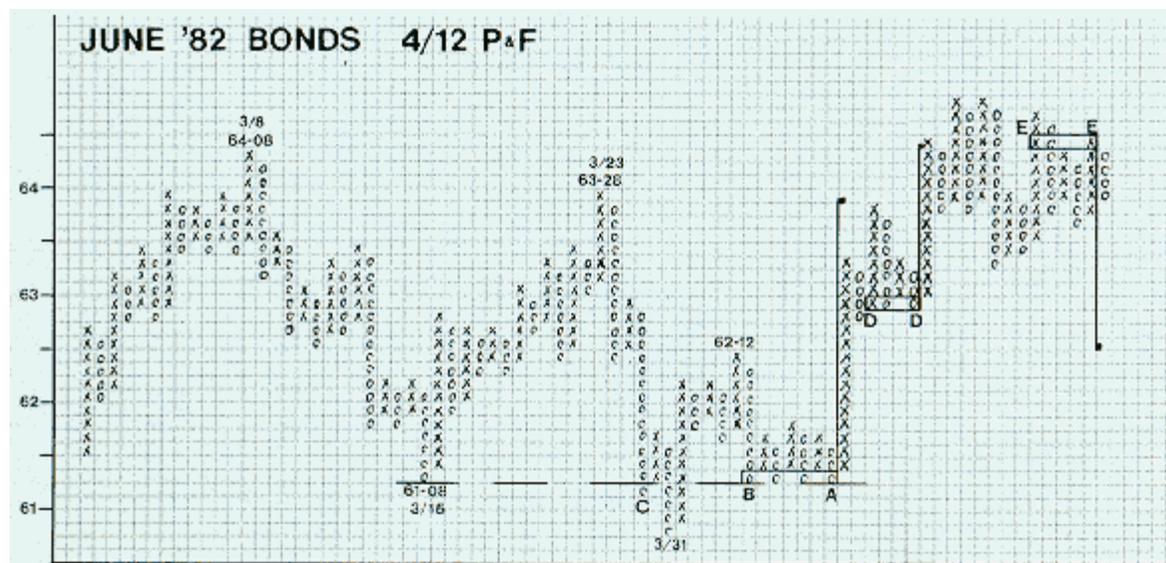


Figure 2:

# A complete computer trading program

## *part 2*

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by John F. Ehlers

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This program works with the standard CompuTrac or CSI (Commodity Systems, Inc.) disk data reading format (Table 1). The fundamental idea of this program is to take a 40-character string record for each day's data and break it down into eight columns. You can consider each day's entry as a column. The end result is a matrix that measures eight rows high by "N" columns long. The first row is the day of the week and date as NYMMDD for the year, month, and day. Thereafter, the rows are: Open, High, Low, Close, Open Interest, Volume, and Study. This program uses only the date, high, low, and close.

Data storage within the memory of a computer is divided into rows and columns to form a matrix or array in which data is held. The matrix can be thought of as a grid system with eight rows (0-7) and "N" columns.

### **A program that will allow you to immediately begin to chart the high, low and closing prices of your securities.**

All eight rows (0-7) may be used. For example, nine weeks of daily data will fill 45 columns: five trading days per week times nine weeks = 45 days. Data for row 7 (Study) is not stored on disk; Study results are stored in memory only in this row after studies are run. Other rows in the matrix may be overwritten with study data when studies store more than one set of results since the program needs only the price data.

Records in the individual disk data files are interpreted exactly the same whether the file was created as a Commodity or Stock file.

Record length - 40 bytes

# of records - One for each weekday from day 1 of starting month to last day of ending month.

Record layout - Record #0 = Record # of the last day in the file which contains actual data.

Listing 1		Columns							
		Day	Day	Day	Day	Day	...	Day	
		1	2	3	4	5	6	"N"	
R	0	Date	.	.	.	.	.	...	.
o	1	Open	.	.	.	.	.	...	.
w	2	High	.	.	.	.	.	...	.
s	3	Low	.	.	.	.	.	...	.
	4	Close	.	.	.	.	.	....	.
	5	Volume	.	.	.	.	.	...	.
	6	Op.Int.	.	.	.	.	.	...	.
	7	Study	.	.	.	.	.	...	.

<b>Active records</b>	
<b>Byte</b>	<b>Contains</b>
1	Day of week (1-5) 9=Holiday
2-7	Date (YYMMDD)
8-12	Open
13-17	High
18-22	Low
23-27	Close
28-33	Volume
34-39	Open interest
40	Carriage return

The Open, High, Low, and Close are stored as integers to which a conversion factor must be applied. Dummy records consist of all 9's except for the date which is valid and laid out when the file is created.

If Volume and Open Interest contain five figures, then they are stored in the file as the exact five figures; if Volume and/or Open Interest contain six figures (or more), then the last five figures in the record are the first five significant figures, and are multiplied by 10 to the power of X, with X being the first digit in the record. For example, 213456 = 13456 times 10 squared = 1,234,600.

### **Plotting program**

For this program, plotting will be done on page 2 graphics with the HGR2 command. The HGR2 can be replaced with SCREEN 1 on an IBM PC®. The Apple ][® screen is 280 pixels wide by 192 pixels high. Since SCREEN 1 on a PC measures 320 by 200, you may want to move the charts a little to the right to make more room for text characters on the left of the chart. The Apple H PLOT command is equivalent to the IBM LINE command.

The plotting program starts at line 2000. When you enter this program, use the line numbers as they are given because the programs for the missing line numbers will be supplied in subsequent articles.

Before we begin, I would like to give a little note of advice on typing the program. First, the listing is made directly from a working version of the program and is therefore as error free as possible. If you have difficulty running the program, it is probably because of a typing error. One of the more common errors is to mistake an O (oh) for a 0 (zero). I use the letter I as an integer variable throughout the program and it can be easy to mistake the I (eye) for a 1 (one). So, the caution is to be precise and careful when typing the program to avoid hours of debugging. Computers are notoriously literal, and every little comma or semicolon has a meaning.

Lines 700 through 720 find the highest high (HH) and the lowest low (LL). These scale factors rescale the X(2,I) (high), X(3,I) (low), and X(4,I) (close) for direct plotting on the screen. Plotting starts at five pixels from the very top of the screen to give us a little breathing room for our vertical cursor.

Line 50 loads HIGH-RES-TEXT/3 from disk (see previous issue of *Stocks & Commodities*), turns on page 2 graphics, and does some other graphics housekeeping. We then plot the framework for our graph in lines 2000 through 2010. The framework is 120 pixels high and 200 pixels wide for what I think is a pleasant aspect ratio. Horizontal dots are placed to correspond to each trading day. The vertical dots

correspond to the price resolution of the vertical cursor. The messages at the left of the chart are printed with lines 2010-2030 and line 2050 subroutine. PC users can print the data directly at the correct position using the LOCATE command. If any of the characters look funny you probably have an error in typing HIGH-RES-TEXT/3 and you should review it again from the last issue. The entire set of price graphing statements is contained in line 2040.

I have described a complete plotting computer program that will allow you to immediately begin to chart the high, low and closing prices of your securities. You should debug this much of the program because next month we will add the Parabolic System and moving averages to the chart. I suggest that you obtain back issues of *Technical Analysis of Stocks & Commodities*, starting with December 1985 because the concluding article of this series will introduce Commodity Channel Index, Directional Trend Indicator and Relative Strength Index without reference to the rationale of their use except by reference to previous articles.

*Reference: CompuTrac System Operating Manual, CSI® Quicktrieve User Manual*

*This complete computer program (revised by Jack K. Hutson), along with an explanatory example BASIC program, is available on disk directly from **Technical Analysis of Stocks & Commodities** magazine for \$49.95. Please reference Volume 5 disk. An IBM version of this program is available directly from John Ehlers, P.O. Box 1801, Goleta, CA 93116.*

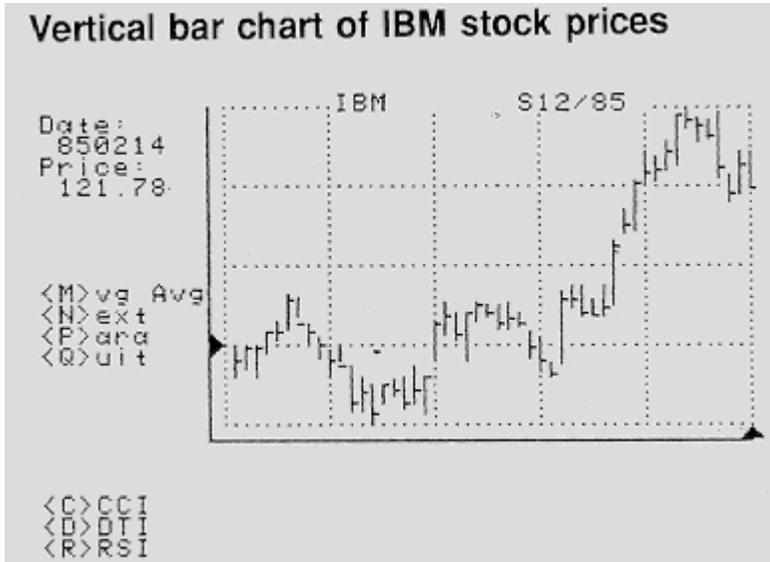


Figure 1:

# A helping hand from the Arms Index

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by James Alphier and Bill Kuhn

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It was just about 20 years ago when Richard W. Arms, Jr. published in the pages of *Barron's* his new index number which combined upside and downside volume with the traditionally watched statistics on the number of advancing and declining issues. Arms' method of combining the "raw head count" of the advances and declines with the total number of shares these stocks were trading was simple.

The Arms formula:

$$\frac{(\text{Advancing Issue} / \text{Declining Issues})}{(\text{Advancing Volume} / \text{Declining Volume})}$$

is now available instantaneously, and many technical and even non-technical market observers consider it indispensable in their general market analysis.

Most technicians know that index values of 2.00 or higher are relatively unusual and hard to come by. They only occur on down days, and usually on days which are powerfully down with more than a trace of panic. Newton Zinder of E.F. Hutton and Co. has pointed out the remarkably bullish message when two consecutive readings of 2.00 or better appear.

Many other analysts have pointed out that by taking various moving average lengths, an unusually high index reading is an excellent indicator of stock market bottoms.

But if two consecutive days of 2.00 or higher or some moving average combinations can be used to pinpoint times of market pessimism, then is it not possible for just one single day's reading to have predictive significance also? We believe so.

Our study of approximately 5,000 trading days of market data has disclosed that the higher above 2.00 one looks, the fewer readings there are. At 2.65, our arbitrary threshold, there have been but 18 trading days in the past 21 years that produced such stratospheric readings.

To produce a level like this, there must first be an overwhelming preponderance of declines, with very few advancing issues that day. In addition, almost all the volume traded must be concentrated in the issues losing value that day. The tiny, ragtag list of advancing issues must, for the most part, be relatively inactive issues that traded very little in volume. In short, this must be a market in which, for that day, a tidal wave of panic selling inundates everything.

Does it pay to go along and panic with the herd? The statistics in [Figure 1](#) speak for themselves. It does not. In almost every case, stock prices were higher three, six, nine, and 12 months later. In the majority of cases where prices were lower over any of those time periods, the worst loss was 11%--bad, but not crippling.

[Figure 2](#) shows a naive and simplistic "strategy" that we obtained by a cursory visual inspection. In this strategy, we simply assumed that an investor "bought" the S&P 500 on the day of the high Arms Index reading, and then held for eight calendar months and sold. If new high index readings appeared before the eight months were out, we re-started the eight-month count from that new high reading, selling only

when the high readings had not occurred for eight full calendar months.

The results, again, speak for themselves. A buy-and-hold strategy produced gains of 192.1%, but our buy-when-investors-panic strategy produced gains of 441.1%. In all cases, we did not take into account commissions or dividends. We also did not take into account interest on idle money that was not exposed to the stock market. In our naive strategy, we were out of the market for 137 out of 252 months: more than 11 years!

## **Does it pay to go along and panic with the herd? The statistics in Figure 1 speak for themselves. It does not.**

We are not trying to suggest a "New Miracle Timing Plan." Our only point is that, based on the evidence of the past couple of decades, the Arms Index method of measuring panic selling in a single day may be worth considering for those who wish to measure excessive public fear--and the bargains it produces in the stock market.

Two other points are worthy of note: Statistically inclined people may be interested in observing that, in the great majority of very high, one-day readings, a key trading low came a relatively small number of trading days later. Often, however, this was several percentage points below the level of the high reading. Apparently, panicky markets often produce further weakness for a short while.

Secondly, the spectacular daily breaks of July 7, Sept. 11 and Nov. 18, 1986 produced Arms Index readings of 2.81, 3.31 and 4.09, respectively. On the basis of our sample of market history, one could conclude that the next few months might not offer all that much risk. On the other hand, one might conclude that while this exercise is interesting, so few cases are hardly likely to be the last word.

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<b>Arms Index values 2.65 or higher</b>					
<i>(Source: Barron's Market Laboratory and Standard &amp; Poor's Corp.)</i>					
<b>Date</b>	<b>Arms Index</b>	<b>S&amp;P 500 % change</b>			
		<b># calendar months</b>	<b>3</b>	<b>6</b>	<b>9</b>
6/24/65	2.82	8.8	10.3	6.9	3.6
10/3/66	2.99	7.3	19.1	21.4	29.0
3/14/68	3.16	14.5	14.2	21.8	11.0
5/4/70	3.50	-2.7	6.3	21.7	30.8
9/27/74	2.81	3.4	29.1	46.0	32.7
11/18/76	4.25	16.8	30.7	24.4	31.4
12/2/74	2.74	21.9	35.9	25.5	31.2
10/14/76	2.66	3.1	0.1	-1.3	-7.3
5/7/79	3.06	5.3	0.9	17.4	8.2
10/9/79	3.17	2.3	-3.3	10.6	22.9
3/24/80	3.93	16.0	31.3	36.9	35.6
12/8/80	2.86	0.4	1.2	-9.7	-4.4
8/24/81	3.66	-1.6	-8.0	-8.5	-8.1
1/5/82	4.09	-4.4	-10.6	1.6	18.3
8/4/82	2.69	33.6	37.7	53.9	52.0
10/25/82	4.44	6.3	19.1	27.2	24.9
2/8/84	2.78	3.0	3.8	8.5	16.9
1/2/85	2.82	9.2	16.1	11.3	26.7
7/7/86	2.81	-4.0	na	na	na
9/11/86	3.31	na	na	na	na
11/18/86	4.09	7.4	13	17.5	19.7

na: not applicable

	<b>Number</b>	
	<b>Up</b>	<b>Down</b>
3 months later	15	4
6 months later	16	2
9 months later	15	3
12 months later	15	3

Figure 1

<b>Simple Strategy</b>					
Buy: On day of Arms Index 2.65 or higher					
Sell: 8 calendar months later or after last "overlapping" 2.65 reading					
<b>Buy Date</b>	<b>Sell Date</b>	<b>Buy Price</b>	<b>Sell Price</b>	<b>% Change</b>	<b>%Cum Change</b>
6/24/65	2/24/66	83.56	90.89	8.8	8.8
10/3/66	6/2/67	74.90	89.79	19.9	30.5
3/14/68	11/14/68	88.32	105.20	19.1	55.4
5/4/70	1/4/71	79.37	91.15	14.8	78.4
9/27/74	8/1/75	64.94	87.99	35.5	141.7
10/14/76	6/14/77	100.88	99.86	-1.0	139.3
5/7/79	11/24/80	99.02	138.31	39.7	234.3
12/8/80	8/7/81	130.61	131.75	0.9	237.3
8/24/81	6/24/83	125.50	170.40	35.8	358.0
2/8/84	10/8/84	155.85	162.13	4.0	376.3
1/2/85	9/2/85	165.37	187.91	13.6	441.1
7/7/86	-	244.05	-	-	-
9/11/86	-	235.18	-	-	-
11/18/86	-	236.78	-	Avg.=17.4	-

**Figure 2**

# An after-Christmas story

*by Ron Jaenisch*



**S**anta completed his rounds at Christmas and went on a one-month vacation in Mexico. When he got back to the North Pole he realized that it was once again time to raise funds for the Christmas toys. Since it was only February he knew he had lots of time.

"I've got more than \$40,000 left over from last Christmas and I'll be needing \$4 million this year," he said to Mrs. Claus.

She answered, "Dear, this year instead of doing fund-raisers what about raising it by trading the futures market?"

"You may have a point there," he said. "After all, these bones are getting weary and it is effective."

**While my way of doing it isn't like yours, it still is within the rules and uses the methods in the manual in a creative way**

So Santa took off for California to see a student of the Reinhart method. The student welcomed him with open arms. Santa handed the student a check and said, "I'd like to take the course."

The student handed him a manual and said, "Go through the sections on the different course lines. Then, with your favorite commodity, see how the concepts work. Remember that the market is like a roller coaster and the objective here is to be on track as much as possible. You buy after a decline and ride it up and sell after a rally and ride it down. The better that you can steer the more money you will make...."

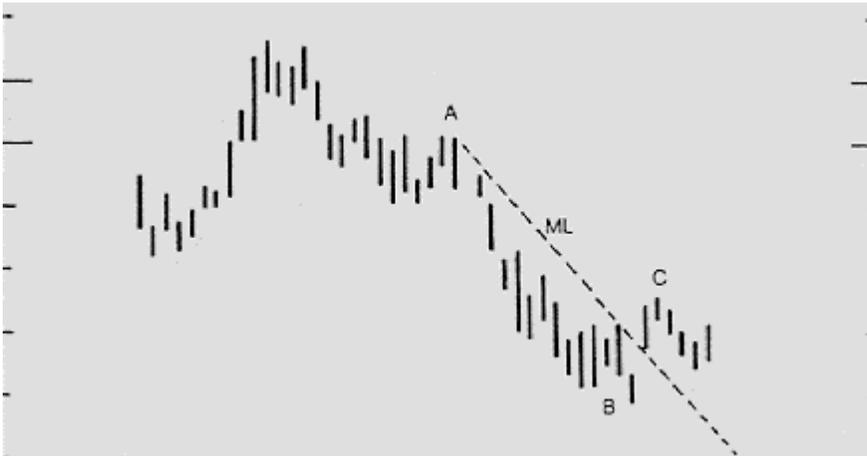
"The tools and concepts help you to have foresight as to when the turns will come so that you can steer in the new direction."

Santa took off for the North Pole and carefully examined the manual and the concepts. Since the student made him a million in T-bonds (*S&C*, February 1986) that was the commodity he applied the course concepts to.

A month later, he went back to the student and said, "I've got it. While my way of doing it isn't like yours, it still is within the rules and uses the methods in the manual in a creative way." Santa showed the student his system and went merrily on his way.

On the pages that follow you will see what Santa did. See if you can figure out what his trading system is.

*Ron Jaenisch teaches the Reinhart course through Investors Management Services in Sunnyvale, CA (408) 738-2311.*



**FIGURE 1 T. Bonds #1:** Santa drew the ML (Median line) on the first chart. He noticed that prices had not made it. If they do not close beyond it this could be seen as a sign of strength.



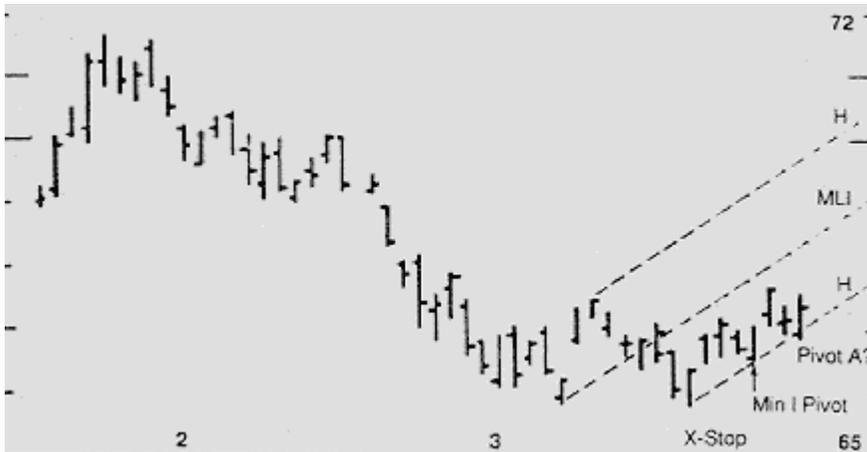
**FIGURE 2 T. Bonds #2:** He then drew the M lines and noticed that prices had not yet closed 5 ticks beyond it. He drew the possible new B-ML-C-D and noticed that the direction of it was up. He put a buy order in 5 ticks beyond the MLH as a Stop Close Only (SCO). He would remove the order if prices closed beyond A-ML-B-C.



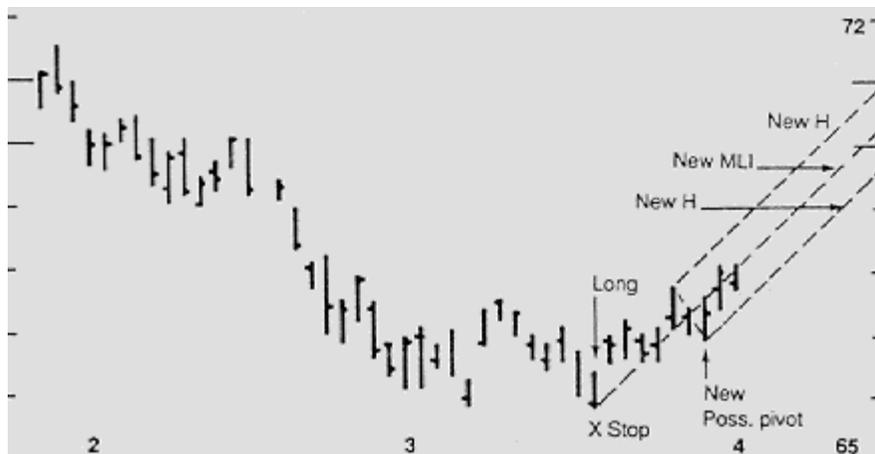
**FIGURE 3 T. Bonds #3:** A few days later he found himself long. Prices had closed 5 ticks beyond the H without making the ML and the trend of the new ML was in the direction of the long signal.



**FIGURE 4 T. Bonds #4:** Since Santa believed in stops, he put a stop dose order in 5 ticks below pivot D since this was the possible pivot point at the time that he entered the market. He kept this stop until he went short, even if he had to go short at a higher price.



**FIGURE 5 T. Bonds #5:** Two days of higher prices went by as seen in the first chart. After prices made a min-1 pivot, Santa put a SCO order in 5 points below the lower H. The order was not filled.



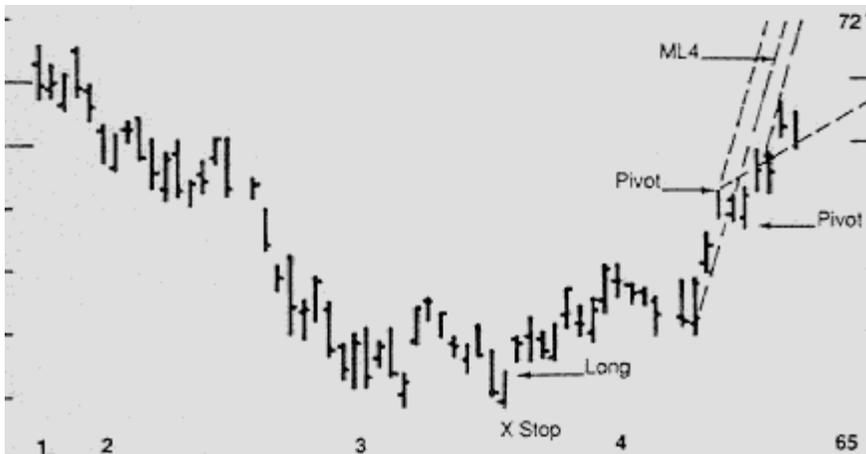
**FIGURE 6 T. Bonds #6:** After prices had made a new possible pivot to the upside, Santa removed his order beyond H because prices had closed beyond the new ML. He did keep his original stop in.



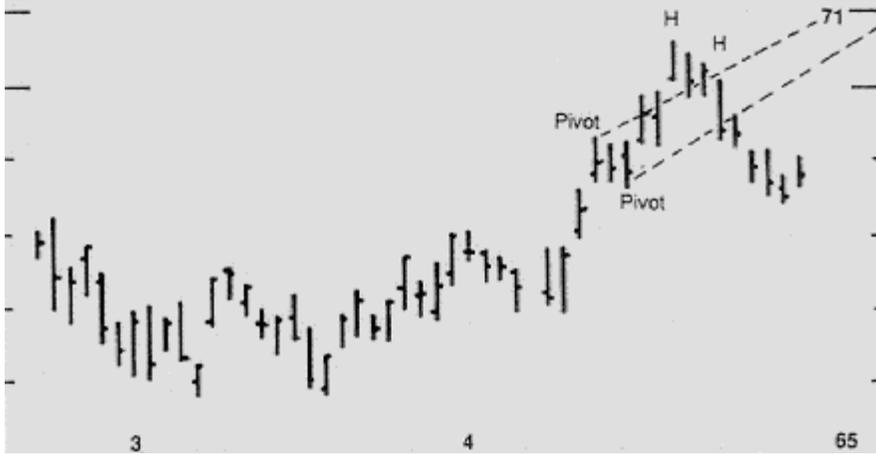
**FIGURE 7 T. Bonds #7:** Several days later, the direction of a new ML was down and prices broke through a trendline. Santa stayed long because they had not yet failed to close past upside ML and then dose 5 points below the lower H.



**FIGURE 8 T. Bonds #8:** Price went up in a few days and Santa noted that he had enough days for a new pivot and that prices closed past the ML.



**FIGURE 9 T. Bonds #9:** After a few more days he noted that a new P had been formed and that prices were outside the H. He did not go short because the slope of the new ML was up. His stop remained far away.



**FIGURE 10 T. Bonds #10:** Prices went down for several days. They not only went past the ML but far past the H.



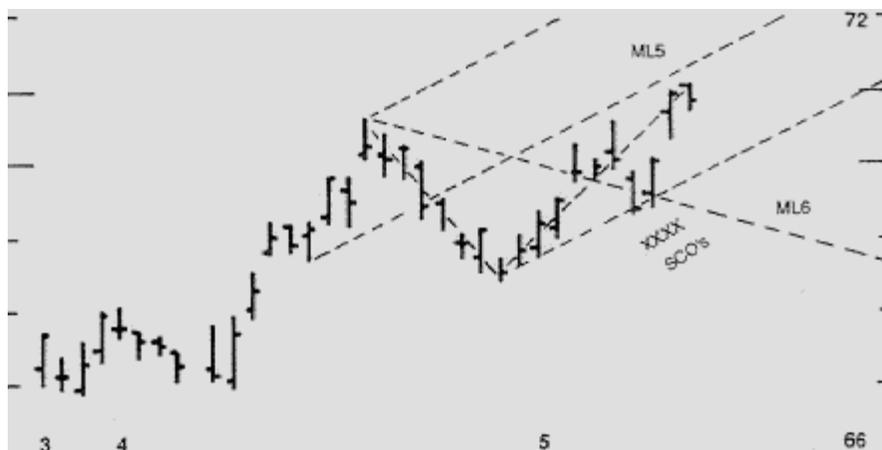
**FIGURE 11 T. Bonds #11:** Then suddenly, Prices made an upside pivot. Santa drew the ML5 and H5 for the upslope ML and then noted that the new ML6 was down-slope in nature. He placed an SCO 5 ticks beyond the lower H.



**FIGURE 12 T. Bonds #12:** Santa raised his stop a little every day, even as prices went up.



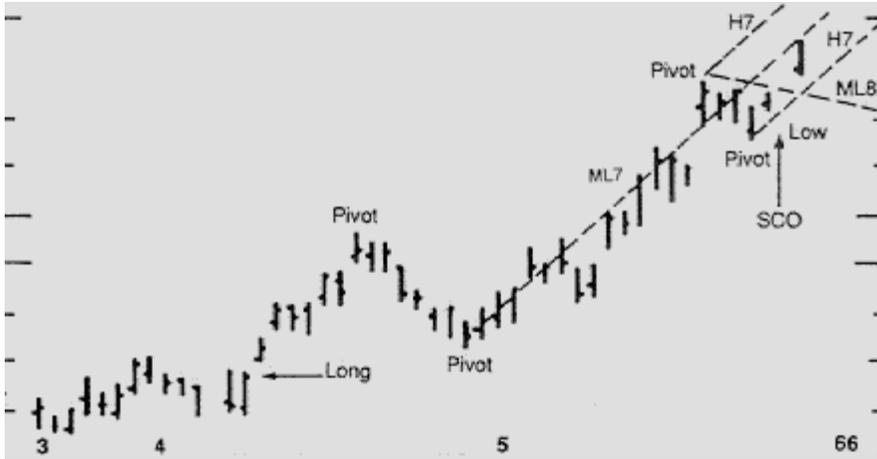
**FIGURE 13 T. Bonds #13:** Prices continued their upward movement and every day the SCO was put in 5 ticks beyond the H6.



**FIGURE 14 T. Bonds #14:** The ML6 was adjusted.



**FIGURE 15 T. Bonds #15:** The SCO was removed after prices closed beyond the ML5. After a few more days, Santa noted that the slope of the possible ML6 had become upward.



**FIGURE 16 T. Bonds #16:** As prices continued upward, they made a low p and had enough days for an upside pivot. He drew ML7. Since the slope of the possible new ML8 was down and the prices hadn't closed beyond the lower H, Santa put in his SCO.



**FIGURE 17 T. Bonds #17:** As prices moved up, the slope of the ML8 longer kept the SCO.



**FIGURE 18 T. Bonds #18:** Suddenly, prices dropped past the ML. Santa stayed long and waited for further developments.



**FIGURE 19 T. Bonds #19:** After prices went down, they came back up and made a pivot. Santa put his SCO order in and went short. He removed his stop put in in March and put one in above the previous Pivot marked A.



**FIGURE 20 T. Bonds #20:** Prices went up for a few days and came closer to his stop. They went down enough for a new pivot and Santa drew the ML and the H. He put his stop in...the SCO 5 ticks beyond the H.



**FIGURE 21 T. Bonds #21:** As prices went down, Santa drew the new ML every day and kept lowering his stop. Prices didn't close beyond the ML.



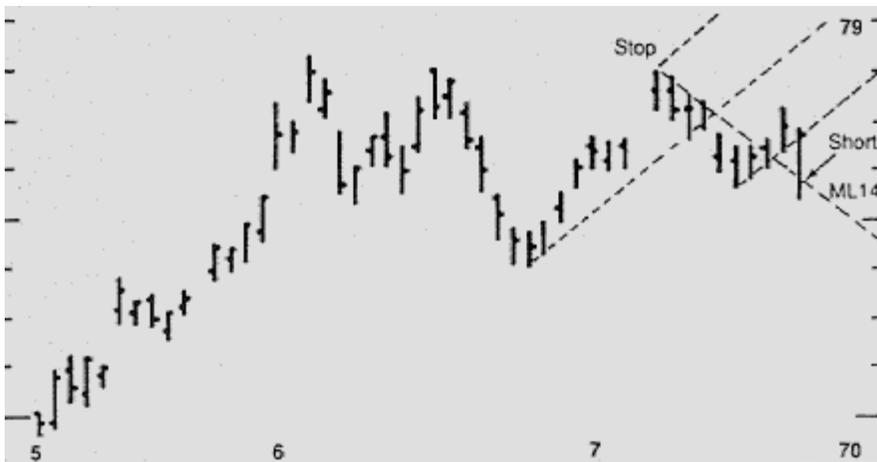
**FIGURE 22 T. Bonds #22:** Santa went long when prices closed 5 ticks below the H after checking to make sure that the Median line (ML11 ) slope was up. Then he removed his stop from over the very high P and his SCO stop. He put in new stops 5 ticks under the previous pivot and H11.



**FIGURE 23 T. Bonds #23:** As time went on, prices closed beyond the ML11 and Santa removed his stops below the H.



**FIGURE 24 T. Bonds #24:** Prices started heading toward the downside, then up again and Santa put his stop in below the H.



**FIGURE 25 T. Bonds #25:** Prices hit his SCO and Santa was short. He put his stops in beyond the previous high pivot.



**FIGURE 26 T. Bonds #26:** Prices went down and repeatedly closed below ML14. Santa waited for further developments.



**FIGURE 27 T. Bonds # 27:** Prices made a high pivot and had sufficient days for a low pivot. Since the ML slope was down, Santa did not put his order in beyond the H.



**FIGURE 28 T. Bonds #28:** Prices went down farther.



**FIGURE 29 T. Bonds #29:** Suddenly, they sprang up and made a pivot (A). They then moved down enough days for a low pivot (B).



**FIGURE 30 T. Bonds #30:** Santa saw this and put his stop in. After his stop was filled, Santa told the broker that he was going on vacation and went fishing for 2 weeks.

# Calculating retracements

by Hal Swanson

The following forecasting method is an approach to charting price retracement in stocks, commodities, indices or any free market. It is a study of momentum, an evolution somewhere between Gann and Elliott Wave, that allows traders to project an ideal price correction in both price and time.

In my approach, a price move of any proportion will attempt to retrace itself by 50% to 61.8% of the initial price move. This retracement first occurs at twice the original momentum, or even greater, and then completes the price correction with the same momentum as the initial price move. There are six important points, or areas, in this correction pattern where the price retracement could be halted or a secondary reaction could occur. (*See the related article on this topic.*)

A trader who applies the ideal correction technique, spelled out in the following calculations, will quickly develop a new market perspective--a perspective of market direction or phase, proportion, momentum and timing. When a trader uses this form of wave analysis in combination with cycle analysis, as I do, the probability of success is magnified.

The validity of this technique is enhanced by the fact that it can be used for intraday trading or longer-term projections. (In my own trading, I use it with 15-minute bar charts yet it recently proved itself accurate over a 15-year span of weekly data.) Also, it can be applied to rising markets as well as declining ones with no noticeable difference in results.

Figure 1, showing the Commodity Research Bureau (CRB) Futures Price Index, is an excellent example of a projected price correction. By measuring from the low on Oct. 4, 1971 at 96.40 to the high on Nov. 20, 1980 at 337.60, we can make the following calculations to determine the ideal correction pattern:

Step 1. 50% retracement in both price and time

A) Find the number of points difference from low to high:  $337.60 \text{ (high)} - 96.40 \text{ (low)} = 241.20 \text{ points}$

B) Calculate 50% of the point difference from low to high:  $241.20 \text{ (points difference)} \times 0.50 = 120.60 \text{ points}$

C) Subtract the 50% difference from the high:  $337.60 \text{ (high)} - 120.60 \text{ (difference)} = 217.00 \text{ points (a 50% price retracement)}$

D) Count the number of calendar days from low to high: Oct. 4, 1971 to Nov. 20, 1980 = 3,335 calendar days

E) Calculate 50% of the time difference from low to high:  $3,335 \text{ calendar days} \times 0.50 = 1,667.5 \text{ calendar days}$

F) Add the 50% time difference to the date of the high: Nov. 20, 1980 + 1,667.5 calendar days = June 14.5, 1985 (date of 50% retracement).

Therefore, a price of 217.00 on June 14.5, 1985 (point D) represents a 50% retracement in the CRB index in both price and time. The "momentum" (or rate of movement) from the high price to the 50%

retracement price is the same as the momentum from low to high in the initial move.

Step 2. 61.8% retracement in both price and time

A) Find the number of points difference from low to high:  $337.60$  (high) -  $96.40$  (low) =  $241.20$  points

B) Calculate 61.8% difference from low to high:  $241.20$  (points difference)  $\times 0.618 = 149.06$  points

C) Subtract the 61.8% difference from the high:  $337.60$  (high) -  $149.06$  (difference) =  $188.54$  points (a 61.8% price retracement)

D) Count the number of calendar days from low to high: Oct. 4, 1971 to Nov. 20, 1980 = 3,335 calendar days

E) Calculate 61.8% of the time difference from low to high:  $3,335$  calendar days  $\times 0.618 = 2,061$  calendar days

F) Add the 61.8% time difference to the date of the high: Nov. 20, 1980 + 2,061 calendar days = July 13, 1986 (date of 61.8% retracement)

We now know that a price of 188.54 on July 13, 1986 (Point E) represents a 61.8% retracement in both price and time. The momentum from the high to the 61.8% retracement is the same as the momentum from low to high of the initial move.

Step 3. 50% retracement with twice the momentum

A) Find the number of points difference from the low to high:

$337.60$  (high) -  $96.40$  (low) =  $241.20$  points

B) Calculate 50% of the point difference from low to high:

$241.20$  (points difference)  $\times 0.50 = 120.60$  points

C) Subtract the 50% difference from the high:

$337.60$  (high) -  $120.60$  (difference) =  $217.00$  points (a 50% price retracement)

D) Count the number of calendar days from low to high:

Oct. 4, 1971 to Nov. 20, 1980 = 3,335 calendar days

E) Calculate 25% of the time difference from low to high:  $3,335$  calendar days  $\times 0.25 = 833.75$  calendar days

F) Add the 25% time difference to the date of the high: Nov. 20, 1980 + 833.75 calendar days = March 3.8, 1983

With these calculations, we find that a price of 217.00 on March 3.8, 1983 (point C) represents a 50% price retracement in 25% of the time. The momentum, therefore, from the November high to this retracement point is twice the momentum of the initial move from low to high.

Momentum lines are drawn from the November high to the twice-momentum point C, and from the November high to the 50% original momentum point D. A "correction window" is constructed using the 50% and 61.8% retracement points (D and E). The correction window allows us to forecast price-time

movement.

Studying both the correction window and momentum lines in [Figure 1](#), a trader quickly gains a new perspective. Initially, the CRB Futures Price Index fell from the November high with at least twice the momentum of the initial move from low to high--a typically negative development.

As the downward momentum began to slow and the index crossed the first momentum line H-C, a secondary rally started. It carried the index through the second momentum line H-D, into the level of resistance at point A. (*See related article for more on point A .*)

After a period of consolidation, the index resumed its decline into the ideal correction window. Our projected low in the index was point E, 188.54 on July 13<sup>th</sup> 1986 (a Sunday). The actual low was 196.16 on July 14, 1986.

Assuming this is a major low in the index, the next rise can be projected using our ideal correction technique. A 50% retracement with twice the momentum would put the index at 266.88 on Dec. 11.5, 1987. The correction window would begin at 266.88 on May 10, 1989 and extend to 283.57 on Jan.9.3, 1990.

If the CRB Futures Price Index deviates significantly from the projected momentum lines, it would be the first indication of a major pattern change. On March 31, 1987, the index would have to be at 213.99 or above to still be on track.

The correction technique described has projected an ideal counter-trending pattern and objective, and should be kept in that context. Once a price correction has run its course and the next trending move is beginning, another technique should be used because trending and correction price patterns are different.

The technique I use is similar in principal to classical correction techniques but projects an ideal trendline, price path to an objective and support/resistance lines.

*Hal Swanson (14003 Chevy Chase, Houston, TX 77077, (713) 558-1457) began his career in the futures industry in 1967. Since 1972, as an account executive, he has assisted his clients in developing their investment and hedging programs.*

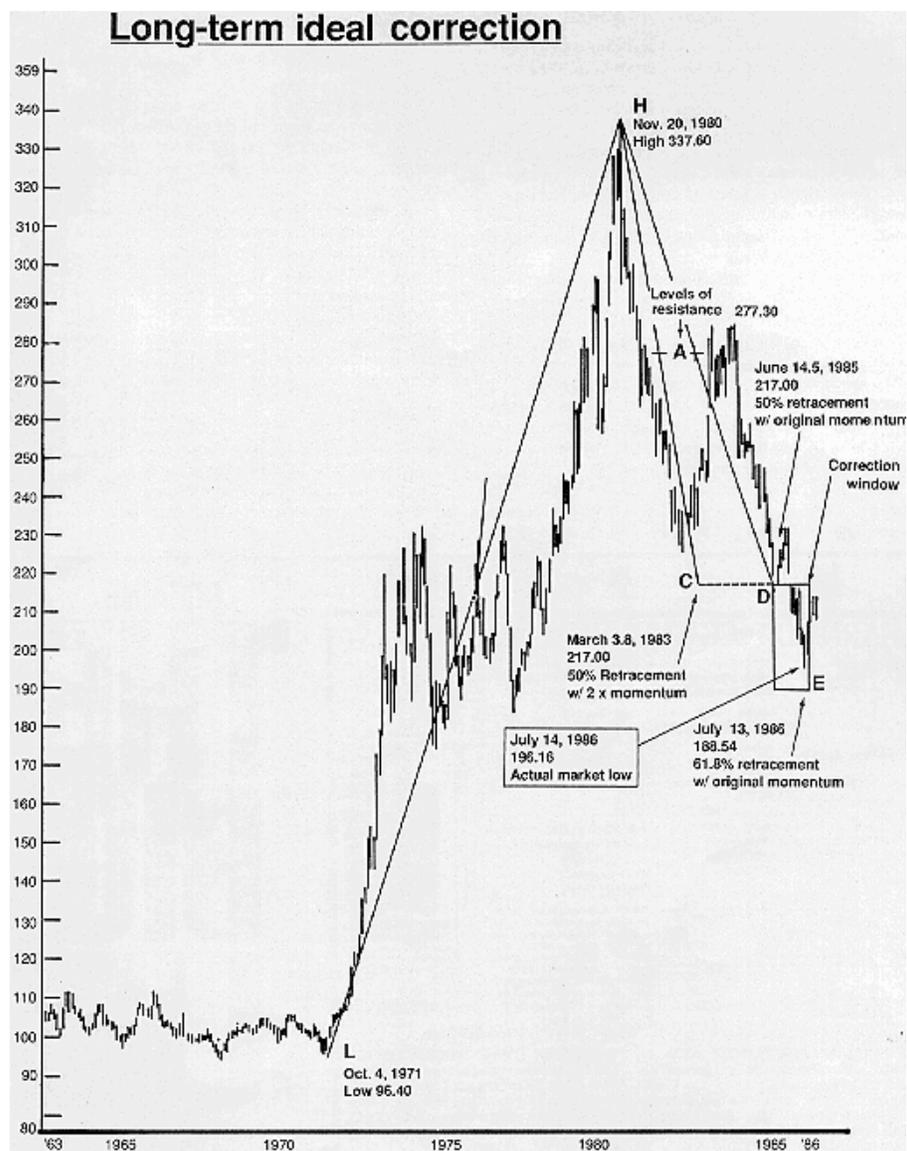


FIGURE 1:



# Floor Talk

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*by William Eng*

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I started my trading career at the MidAmerica Commodity Exchange more years ago than I care to remember, or at this time, more years than I can remember. I learned a lot of lessons while trading there. One lesson I learned, and one which I am extremely fond of repeating to new traders, is the one concerning secrecy. No one can be told about your trading position, not even your wife. And if you are a wife, no one can know, not even the kids!

There was a legendary trader at the MidAmerica Commodity Exchange by the name of Harold Goodman. Most people don't know who this trader was and most would not care to know. However, if I said to you that this man bailed out certain traders at the MidAmerica who had bad positions on after the primary markets closed, your curiosity would be somewhat piqued. The people he bailed out were the like of Richard Dennis and Tommy Willis.

Harold once told me he had been trading commodities for 30 years and he had been broke in 28 out of those 30 years. I would mosey on over to his desk at the MidAmerica Exchange after the market closed to chat with him, and inordinately, he would be on the telephone attending to his real estate business. His conversations would go like this: "...you're late on your rent. Where's the welfare check? Well, I can't wait forever..." It seemed to me that he kept himself financially alive by managing his own real estate in slum areas of town.

For years he tried to buy a seat on the Chicago Board of Trade, but never was able to get past the admitting committee. Rumors had it that in his good old Army days he had done something which upset the Army; it was this black mark in his record that people railed against. However, he eventually did buy a seat at the Board. He eventually did go on the floor to trade. Shortlived, but satisfying for a man of his stature. He died shortly thereafter of cancer.

As my friendship grew, I became bolder in probing his sharp market mind. One day I approached him and asked what position he had in soybeans. I was worried I would be on the wrong side of the market, and if he had told me that he was long, just as I was long, I would have been on the right side. This isn't to say that Harold was never wrong. To the contrary, I believed this man was more wrong than he was right.

He looked at me and said, matter-of-factly, "It's none of your goddamned business!" The abruptness of his remark shook me and my face grimaced in emotional pain. A question asked in honesty was answered inappropriately in anger.

Stunned, I looked at him. My mouth moved, but nothing came out. Picking up on these overt clues, Harold stopped himself from more defensive statements. He said to me, "Bill, you're a nice guy, but you just aggravated the hell out of me." (Give it to Harold, straightforward and from the hip.)

**I discovered I had a tendency to be swayed by others' comments.  
Trading positions were no different.**

He continued, "I have a position in beans and it's a big position. I know my position. If you know, what can you do to help my position? And If you don't know my position, what can you do to hurt it?"

"If I tell you my position, which might just be the opposite of you position, are you going to argue with me that you are right and I am wrong? Imagine if you can convince me that I am wrong? Are you going to be here tomorrow to tell me what to do with my position?"

"If your position is the same as mine, are you going to give me some of your profits, or am I supposed to give you some of my profits? Your knowing my position won't do a damn bit of good for it. In fact, your knowing will even distract me from maintaining an even keel in this play. OK, Bill?"

At the time he said all these things, the shock of being corrected by him prevented me from absorbing all his thoughts. As the years went by, I started to think about what he had said. It began to make perfect sense. I learned over the years to keep my mouth shut about my positions.

I discovered I had a tendency to be swayed by others' comments. Trading positions were no different. If someone could come up with a better argument than I had, I was more than willing —suicidially so—to reverse my position on next morning's opening bell.

I learned that if I did that, I wouldn't know what to do afterwards. I didn't have a game plan. If I stuck with my own analysis, I (in a worst possible scenario) would at least have a feel of what to do in case I were wrong. So my question is: Why drive using other people's eyes, when you can do a better job using your own?

*William Eng's trading career began in 1974. Since then, he has been a member of numerous exchanges and is founder of Financial Options Consultants, (312) 663-9339.*

# Hardcard offspring

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*by Howard Falk*

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About a year and a half ago the Hardcard appeared on the personal computer marketplace and quickly became a very popular item. Hardcard is a 10 million byte hard disk that plugs into one of the expansion slots (normally used to hold adapters for printers and displays) at the back of the IBM Personal Computer. This product sold so well that it stimulated development of many similar disks-on-a-card. In fact, there are now so many different card-mounted units available that they constitute a new category of hard disks for personal computers.

From the start, the appeal of these units has been that they are, compared to standard hard disks, simple to install. In addition, they appeal to users who hate the idea of putting a floppy disk drive on the shelf after removing it to make room for a hard disk. With a disk-on-a-card, there is no need to remove any floppy drive since this disk, with its controller, fits neatly inside the IBM system unit.

The main drawback was that these card-mounted disks were relatively expensive. As we shall see, prices of these units are now beginning to move much closer to those for conventional hard disks.

## **A well designed disk**

The original disk-on-a-card, the Hardcard from Plus Development Corp., continues to be the standard against which all the others must be measured. It is a very nicely designed unit, so compact that it fits into a single slot (the same space ordinarily occupied by the controller unit for a conventional hard disk). The Hardcard measures just a bit over an inch at its thickest. This is perfect for IBM PCs and XTs. However, if you happen to have an IBM AT, you may have to do some maneuvering, since the spacing for circuit cards inside that computer is only 0.8 inches.

It takes just a few minutes to install the Hardcard in an IBM personal computer. The system unit of the computer has to be opened up and the Hardcard plugged into an open expansion slot. This takes about the same effort needed to install a controller card for a conventional hard disk.

The software installation process for the Hardcard is particularly well designed. About the only piece of software needed to run the Hardcard (that does not come already recorded on that unit) is the DOS operating system for the computer. This is so because of legal barriers that prevent the disk manufacturer from recording DOS. Users therefore have to copy their own DOS onto the Hardcard. Incidentally, the Hardcard is not set up to function with the XENIX operating system.

Most hard disk installations involve a special floppy disk that has to be run in order to get the files initially set up. Not so with the Hardcard, which comes with an extra chip that automatically causes the computer to take notice of the Hardcard and to properly handle disk information.

To do the software portion of the Hardcard installation, all the user has to do is put the DOS floppy disk into the computer, type INSTALL, and the Hardcard does the rest. This includes formatting and partitioning the hard disk, and installing DOS on the unit so the computer will then start up into DOS from the Hardcard without needing to use a DOS floppy disk.

### **Click and plus**

When a disk unit is installed in the front of the computer, a lamp in the unit lights up to tell users that it is in action. However, with the disk mounted entirely inside the system, there is no exposed surface on which such a lamp can be conveniently displayed. Hardcard offers a click-sound when it goes into use and displays a + symbol in the upper right hand corner of the computer screen when the disk is running. Both of these symbols can be turned off if the user wishes.

### **Fast, reliable and quiet**

The average access time, from the moment the Hardcard is asked until it starts to read out material, averages about 65 milliseconds (thousandths of a second). This is almost twice as fast as the access time for standard hard disks supplied by IBM for the XT personal computer.

An even more impressive number is the 25,000-hour mean time between failures (MTBF) claimed by the Hardcard. This number indicates that users can expect to be able to run a Hardcard for eight hours a day, five days a week, for about 12 years before any problems develop with the disk mechanism. Standard hard disks, and the Hardcard's competitors, have MTBFs of 11,000 hours or less.

Those who have previously used standard hard disks will notice immediately that the Hardcard runs much more quietly than these other units. That can be a significant advantage in environments where quiet is essential.

Hardcard was originally sold for \$1,095. Early in 1986, a price reduction to \$895 was announced. That brought the price of this 10 million byte (MB) unit down to \$89.50 per million bytes of storage. In comparison, conventional 10 MB hard disks are now available for under \$500 (under \$50 per MB). Hardcard is available from Plus Development Corp. in Milpitas, California.

### **Thirty million bytes**

If you thought that the limited space available inside the computer's system unit would mean that larger disks could not fit, consider the DriveCard 30, which crams 30 MB onto a card, along with controller circuits. If you own an IBM XT, this disk unit will fit into a single adapter slot. On other models it takes up 1.5 slots. What the half means is that certain short adapter boards (modems, printer adapters and other circuits are available in this short format) can fit into a slot next to the drive unit, but a full length adapter card will not fit there.

You will recall that a standard IBM PC floppy disk holds about 360 thousand bytes of stored information. A 10 MB disk is therefore the equivalent of about 27 floppy disks, and a 30 MB hard disk holds as much data as about 83 floppies. The hard disks used in these card-mounted units are smaller than the standard 5 1/4-inch floppy. Actually, they are 3 1/2-inch disks, which explains why they can fit onto the small width of an adapter card.

Installation for the DriveCard 30 is as simple or simpler than for the Hardcard, and just as automatic. The needed software is stored in circuit chips on the controller portion of the DriveCard board. If the user purchases a second hard disk, this controller is designed to handle both disk units, so there will be no need to purchase another controller.

DriveCards are a bit slower (they average about 85 milliseconds) than Hardcards in their ability to retrieve data, but the difference is not great enough to be noticeable by users in the ordinary course of

day-to-day activities. They do not have the exceptional reliability (MTBF) of Hardcards. But, it is hard to call a unit unreliable when it is likely to run without problems for about five years of 40-hour weeks (an MTBF of 11,000 hours).

The DriveCard 30 sells for \$1,449; that comes to \$48.30 per million bytes. This per-megabyte cost is considerably lower than that of a 10 MB disk-on-a-card, but it should rightfully be compared to the under \$1,000 prices now being advertised for conventional 30 MB hard disks. A 20 MB version of the DriveCard is available for \$1,195; a 10 MB version sells for \$995. All are available from Mountain Computer in Scotts Valley, California.

### **Piggyback memory**

The FileCard is a 10 MB disk-on-a-card. Like the Hardcard, it fits comfortably into a single IBM PC/XT adapter slot. The vendor of the FileCard is a manufacturer of integrated circuits and boards, and that may be the reason why FileCard has a special feature of its own. If you want to add main memory to your computer, a piggyback memory board can be attached to FileCard and the whole assembly will still fit into a single adapter slot. This added board sells for \$99 plus the cost of whatever memory chips (up to 512 thousand bytes) you choose to have plugged into it.

Piggyback card aside, the FileCard disk has an average access time (about 80 milliseconds) that is slower, but not much slower, than the Hardcard. The MTBF cited by the manufacturer for the FileCard is 10,000 hours, about the same as for the DriveCard.

Installation is carried out with the help of a convenient software routine called Auto Install. A second software routine provides users with handy menu displays and simple key-functions for doing file copying, renaming, erasing and other maintenance functions that would ordinarily be accomplished with somewhat less-convenient DOS commands.

Mindful of the reduced price for the Hardcard, the FileCard vendor has pegged a 10 MB unit at \$795, or \$79.50 per million bytes. A 20 MB version is also available, but it will not accommodate the piggyback memory board; the price of this unit was not available at publication time. The FileCard vendor is Western Digital in Irvine, California.

### **Twenty-one million bytes**

Able to design their own little disk unit, the vendors of the DISKARD have chosen to give it a capacity of not 20, but 21.3 million bytes. DISKARD will fit in a single adapter slot if that slot is the last one, next to the loudspeaker in the IBM PC. The disk is priced at \$895, or about \$42 per million bytes. Its average access time is said to be a reasonably fast 80 milliseconds. The vendor is Tandon Corp. in Chatsworth, California.

### **Lowest prices**

A 20 MB disk, called the Flash Card, sells for just \$695. This disk is said to have an average access time of 68 milliseconds, and that puts it very close to the speed of the Hardcard. It also has a software installation routine that uses "only two keystrokes." The vendor is PC Source in Austin, Texas.

The lowest price we were able to find for a 20 MB disk-on-a-card unit was \$595. That comes to just \$29.75 per million bytes, and brings this type of unit into the very same price range as conventional hard disks that mount at the front of IBM Personal Computer system units.

A disk at this low price, called the Hard Disk Card, is offered by Express Systems in Shaumburg, Illinois. This 20 MB unit takes up 1.5 slots inside an IBM PC. Another 20 MB disk-on-a-card is available from CompuAid in Austin, Texas for the same \$595 price.

### **Removable and portable**

Although the Sysdyne!PHD could be described as a disk-on-a-card, it is actually a versatile little 10 MB disk - drive that can be placed on a card, plugged in and out of a slot at the front of the computer, and carried about on its own as a portable disk "cartridge" (\$779.95). The adapter card (\$269.95), to which a Sysdyne! drive can be attached, includes circuits that will handle not one, but two of the little drive units. If users wish, they can mount an inexpensive (\$45) "docking port" at the front of their computer. This port takes up just half the height of a conventional IBM PC floppy disk unit.

These various components can be put together and used as desired. For example, you could mount one 10 MB - drive on an adapter card, plug a second 10 MB drive into a docking port and run both of them from the controller circuits on the adapter board.

The Sysdyne! disk is slow compared to other units we have discussed. Its average access time is about 160 milliseconds. It has a stated MTBF of 11,000 hours. One feature, not offered by the other units, is an indicator lamp to signal the user when the disk is in operation.

*Howard Falk began writing about new developments in computers after designing peripheral equipment for Sperry Univac. He has been managing editor of IEEE Spectrum, editor of Small Business Computers Magazine, and has authored seven books on computer equipment and software.*

## In This Issue

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*John Sweeney, Associate Editor*

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**T**ried and true is best. The exotic is, these days, very enticing and certainly heavily promoted. But just as soldiers would pick up a simple, reliable AK-47 on the battlefield rather than a modern M-16, many traders to whom I talk prefer simplicity to complexity. As John Murphy says in *Technical Analysis of the Futures Markets*, "There are those who insist on taking relatively simple concepts and making them more complicated. I prefer it the other way around."

Each issue is a delicate balancing act. When I select the stories, I must balance between the relatively simple means I use to trade and the more exotic techniques in which I was trained--not to mention the vast array of "indicators" and the sophisticated packages which present them.

Here the older traders provide a sea anchor against the constant tug to spend an inordinate amount of time on foofra. Talking to them, I hear of their wanderings through the quantitative jungles and how they eventually returned to the simple search for mountains, not molehills.

Perhaps it is their age. As one said, "When you're older or richer, you're more patient. You're willing to wait for a really good trade--just like you're willing to wait for really good woman! You don't take the first one to come along."

These senior speculators are all in different niches. They've selected a "stable" of stocks, options or futures in which they are knowledgeable. They KNOW their markets, having tilled them for 18 to 31 years. They recognize when the market is behaving as they understand it.

Whatever your market, I conclude you can trade it many ways as long as you are true to your understanding and, therefore, to your technique. There's always a time to sell, a time to buy and a time to wait--mostly the latter! If you know what you are trying to do in your market, are willing to wait for the appropriate opportunity and execute according to plan, you could probably make money being short a bull market.

Sometimes the modern quantitative world merges with the ways of experience. Frank Tarkany's article herein, for instance, finds a cycle in the Dow that Gann and Hurst have noted and also provides evidence of its harmonics (its multiples).

Hal Swanson is providing a technique for chartists in the always fascinating effort to predict retracements. Ron Jaenisch demos an Andrews charting technique which is as effective in keeping one right with the market as moving averages.

To put all of this in a personal perspective, we've included an interview with investment psychologist Van Tharp. This will be the first of much more material on how our personal capabilities limit our investment results and what we can do about it.

Good Fortune!

## LETTERS TO S&C

### **Where are we?**

Editor,

I enjoy *S&C* and look forward to each new issue, including articles by guys getting off on esoteric concepts that hardly anyone will ever bother with. Although I enjoy the theory, I do find it difficult to understand the prevailing nuts and bolts philosophy of the *S&C* editorial staff concerning: can an informed, "off-the-floor" speculator make any money in commodities? The February 1987 issue has a glowing critique of some Gann software. It also contains Schwager's skepticism regarding most things. John Sweeney is a part-time skeptic. Bruce Babcock is skeptical of everything except what he sells...etc. In every issue we get both points of view. Where are you?

S. SMITH

*San Francisco, CA*

*See "In This Issue" for related comments.*

### **Confusing Software**

Editor,

I purchased a program disk last December that is for the Alpha-Beta trend-following program. I found, however, it does not run and is unserviceful.

Since the program is written in Applesoft, it seems to be a stand-alone program but is unable to read the data loaded by the CSI data reading program included in the disk. I, however, understand that the program is not standalone as so explained when ordered over the phone. On the other hand, it is obvious that the program is not written text file in the disk, so it is not the study program either. Now, only the confusion remains.

I tried just about everything I can, and also consulted a knowledgeable person about computer programs. His answer was also the same as I thought and explained in the above. Would you be kind enough to reply how to make this program run to display graphics like the sample on page 35 of *Stocks & Commodities* December 1985 and page 22 of the December 1986 issue.

Thank you for your cooperation.

TAKEHIRO HIKITA

*Yokohama, Japan*

*I am sorry to hear of your frustration in trying to use Dr. Warren's Alpha-Beta trend-following program. As with most routines published over the past four or five years in Stocks & Commodities, Alpha-Beta is*

*simply a subroutine that is intended to be called from a large program and, thus, is not a stand-alone program.*

*This routine will be able to run under an upcoming graphics software system. It will require a newer Apple computer with 128K of memory because it will utilize the double-high resolution graphics screen and simulate an Apple Macintosh. The bad news is that this routine is not available at this time. Because of the limited speed of the Apple computer with limited memory, this routine needed to be hand-programmed in machine language. Thus, the development time on the program has stretched out from six months to almost a year and a half. Please watch the pages of the magazine for announcements for this new program.*

*In the interim, and for those who have only an older Apple computer with at least 48K of memory, starting with the March 1987 issue of Stocks & Commodities we are publishing a simplified technical analysis program that the Alpha-Beta system could be added to. This series of four articles will delineate this small-memory machine program.*

### **Apple Transfer**

Editor,

I am presently using an Apple II Plus computer and the CompuTrac format. I also have an IBM computer, but do have a program which will allow me to transfer Apple files to IBM files. Are you aware of a program that will allow me to do this? Any help you can give me will be greatly appreciated.

MARTIN GRAFFMAN

*Santa Ana, CA*

*To my knowledge, there are four readily available techniques for transferring information from Apple II computers to IBM computers. The first, and probably the slowest but least expensive, is to use a modem and transfer the information via the telephone or a direct wire between the computers. The second is a method that we use here in the magazine editorial office. This is a device (\$352) that is added to an IBM computer that allows it to read and write Apple disks.*

*Apple Turnover*

*Vertex Systems*

*6022 W. Pico Blvd Suite 3*

*Los Angeles, CA 90035*

*(213) 938-0857*

*There is a third, little-used, technique that requires a local area network that connects both Apple and IBM computers that may be available through your local computer store. Fourth, I have seen a number of ads for data conversion services that may also serve this purpose.*

*After the data has been transformed into the new IBM disk format, you will still need a short program to convert the text file layout from the Apple CompuTrac format to the IBM CompuTrac format. This could*

*be easily done in the BASIC that comes with your first IBM computer but will require a thorough understanding of both Apple and IBM disk file formats.*

**MESA Service**

Editor,

You do a creditable job. Will you help me to find the service for the MESA package in your recent editorial?

*WALTER E. REED*

*Irving, TX*

*Write John Ehlers at P.O. Box 1801, Goleta, CA 93116.*

# Profitability of selected technical indicators: Eurodollar futures

## part 1

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*by Steven L. Kille and Thomas P. Drinka, Ph.D.*

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In previous issues of this magazine, we have reported the results of applying moving averages, momentum, Williams' %R, and Wilder's Relative Strength Index to Chicago Board of Trade corn and long-term U.S. Treasury bond futures, as well as to silver on the Commodity Exchange of New York (COMEX). In this issue, we report similar information for Eurodollar futures traded at the International Monetary Market of the Chicago Mercantile Exchange. In addition, we will report results of applying Wilder's Directional Movement Index (DMI). (See *S&C*, November and December 1985 for a discussion of the formulas and uses of these indicators and trading system.)

In this research, we simulated trading of the 1983-1985 March, June, September, and December Eurodollar-contracts. The simulations were conducted on the nearby contract only, with roll-over occurring on the first trading day of the expiration month. We present trading results for the period of Dec. 2, 1982 through Dec. 1, 1985. Trades were made at the open, and a \$100 commission was charged per turn.

Figure 1 displays the parameter sets used to simulate trading.

These simulations were optimized over five criteria--total profit, short profit, long profit, average winning trade and average losing trade--and results are shown in Figures 2-6.

Figure 2 presents--for each of the seven selected technical indicators--the parameter set that resulted in the greatest net trading profit. For example, of the 266 combinations of two moving averages that were simulated, the 6-day and 24-day combination was the most profitable, and resulted in net trading profit of \$16,725.

**Of 758 viable trading days, RSI positions were maintained for 654 days. A total of 14 trades were made: 11 of them winning and three of them losing trades.**

Among the seven selected indicators in Figure 2, a 16-day RSI resulted in the greatest net profit. Over the three-year optimization period, this indicator--with the buy parameter at 44 and the sell parameter at 86--resulted in a net trading profit of \$22,825. Of this total net profit, \$20,475 was from the long positions, while the short positions resulted in \$2,350 net profit.

Of 758 viable trading days, RSI positions were maintained for 654 days. A total of 14 trades were made: 11 of them winning and three of them losing trades. The 11 winning trades generated a total net profit of \$27,775. The average net profit per trade was \$2,525, and the largest winning trade was \$7,375. Among

the three losing trades, the largest was \$2,475, while the average net loss per trade was \$1.650. Finally--among these 14 trades--the largest obtained equity amounted to \$23,350, the largest unrealized loss was \$3,775, and the largest drawdown was \$5,100.

Figures 3-6 follow the same format as Figure 2 and display the trading results for optimization by short profit, long profit, average winning trade and average losing trade, respectively.

The indicator resulting in the greatest profit from exclusively short positions (Figure 3) is a 14-day RSI with buy parameter at 40 and sell parameter at 88. The indicator resulting in the greatest profit from exclusively long positions (Figure 4) is a 4-day RSI with buy parameter at 24 and sell parameter at 98. As seen in Figures 2-4, most profit was generated by the long positions, while the short positions resulted in either loss or negligible profit.

Figure 5 displays the results of optimization by average winning trade. A 30-day momentum with buy parameter at -150 points and sell parameter at +220 points resulted in the largest average winning trade (\$7,775) among the seven selected indicators. This indicator generated only one trade during the study period, while the other six indicators generated as many as 28 trades.

Figure 6 displays the results of optimization by average losing trade: that is, the parameter set resulting in the smallest average losing trade. Note that for RSI, the computer program reported a parameter combination (6-day, buy signal at 2, and sell signal at 98) that generated no trades during the study period; there may have been other RSI parameter combinations that resulted in no trades.

*Steven Kille is president of MicroVest which researches, develops, and markets investment software, Box 272, Macomb, IL 61455, (309) 837-4512. Thomas Drinka is an associate professor in the Department of Agriculture at Western Illinois University, Macomb, IL 64550, (309) 298-1179. This study was prepared with Back Trak.*



*"Miss Hastings, I want instant gratification and I want it now!"*

<b>Parameter Sets of selected technical indicators used to evaluate 1983-1985 Eurodollar futures</b>				
<b>T echnical Indicator</b>	<b>Parameter Set</b>			
	<b>Days</b>	<b>Sell</b>	<b>Buy</b>	<b>ADX</b>
Two Moving Avgs.				
Short MA	2(1)15 a	na b	na	na
Long MA	6(3)60	na	na	na
Three Moving Avgs.				
Short MA	2(1)15	na	na	na
Intermed. MA	4(2)30	na	na	na
Long MA	6(3)60	na	na	na
Momentum	4(2)30	10(10)250	-10(-10)-250	na
HI/LO	na	0.2(0.2)2.8	-0.2(-0.2)-2.8	na
%R	4(2)30	2(2)48	98(-2)52	na
RSI	4(2)30	98(-2)52	2(2)48	na
DMI	4(2)30	na	na	10(2)50

a "from 2 to 15 days in 1 -day increments" b not applicable

**Figure 1**

<b>Parameters Generating Greatest Net Profit</b>								
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>	<b>DMI</b>
Parameter Set	Days	6, 24	4, 6, 24	6	na	6	16	6
	Long	na	na	-10	-0.2	56	44	na
	Short	na	na	70	2.4	2	86	na
	ADX	na	na	na	na	na	na	32
Number of Trades		45	40	17	20	37	14	33
Days in Market (out of 758 tradable days)		758	745	741	711	748	654	661
Total Profit or Loss		\$16,725	16,200	22,375	16,925	15,925	22,825	21,250
Long Profit or Loss		\$18,700	18,200	21,375	18,950	17,750	20,475	20,000
Short Profit or Loss		\$-1,975	-2,000	1,000	-2,025	-1,825	2,350	1,250
Number of Winning Trades		21	19	12	14	25	11	17
Total of Winning Trades		\$28,425	26,775	27,800	24,050	26,600	27,775	30,000
Largest Winning Trade		\$6,400	6,400	7,125	7,725	3,225	7,375	6,975
Largest Obtained Equity		\$20,025	18,750	22,900	17,450	16,875	23,350	22,025
Number of Losing Trades		23	20	5	6	12	3	16
Total of Losing Trades		\$11,700	10,575	5,425	7,125	10,675	4,950	8,750
Largest Losing Trade		\$1,500	1,500	2,050	2,550	3,525	2,475	1,200
Largest Unrealized Loss		\$1,600	1,600	3,350	3,275	3,925	3,775	1,400
Largest Drawdown		\$4,075	3,325	4,600	5,750	6,300	5,100	3,500
na: not applicable								

Figure 2

<b>Parameters Generating Greatest Short Profit</b>								
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>	<b>DMI</b>
Parameter Set	Days	6, 24	5, 6, 24	4	na	6	14	12
	Long	na	na	-30	-0.6	56	40	na
	Short	na	na	70	2.4	2	88	na
	ADX	na	na	na	na	na	na	36
Number of Trades		45	40	13	18	37	13	10
Days in Market (out of 758 tradable days)		758	741	560	448	748	580	334
Total Profit or Loss		\$16,725	16,025	19,900	11,350	15,925	20,925	5,200
Long Profit or Loss		\$18,700	17,725	18,250	10,250	17,750	18,100	3,425
Short Profit or Loss		\$-1,975	-1,700	1,650	1,100	-1,825	2,825	1,775
Number of Winning Trades		21	19	11	14	25	10	5
Total of Winning Trades		\$28,425	27,400	20,375	16,950	26,600	25,725	7,875
Largest Winning Trade		\$6,400	6,400	7,125	3,000	3,225	7,725	2,950
Largest Obtained Equity		\$20,025	19,500	20,425	12,075	16,875	21,450	7,875
Number of Losing Trades		23	20	2	4	12	3	5
Total of Losing Trades		\$11,700	11,375	475	5,600	10,675	4,800	2,675
Largest Losing Trade		\$1,500	1,500	400	2,200	3,525	2,475	1,550
Largest Unrealized Loss		\$1,600	1,600	1,500	2,650	3,925	3,775	1,375
Largest Drawdown		\$4,075	4,250	3,775	3,525	6,300	5,550	2,975
na: not applicable								

Figure 3

<b>Parameters Generating Greatest Long Profit</b>								
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>	<b>DMI</b>
Parameter Set	Days	6, 24	9, 10, 12	12	na	6	4	4
	Long	na	na	-10	-0.2	66	24	na
	Short	na	na	110	2.4	2	98	na
	ADX	na	na	na	na	na	na	42
Number of Trades		45	66	14	20	36	14	35
Days in Market (out of 758 tradable days)		758	756	722	711	742	688	687
Total Profit or Loss		\$16,725	15,850	22,150	16,925	15,400	22,025	18,750
Long Profit or Loss		\$18,700	18,250	21,575	18,950	18,275	22,300	20,050
Short Profit or Loss		\$-1,975	-2,400	575	-2,025	-2,875	-275	-1,300
Number of Winning Trades		21	32	10	14	24	10	19
Total of Winning Trades		\$28,425	32,200	26,425	24,050	25,900	25,550	28,875
Largest Winning Trade		\$6,400	5,025	7,125	7,725	3,225	7,725	6,975
Largest Obtained Equity		\$20,025	19,100	22,675	17,450	16,050	22,550	21,050
Number of Losing Trades		23	34	4	6	12	4	16
Total of Losing Trades		\$11,700	16,350	4,275	7,125	10,500	3,525	10,125
Largest Losing Trade		\$1,500	1,425	2,475	2,550	3,325	1,975	1,325
Largest Unrealized Loss		\$1,600	1,600	3,775	3,275	3,925	3,275	1,725
Largest Drawdown		\$4,075	4,150	4,725	5,750	6,300	4,225	4,200
na: not applicable								

Figure 4

<b>Parameters Generating Largest Average Winning Trade</b>								
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>	<b>DMI</b>
Parameter Set	Days	14, 45	6, 30, 36	30	na	10	6	6
	Long	na	na	-150	-2.8	60	12	na
	Short	na	na	220	2.2	2	98	na
	ADX	na	na	na	na	na	na	50
Number of Trades		27	22	1	8	28	3	15
Days in Market (out of 758 tradable days)		758	734	60	285	731	118	471
Total Profit or Loss		\$9,075	7,850	7,775	-5,300	4,075	6,200	975
Long Profit or Loss		\$14,775	14,425	7,775	-1,350	12,300	6,200	6,450
Short Profit or Loss		-\$5,700	-6,575	0	-3,950	-8,225	0	-5,475
Number of Winning Trades		10	8	1	1	12	1	3
Total of Winning Trades		\$24,300	20,650	7,775	2,450	21,850	7,500	14,900
Largest Winning Trade		\$7,375	7,375	7,775	2,450	3,375	7,500	6,975
Largest Obtained Equity		\$13,600	11,175	7,875	425	4,600	6,300	2,825
Number of Losing Trades		17	13	0	7	15	2	12
Total of Losing Trades		\$15,225	12,800	0	7,750	17,775	1,300	13,925
Largest Losing Trade		\$2,525	3,700	0	2,450	3,200	1,225	3,025
Largest Unrealized Loss		\$2,500	3,600	25	2,725	3,925	2,525	2,925
Largest Drawdown		\$9,775	7,525	825	6,550	7,775	2,850	8,100
na: not applicable								

Figure 5

<b>Parameters Generating Smallest Average Losing Trade</b>								
<b>Technical Indicator</b>		<b>2MA</b>	<b>3MA</b>	<b>Momentum</b>	<b>HI/LO</b>	<b>%R</b>	<b>RSI</b>	<b>DMI</b>
Parameter Set	Days	8, 9	9, 10, 12	4	na	4	6	28
	Long	na	na	-60	-0.2	52	2	na
	Short	na	na	80	0.4	42	98	na
	ADX	na	na	na	na	na	na	34
Number of Trades		133	66	2	164	187	0	1
Days in Market (out of 758 tradable days)		758	756	99	756	758	na	37
Total Profit or Loss		\$2,875	15,850	3,625	-16,025	-11,125	na	4,425
Long Profit or Loss		\$11,775	18,250	3,625	2,775	4,875	na	4,425
Short Profit or Loss		-\$8,900	-2,400	0	-18,800	-16,000	na	0
Number of Winning Trades		54	32	2	83	103	na	1
Total of Winning Trades		\$34,600	32,200	3,625	28,825	33,775	na	4,425
Largest Winning Trade		\$3,675	5,025	3,350	1,450	1,075	na	4,425
Largest Obtained Equity		\$4,550	19,100	5,050	2,425	2,400	na	4,850
Number of Losing Trades		76	34	0	78	81	na	0
Total of Losing Trades		\$31,725	16,350	0	44,850	44,900	na	0
Largest Losing Trade		\$2,250	1,425	0	3,775	3,525	na	0
Largest Unrealized Loss		\$1,650	1,600	300	4,500	3,925	na	250
Largest Drawdown		\$11,175	4,150	2,000	20,500	17,250	na	900
na: not applicable								

Figure 6

# Selecting the best individual stocks

## *Wyckoff method of trading stocks part 9*

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by Jack K. Hutson

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**O**ur discussion of Wyckoff's analytical methods have so far concentrated on deductive reasoning to reach investment or trading conclusions. We first determined the position and trend of the general market, then the positions and trend of group averages, and finally selected individual stocks based on their ability to move in harmony with those larger trends.

The opposite approach-inductive reasoning-offers the experienced Wyckoff analyst a valuable way to double check those conclusions. I emphasize *experienced* analyst because determining the positions of individual stocks first and then proceeding to the market and groups requires more skill and judgment, as well as more analysis time.

To make inductive reasoning easier and to help the deductive analyst make better individual stock selections, Wyckoff devised a recordkeeping device in 1916 called the Position Sheet. A Position Sheet simply keeps track of the potential movements of individual stocks. This helps the Wyckoff analyst determine which stocks offer the best trading opportunities, judge stocks' turning points, determine group trends, forecast group movements, and ascertain the trend of the entire market.

The premise behind the Position Sheet is straightforward. Every stock is either bullish, bearish or neutral; in harmony or out of harmony with the general market's trend. The Position Sheet tracks individual stocks according to five possible positions which Wyckoff identifies as:

Position 1- rally or minor move up without material reaction; the stock should indicate a **short** upward swing of roughly 10%-15% of its present market price.

Position 2- n advance without material reaction; the stock should be ready for a **long** upward swing which, in points, amounts to **more** than 10%-15% of its current market price.

Position 3- reaction without any material rally; the stock should indicate a **short** downward swing, a drop equivalent to 10%-15% of present market price.

Position 4- decline without any material rally; the stock should indicate a **long** downward swing amounting to **more** than 10%-15% of current market price.

Position 5- eutral; no definite indication of a move in either direction.

Knowing these positions for a number of stocks, the Wyckoff analyst can make decisions about the market and groups and, therefore, use that information to select individual stocks able to move quickly and surely in the forefront of the market.

Positions 2 and 4, the heralds of advance and decline, are the most important to a Wyckoff trader because they are the positions in which the most money can be made. These stocks promise such sufficiently large swings that it's realistic to expect an intermediate swing is in the works that will amount to 10, 20 or 30

points.

Positions 1 and 3, the rally and reaction, are less important but do tell the Wyckoff trader when to buy or sell to advantage; i.e.: the tops of rallies. These indications of short moves in the neighborhood of three to five or eight points for a moderately priced stock help Wyckoff analysts select the right time to take their trading positions.

Constructing a Position Sheet starts with a list of individual stocks-at least 50 but preferably 100 or more-arranged according to groups. To the left of the stock names are two columns, one for Position 1 and one for Position 2. To the right of the stock names are two more columns for Positions 3 and 4. Space is reserved in the lower right-hand corner of the page to tally the number of stocks in each position, to note the overall market's position and the analyst's trading position.

Although you can learn to keep a Position Sheet with only 20 stocks, in actual market operations Wyckoff recommends covering 50 to 100 or more-roughly an hour's work each day.

The daily Position Sheet begins with the analysis of figure and vertical charts of individual stocks to observe their technical positions. Preliminary decisions about Positions 2 and 4, the advance and decline, can be made from figure charts and the conclusions checked with the aid of vertical charts. Vertical charts are indispensable in determining Positions 1 and 3, the rally and reaction, because volume is the best means of judging the turning points of these minor swings.

For efficiency, Wyckoff recommends following stock movements with figure charts, and when a stock shows itself working into a promising position, making up its vertical chart to observe its behavior in detail to apply all the factors needed for complete analysis.

A stock can show its ability to develop a Position 1 minor upward move: 1) in the nature of its rally from a low point, 2) at a level where the minor move is the forerunner of a large advance, or 3) at a level in a trading range that indicates a small move through the previous top of the range.

To get into Position 2, the stock may show its promise of a large advance with: 1) evidence of accumulation at the bottom of a downward movement, 2) in a resting period that follows a previous advance where there was evidence of absorption (reaccumulation) in preparation for further advance, and/or 3) its ability to persistently advance through a series of higher tops and bottoms on successive minor moves-even though there was no evidence of previous preparation for the advance.

The small downward move of Position 3 may herald itself: 1) in the nature of a stock's reaction from a high point, 2) at a level where the reaction is the forerunner of a large decline, or 3) at a level in a trading range where the stock cannot rally and will probably drop through the previous support level.

### Position Sheet

1	2	Stock	3	4	1	2	Stock	3	4	1	2	Stock	3	4	1	2	Stock	3	4		
X		<b>Aerospace</b>				X	<b>Cosmetics</b>					<b>Medical</b>					<b>Rail Equipment</b>				
X	X	BA			X	X	AVP	X				BDX	X	X			GMT		X		
		GD			X	X	GS					BAX	X								
		LK	X	X			REV					HCA	X				<b>Rail Shipping</b>				
		MD										HUM			X	X	BNI				
X	X	NOC					<b>Diversified</b>		X	X	JNJ			X	X	UNP					
X		RTN			X		AXP	X		X	X	MDT									
		UTX	X	X			AVT										<b>Retailing</b>				
					X	X	DKI	X				<b>Metals</b>					JCP				
		<b>Airlines</b>			X	X	FLR			X		AA					KM				
		AMR	X	X	X	X	GW			X		AMX			X		RDS	X			
		DAL	X	X	X		ITT	X		X		N					S	X	X		
		EAF	X	X	X	X	LIT					NL	X		X		TAN				
		FDX	X		X	X	LTR	X				PD	X	X			WMT				
		NWA	X		X	X	PC	X				FLM	X	X							
X	X	LUV			X	X	WCI					<b>Metals-Gold/Silver</b>			X		<b>Soft Drinks</b>				
		UAL			X	X	WMB					ASA			X	X	KO				
							TW			X	X	CRK					PEP				
		<b>Amusements</b>								X	X	DM					<b>Steel/Coal</b>				
X	X	DIS	X				<b>Drugs</b>			X	X	HM	X				BS	X	X		
		MCA			X	X	ABT	X		X	X	HL					X				
					X	X	AHP			X	X						<b>Telephone</b>				
		<b>Auto</b>			X	X	BMV	X				<b>Office Equipment</b>			X	X	T				
X		C			X	X	LLY	X				BGH			X		CQ				
X		F			X	X	MRK					DBD	X	X	X		WU	X	X		
X		GM			X	X	PFE	X				MMM	X				AIT	X	X		
					X	X	SOB			X	X	NCR					GTE	X	X		
		<b>Banking</b>			X	X	UPJ					XRX									
		BAC	X				<b>Electronics</b>					<b>Oil/Gas</b>					<b>Textiles</b>				
		CMB	X	X			AMP	X		X	X	AHC	X				CZ	X	X		
		FNC	X	X			GE	X				AN					<b>Tobacco</b>				
		GWF					GLW			X	X	ARC	X				AMB	X			
X	X	JPM					GRL	X		X	X	CHV					MO	X			
					X		HWP			X	X	XON					RJR				
		<b>Building Materials</b>			X		PKN			X	X	KMG	X				<b>No Group</b>				
X	X	BCC			X		RCA	X		X	X	LLX			X	X	BLY				
X		GP	X				TEK	X		X	X	MCB	X		X	X	CLO	X			
X	X	JWC			X	X	TRW	X		X	X	OXY	X		X		ETN				
		LPX	X		X		TDY			X	X	PZL			X		MDA				
		ML			X		WX			X	X	RD			X		MCD				
		OCF	X									SNT			X		TOY				
		WY	X				<b>Electronics/Semiconductor</b>					TX									
							AMD					<b>Oil Exploration</b>									
		<b>Brokerage Firms</b>					MOT	X		X	X	BKO			15	8	<b>Totals</b>	15	6		
X	X	EFH	X				NSM	X		X	X	HT	X								
X		MER	X		X	X	TXN			X	X	HAL	X				1	2	<b>Summary</b>	3	4
X	X	PBS			X	X	UTR			X	X	MSA			24	21	Col. 1	24	8		
		PWJ			X	X				X	X	MDR	X		21	21	Col. 2	19	3		
							<b>Food</b>			X	X	SLB			21	23	Col. 3	24	8		
		<b>Chemicals</b>					GIS					<b>Paper</b>			15	8	Col. 4	15	8		
X		ACY					SA			X	X	CHA					<b>Totals</b>	82	25		
	X	BIG					RAL	X	X	X	X	ZB	X								
	X	DIA	X				PSY	X	X			KMB	X				<b>Trend Summary</b>				
	X	DOW	X									IP			1	2	Indicates	3	4		
	X	DD					<b>Hotels</b>					<b>Photo/Optical</b>			X	X	Averages	X			
X	X	EY			X		HIA					BOL	X		X		Summary	X			
X	X	IGL					HLT			X		EK					<b>Position should be:</b>				
X	X	LZ								X		PRD			Long	Short	Neutral				
X	X	MTC	X				<b>Insurance</b>								Date: May 1	Hr.:3 p.m.					
X	X	PG	X		X	X	AET					<b>Publishing</b>									
X	X	UK			X	X	FG			X	X	GCI	X								
					X	X	LNC	X	X	X	X	MHP	X								
		<b>Computers</b>					MMC			X	X	TL	X								
X		CDA					TIC					DND					<b>Radio &amp; TV</b>				
X		CBU					<b>Machinery</b>					CCB					CBS				
X		CVN					CAT					CBS					TFB	X			
X		CYR	X				CKL	X	X												
X		DGN			X		CSP					<b>Radio &amp; TV</b>									
X	X	AUD			X		DE	X	X			CCB									
X	X	DEC	X				DI	X	X			CBS									
X	X	HON					IR	X	X			TFB	X								
X	X	IBM																			
X	X	SY	X	X																	
24	21	<b>Total</b>	24	8	21	21	<b>Total</b>	19	3	21	22	<b>Total</b>	24	8							

A stock indicates its potential for the large decline of Position 4 when it: 1) shows evidence of being under distribution at the top of an advance, 2) is in a period of rest after a previous decline where it gives evidence of meeting new supply (redistribution) in preparation for a further decline, or 3) is at a level in a trading range where the stock persistently declines through a series of lower bottoms and tops on successive minor moves-even though there was no clear-cut evidence of distribution in preparation for

the decline.

The Neutral Position is equally important since trading when indications are not clear is an invitation to losses. A stock is in a Neutral Position when there is no definite movement in either direction or there's doubt as to its ability to move decisively. This occurs where a stock: 1) gives tentative, but unconvincing indications that it will rally or react further, 2) hesitates during an advance or decline without convincing indication of a change of trend, 3) its price and volume indications are contradictory or inconclusive, or 4) when the price is extremely dull in a narrow trading range or swings up and down without developing any well-defined trend.

As the Wyckoff analyst determines the technical position of each stock, he or she places a pencil mark on the Position Sheet in the appropriate position column. Pencil, rather than pen, is recommended so the Position Sheet can be reused for the next day's decisions, something we'll touch on in a moment.

Once the day's analysis is complete and the Position Sheet filled, the next step is to determine the trend of the general market. It's simply a matter of totaling the number of stocks judged to be in each position, and comparing the number in the very bullish Position 2 to the total number judged to be in the very bearish Position 4. The ratio of bull to bear stocks indicates in which of the five positions the overall market sits. For example, if 40 stocks indicate they are in Position 2, and 10 are in Position 4, the market is obviously leaning to the bullish Position 2.

## **The next step is to determine the trend of the general market.**

Although this analysis concentrates on Positions 2 and 4, stocks can be simultaneously in two positions. A combination of Positions 3 and 2 indicates a short move down before a long move up, or Positions 1 and 4 indicate a short move up before a long move down. The only contradictory combinations would be Positions 2 and 4—an advance and a decline, and the combination of Positions 1 and 3—a rally and reaction.

One position also can build into another—Position 1, the rally, can build into Position 2, the advance, but the reverse is not true. Likewise, Position 3 can build into Position 4, but not vice versa. So while a stock can change between Positions 2 and 4, these positions should not be reduced to Position 1 or 3.

As a double check of your conclusion about the market's position from the Position Sheet, compare it to an independent conclusion drawn from the trend chart of group averages. It's very unlikely an out-and-out contradiction between the Position Sheet and trend chart would actually occur in the market, so if it shows up, it's time to re-think some deductions.

The same procedure of totaling the number of stocks in each position and comparing the totals leads to the next step of determining which groups on the Position Sheet offer the best trading or investment opportunities. By comparing each group's position to the overall market position, a Wyckoff analyst finds the groups most closely aligned with the large-scale trend and most likely to contain stocks able to move first, fastest and farthest with the market.

In finally selecting individual stocks from the Position Sheet, the analyst again looks for the strongest positions in harmony with the market. Further research compares these stocks against each other, with the trend chart, and the vertical chart of group averages. The timing of actual purchases is guided by the technical position of the stock as shown on its individual vertical chart.

Maintaining a Position Sheet can be a valuable aid to judgment and Wyckoff recommends that it be

constructed daily. If all position marks are made with pencil, one sheet can be reused for quite some time and a permanent summary of each day's work can then be charted on a Technical Position Barometer, a chart that becomes a valuable trend forecaster.

Constructing the Technical Position Barometer is a quick task requiring no more than a day-by-day plotting of the total number of stocks in each position. Each position is a separate line on the graph and the barometer shows at a glance whether the number of stocks in certain positions are gradually increasing or decreasing. This becomes a significant clue to the growing strength or weakness of the market's technical position.

To conclude this discussion of the Position Sheet, we can see how Wyckoff, himself, would judge the technical positions of an individual stock from its vertical or figure chart movements. At the beginning of the analysis, the price of Stock ABC has been hovering between 30 and 34 for two weeks with no sign of definite movement. It is in the Neutral Position.

When the price rises steadily for four successive days and the volume on the fourth day markedly increases, it suggests a buying climax. The fifth day's price hits a fractional higher top of 35 5/8, then closes near the low. The stock is due for a reaction and moved tentatively to Position 3. It is a tentative move because there is not sufficient data to determine how far it might react. A one-point figure chart should give an indication of the amount of reaction and a definite Position 3 would be given when it's clear the reaction would bring at least a 10% drop in price.

In this case, Stock ABC reacts normally and its price drops to 32, not quite a 10% drop. But instead of rallying, the stock price goes into a narrow range with shrinking volume and works itself into an apex or dead center—a definite Position 3.

The stock price continues to plummet toward a previous support level, and the steepness of the drop creates the possibility of an oversold position and a sharp volume increase on the decline suggests a minor selling climax. Continuing heavy volume and shortened downward price thrust in the next days says demand is overcoming supply and the reaction has achieved the objective forecast by the figure chart.

When the stock price moves laterally in a narrow range near a previous support level and with low volume for two more sessions, the position is moved to Neutral. The stock is too finely balanced between bearish and bullish forces to make a definite decision. The next days' actions must first be scrutinized.

## **Reviewing previous installments in this series and then sitting down with historical vertical and figure charts will help to develop the skill determining positions**

A technical rally breaks a minor trend supply line and volume is relatively large. The rally continues a second day and is close to the objective indicated by the figure chart, but a volume surge warns to be on the lookout for another change. A quick reaction on the third day cancels the rise, the price hangs near former lows but volume is not much reduced. Several more days of sideways price movement at constant volume and lows that tend to edge upward looks like good buying rather than good selling and the stock goes into Position 1.

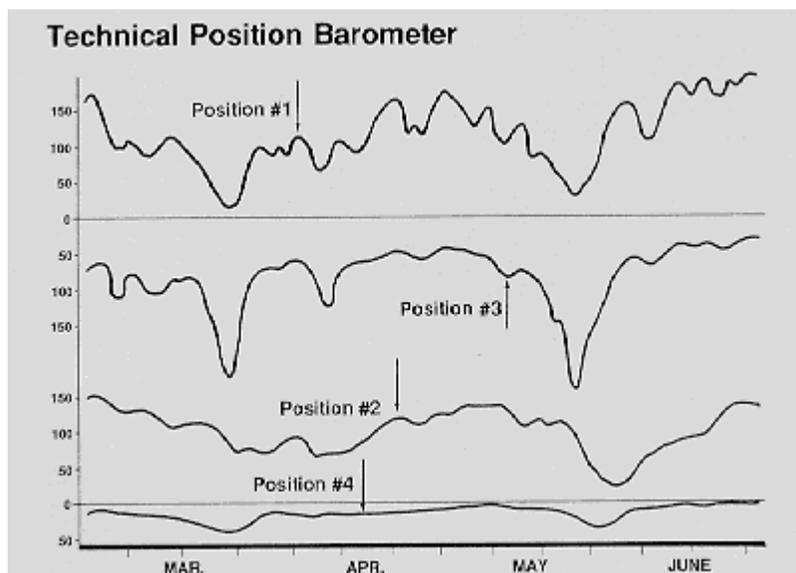
The stock won't move into Position 2 until there are additional indications that the campaign of

accumulation has been completed and the groundwork for a significant advance is being laid. Until then, the stock may bounce from Position 1 to Neutral and perhaps even back to Position 3.

In this case, Position 2 comes about after two weeks' dull sagging price movement exhausts itself in a quick dip to the supporting level without bringing out any quantity of offerings. The figure chart, by now, promises a rise of more than 20 points and the springboard points directly at Position 2 and the time to buy.

Judging technical positions is a matter of practice and experience. Reviewing previous installments in this series and then sitting down with historical vertical and figure charts will help to develop the skill of determining positions. From there, apply your know-how to charts constructed in real time, from day to day.

*Stock symbols shown on the Position Sheet are the same as used by Stock Market Institute, Inc., 715 E. Sierra Vista, Phoenix AZ 85014, a supplier of Wyckoff information and charts.*



**Figure 1**

# Retracement corrections

In the "real" world, markets seldom trace out patterns exactly as our technical forecasting approaches would have them behave. I find it's true in calculating ideal retracements, as well. But another advantage of this method is recognizing when price action is deviating or moving away from the projected correction pattern.

If the price correction has more than twice the momentum of the original price movement (see [Article Figure 2](#)), a significant overall trend change should be suspected. When the price correction has momentum less than or equal to the original price movement, the price correction will probably end early--a sign of overall trend strength.

The six correction points, A1 through E, may be determined by calculating price points along the dateline. These price points are determined by multiplying the price difference between points L and H by the percentages shown in [Article Figure 2](#). When lines are drawn from point L through these price points, correction points A1 through E can then be placed on the corresponding retracement line without calculating the time placement for each correction point. These lines usually will have some influence on the price action in the form of support and resistance.

Looking at each price point percentage and the corresponding correction point percentage, a curious interaction of Fibonacci ratios appears:

Price point %		Correction point %
66.6%	(2/3)	A1 & A2) 25% (2/8) and 20% (1/5)
60%	(3/5)	A) 25% (2/8)
50%	(1/2)	B) 33.3% (1/3)
40%	(2/5)	C) 50% (1/2)
33.3%	(1/3)	D) 50% (1/2)
23.6%	(13/55)	E) 61.8% (34/55)

This apparent Fibonacci connection seems to add credibility to the overall shape and significance of the ideal correction pattern.

# Complete computer trading program

```
10 REM COMPLETE TECHNICAL ANALYSIS BY JOHN F. EHLERS
MODIFIED BY JACK K. HUTSON
(C) 1987 TECHNICAL ANALYSIS, INC.
20 REM ! INTEGER I,J,K,L,N,O,S,X,Y,Z,S
T,BG,HO,EP,EL,PL,X1,G1,Y1,YC,XC,DC,HC,QC,LA
30 LOMEM: 24576:
REM FORCE VARIABLES ABOVE H1-RES PAGE 2 GRAPHICS
40 LET BG = 14720:
LET HO = BG + 609:
LET EP = BG + 616:
LET EL = BG + 623:
REM MAXIMUM PROGRAM SIZE 12672 BYTES
50 LET D$ = CHR$(4):
PRINT D$ "PR#0":
HGR2 :
PRINT D$"BRUN HIGH-RES-TEXT/3,A"BG:
DIM X(7,128),Y(2,128),S$(20):
CALL HO
100 HOME :
HGR2 :
REM SELECT & LOAD STOCK OR COMMODITY DATA FROM CSI OR COMPU TRAC DISK
FORMAT.
500 INPUT "Insert data disk in active
drive <RTN> ";A$:
PRINT D$"OPEN MASTER,L40":
LET S$(0) = "Change Disk"
510 FOR I = 1 TO 20:
PRINT D$"READ MASTER,R" I:
INPUT "" A$:
ON LEFT$(A$,3) = "999" GOTO
520:
LET S$(I) = MID$(A$,4,17):
NEXT I
520 LET N = I - 1:
PRINT D$:
HOME :
HGR2 :
FOR I = 0 TO N:
PRINT I" - "S$(I)
NEXT I
```

```

530 INPUT "Select an Issue <RTN> ";X:
ON X = 0 GOTO 500:
ON X < 1 OR X > N GOTO 530:
PRINT D$ "READ MASTER,R"X
540 REM FIND CONVERSION FACTOR AND DIVISOR IF ANY
550 INPUT A$:
LET CF = VAL ( MID$ (A$,21,2)):
LET A = ABS (CF):
IF CF < - 2 THEN
LET A = 2
560 LET F = 1 / (10 ^ ABS (A)):
IF CF < 0 THEN
LET DV = 2 ^ (2 - CF) * F
570 LET C$ = MID$ (A$,4,17):
REM CONTRACT OR STOCK NAME
580 PRINT D$"CLOSE MASTER":
PRINT D$:
PRINT D$"OPEN "C$",L40":
PRINT D$"READ"C$:
INPUT LA:
REM # OF RECORDS IN FILE
590 IF LA < 50 THEN
HOME:
HGR2:
PRINT "File must have at least 50 records.":
GOTO 500
600 LET K = LA - 49:
PRINT "Loading data ...":
LET I = 50:
FOR J = LA TO 1 STEP -1:
LET O = PEEK ( PEEK (47095) + 49289):
REM TURN THE DISK MOTOR ON
610 PRINT D$"READ"C$,R"J":
INPUT A$:
ON LEFT$ (A$,1) = "9" GOTO 690:
LET X(0,I) = VAL ( MID$ (A$,2,6)):
REM DAY & DATE NYMMDD
620 LET (1,I) = VAL ( MID$ (A$,8,5)) * F:
REM OPEN
630 LET X(2,I) = VAL ( MID$ (A$,13,5)) * F:
REM HIGH
640 LET X(3,I) = VAL (MID$ (A$,18,5)) * F:

```

```

REM LOW
650 LET X(4,I) = VAL (MID$ (A$,23,5)) * F:
REM CLOSE
660 ON CF > - 1 GOTO 680:
REM FOR 8THS RND 32NDS
670 FOR K = 1 TO 4:
LET O = INT (X(K,I)):
LET U = X(K,I) - O:
LET X(K,I) = O + U / DV:
NEXT K
680 LET I = I - 1:
IF I < 1 THEN
LET J = 1
690 NEXT J:
PRINT D$"CLOSE"C$:
LET O = PEEK ( PEEK (47095) + 49288):
PRINT D$:
REM DATA IS NOW IN ARRAY X
700 LET HH = 0:
LET LL = 1E6:
FOR I = 1 TO 50:
IF X(2,I) > HH THEN
LET HH = X(2,I)
710 IF X(3,I) < LL THEN
LET LL = X(3,I)
720 NEXT I:
FOR I = 1 TO 50:
FOR J = I TO 4:
LET X(J,I) = - 120 * (X(J,I) - HH) X (HH - LL) + 5:
NEXT J:
NEXT I:
REM SCALE FOR APPLE H1-RES GRRPHICS
1000 GOSUB 2000
2000 HGR2:
CALL BG:
HCOLOR= 3:
SCALE= 1:
ROT= 0:
HPLOT 64,5 TO 64,131 TO 270,131:
FOR X = 70 TO 270 STEP 40:
FOR Y = 5 TO 125 STEP 3:
HPLOT X,Y:

```

```

NEXT Y:
NEXT X
2010 FOR Y = 5 TO 125 STEP 30:
FOR X = 70 TO 270 STEP 4:
HPLOT X,Y:
NEXT X:
NEXT Y:
VTAB 1:
HTAB 17:
PRINT C$:
LET S$ = "Date:":
LET S = 2:
GOSUB 2050:
LET S$ = "Price:":
LET S = 4:
GOSUB 2050
2020 LET S$ = "<M>vg Avg":
LET S = 10:
GOSUB 2050:
LET S$ = "<N>ext":
LET S = 11:
GOSUB 2050:
LET S$ = "<P>ara"
LET S = 12:
GOSUB 2050
2030 LET S$ = "<Q>uit":
LET S = 13:
GOSUB 2050:
LET S$ = "<C>CCI":
LET S = 20:
GOSUB 2050:
LET S$ = "<D>DTI":
LET S = 21:
GOSUB 2050:
LET S$ = "<R>RSI":
LET S = 22:
GOSUB 2050
2040 FOR I = 1 TO 50:
LET X = 70 + 4 * I:
HPLOT X,X(2,I) TO X,X(3,I):
HPLOT X,X(4,I) TO X + 2,X(4,I):
NEXT I:

```

```
RETURN
2050 VTAB S:
HTAB 1:
PRINT S$:
RETURN:
REM DRAW CHART
PROGRAM LENGTH: 36 LINES / 2199 BYTES
```

# Using Maximum Adverse Excursions for stops

---

by John Sweeney

---

**S**o often the key to success is the reverse of what we initially perceive. Young basketball players are fascinated with the shot, never suspecting the game is won with fast feet. Traders focus on winning signals when they should worry about when to admit they were wrong.

Here it is: It's more important to know when your trade is bad than it is to know how to get into it. Said theoretically, "minimize your maximum loss" to win in the long run.

In *Stocks & Commodities* October 1985 issue, I described how to determine stop placement quantitatively. Subsequently, a reader asked for a concrete example, so here I want to show how to use the information on T-bonds.

## **Again, the lesson is: minimize the size of your largest loss.**

T-bond futures are a great trading vehicle. In the December 1986 contract from Oct. 1, 1985 to the present, there's an excellent period for examination because the market experienced "dead slow," "strong rally," and "indecision."

First the basics: You need to study past contracts to determine their Maximum Adverse Excursion under the trading rules you use. I use a simple trend-following system with all rate contracts and currencies. The system used here was validated in March 1985 when market conditions were much different than today. Still, I think that the stop-setting rules make it viable today even if refinements weren't possible-which they are.

For this analysis, I ordered four contracts of historical information for Christmas T-bonds covering 1982 to 1985 from Commodity Systems, Inc. Then I ran the data through a simulation of my trading rules and measured the size of the moves *against* by positions. The results are in [Figure 1](#).

As in the Dmark and T-bill charts in the earlier article, we see two different curves, although the results are not as clear-cut. T-bonds has two winning trades with adverse excursions up to 45 trading points. Bond traders will have no trouble imagining how this came about! Occasionally bonds have sudden bursts of extreme range with equally large reactions within short time periods--too short for the trend-following systems to react and signal an exit. Thus you get a large adverse move but a system staying in its original stance.

These two points aside, it's clear that winning trades in bonds hardly ever had more than 18 points adverse excursion. As a first cut for this test, I set my stops at 19 points away from the entry point. This single action avoids 31 historical trades with losses from \$1,000 to \$2,000 per contract. I'm trying to minimize the size of my maximum loss.

Now, how did this work out in practice? [Figures 2, 3 and 4](#) are charts of December 1986 T-bonds from December 1985 to September 1, 1986. The trades are just as if the 1985 system were being followed strictly. Following the system's rules I was out at A and long again at B. The stop for B was set 19 points

below the close for the day and was never approached. This trade was very profitable because it happened to catch a large move.

Looking at [Figure 3](#), I was still long until point C when the system signaled an exit.

At D, a buy was signaled and the stop was set 19 points below only to be used two days later (E) as the market continued a five-wave decline. Note two things here: the loss was small and very quick. This fit the testing. Duration of wins averaged 20 days in testing. Losses averaged only two days. Conclusion? The market, as "seen" by this system, was behaving normally.

At F, I was short only to be stopped out three days later on a strong up day. Again, a quick, small loss. The same thing happened at G. Everything appeared normal for this system.

Nothing happened until point J which seemed a very tardy long--and was. Again, a small, quick loss.

Point L looks like another ideal entry, although only time will tell how much profit is in the trade. The stop was never approached here, so now it's a matter of waiting until the system reverses itself which it would with any close below 100.

In summary, here is a system validated for 1981-1985 trading in the far more volatile 1986 environment. It had only two winners and four losers. Winners were large and losses small, for a profit. Clearly, *the system of entry and exit was crummy!* Nevertheless, the loss control made it a winner in a volatile trading environment. Again, the lesson



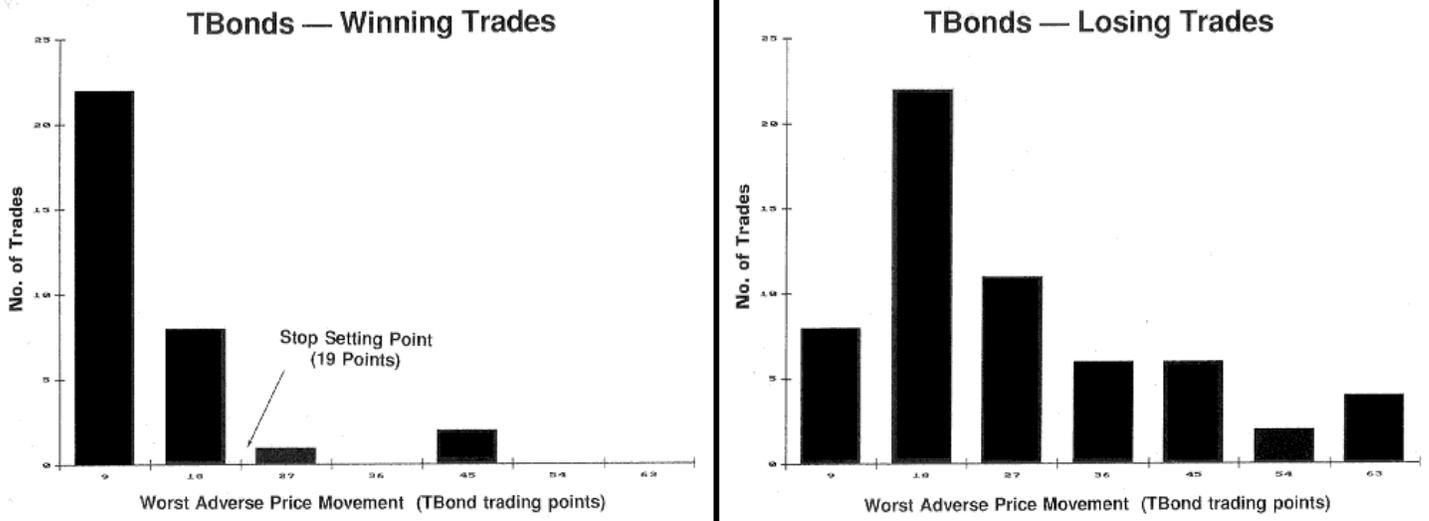


FIGURE 1:

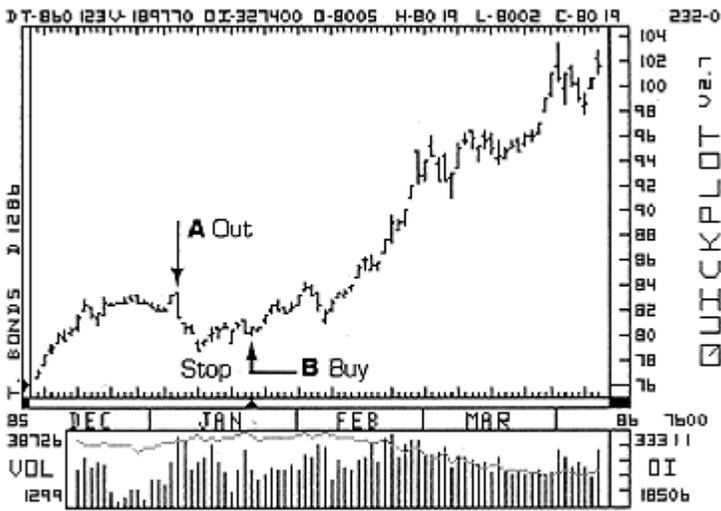


FIGURE 2:

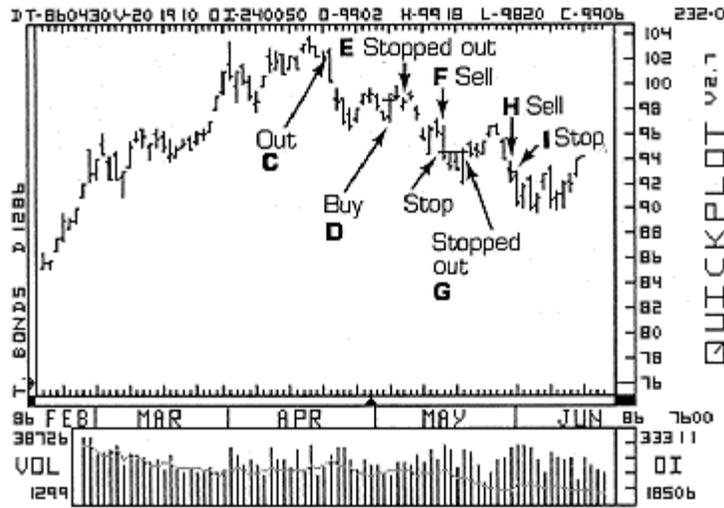


FIGURE 3:

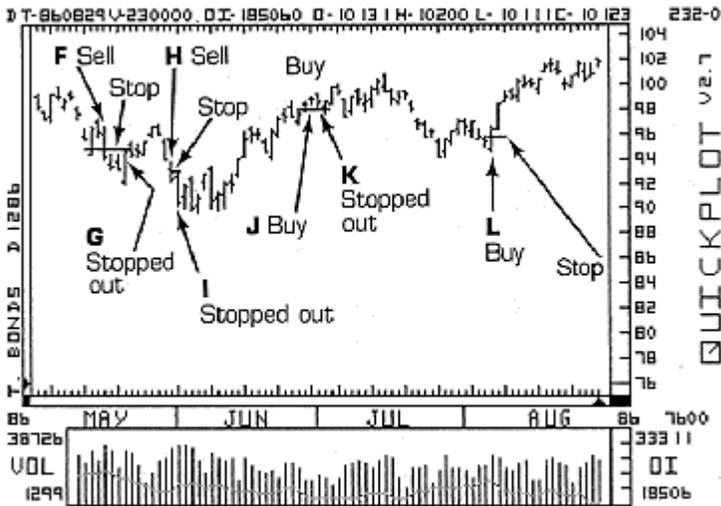


FIGURE 4:

# Van K. Tharp, Ph.D.: Trader's Psychologist

by John Sweeney



Van K. Tharp

In purely technical terms, Van K. Tharp is a psychological researcher and counselor specializing in neurolinguistic programming. In the lay language of his clients, he's the specialist who helps them unearth and change their unprofitable states of mind.

"Why I got into psychology, I have no idea. It just interested me," says Dr. Tharp, recalling the first decisions that led him to a bachelor's degree in psychology from Beloit College and a doctorate in biological psychology from the University of Oklahoma. He found, however, that his keen interest in discovery was stifled in traditional psychological research that "requires you to work for the government, at least indirectly. I wanted to do something fairly independent which was my own."

A workshop on trading psychology and the release of Jake Bernstein's book, *The Investor's Quotient*, stimulated his researcher's mind. "Bernstein's book gave me the idea of developing a questionnaire, but a much more thorough and elaborate instrument than the 25 questions he presented in his book," says Dr. Tharp. After approximately six years of research and testing, his results are not only as copyrighted psychological test, but a deep understanding of the mental aspects of trading and a private practice devoted to helping individuals become more profitable traders and investors.

*Stocks & Commodities'* Associate Editor John Sweeney interviewed Dr. Tharp in his California office to find out exactly how traders and investors could overcome their emotional or mental roadblocks to financial success.

## ***What exactly is investment psychology consulting?***

That's a good question. I'd call it understanding the state of mind of the investor. Everything is psychological in terms of investing. So it's really understanding the psychological variables that are most important for winning and losing.

For example, each system typically has a number of discrete trading steps that one must follow and each trading step is associated with some distinct psychological state. If you follow the steps but you don't have the right psychological state associated with it, you're going to be in trouble. For example, if you're

making a decision about whether or not to trade at a certain point and your state of mind is on your past losses, chances are you won't make any decision.

**Everything is psychological in terms of investing. So it's really understanding the psychological variables that are most important for winning and losing.**

*Now, in your consulting and practice, what sort of folks do you work with?*

Well, I'm convinced I can help any investor become profitable with three constraints. Number one is that they have enough money to do what they're doing. Obviously if they don't have enough money I can't materialize money for them.

Number two is that they have a system that works. A system that works might be anything from calling up a hotline that has a track record of being successful, to a random system of throwing darts at the market and having the money management to do it properly, to a very elaborate system. But they've got to have some sort of workable system. I don't teach people systems.

Third, I tend to shy away from people who are compulsive gamblers.

*Do you find many of those people among investors?*

I have a test for investors. I've evaluated maybe 3,000 commodity investors and half of them are winners. That shows you the population I've evaluated is way above average. Out of those, I'd say about 10% would qualify as compulsive gamblers. My gambling scale goes from zero to 100 and a reasonable score is about 30. But about 10% score above 60--those are the compulsive gamblers. If my population were normal, then my guess is that the percentage would probably be higher.

*What other aspects do you test for?*

Well, there are 10 characteristics. Gambling is one of them. I also determine if a person is organized and manages his or her money well; if the person makes sound decisions; if he or she has a reasonable understanding and knowledge of the markets; if the person tends to be a conformer since crowd followers tend to be losers.

I also measure a number of distinct psychological traits such as stress level, optimism, and a characteristic I call "responsibility."

One of the big ones is whether or not someone is in the markets to make money, which is not significant by itself. Many, many investors invest for reasons other than to make money and it sets them up for a high potential for conflict. People with a lot of conflict, like those who invest to make money and for the excitement, tend to be losers. The behaviors that produce excitement are not necessarily the same as the behaviors that produce winning trades.

*You have listed here psychological characteristics, decision-making skills, and management and discipline. What are the most important ones that we're looking at?*

Responsibility. Responsibility means having an internal model that gives you a lot of choice. It means that when you make a mistake, you realize that it's a mistake and it's not blamed on luck or all kinds of

external factors. I call it responsibility because the original word, responsibility, implies self-blame. You should not blame yourself, either. Responsibility is the ability to realize that you have choices and different choices produce different results.

When something happens to you, like you have a loss, you must realize that at some point you made a choice which produced that loss. You can go back in time mentally to the same point where you made the choice and realize that a number of alternative behaviors were available to you. Figure out what the outcome of each alternative would have been. Then decide which outcomes you like and mentally practice carrying out those behaviors in the future. If you do, then those behaviors will become automatic for you.

Let's look at an extreme example. Say you invest your money with some manager and he promptly leaves the country with your money. Now, society is set up so that we can distinctly blame that person for losing money, which is lack of responsibility.

***Elaborate on that, because I think that's the key in what we were discussing before.***

Our society--the United States--and the organization of the markets are set up so we tend to blame somebody else for whatever happens that we don't like. The market did it to me, my broker did it to me, somebody did it to me, THEY did it to me. And when somebody does it to you, what it means is that you're not attributing what happened to your own choices, so you can repeat the same mistake over and over again. The money manager ran off with your money, so you say, "He did it to me," and you lack responsibility .

On the other hand, if you remember what I said about a choice point, you can go back in time and realize that you made a decision to select that person to manage your money. You decided that you'd give your money to this individual, rather than manage your own money or do a certain amount of research to find someone who was qualified to manage your money. There were a number of choices, an infinite number of choices you could have made at this point. As long as you blame the person who ran off with your money instead of realizing that you made a choice, you're going to continue to make the same mistakes again, because you don't have responsibility.

Most people tend to be victims of their emotions. They say, "I just got into this emotional state that caused me to do this." So, it's out of your control because you believe you can't control your emotions. Well, my research says you can control your emotions.

***That's optimistic. How do you develop these tests or have they already been developed within the world of psychology?***

No, it's an elaborate research project and I did a lot of research before I did any real testing and started using it. I had to determine the exact phrasing of questions, which elements are critical to success, how they relate to success. I found clusters of questions that best predict success and those ended up being the various characteristics that we just talked about. Even now, I'm still continuing to do research on it.

***So you validated on this on the people that you've been testing over--how long have you been testing these folks, anyway?***

I think I started in 1981. I copyrighted the test in 1983.

***And it's available through Bruce Babcock I know. Is it available any other way?***

Through me.

***You mentioned another characteristic, stress. Why is it important?***

There are two ways in which stress is important. The average investor invests consciously. All the decisions are made consciously, the investor is totally aware of everything that goes on. Our conscious minds have a very limited processing capacity, like seven plus or minus two chunks of information.

When we're under stress, that capacity is reduced considerably. For example, if I were to give you list of numbers to memorize--17, 32, 477, 93, 8, 2917, etc.--at some point, I would exceed your conscious capacity to retain them. If I then told you there was a black widow spider on your arm, you probably couldn't remember nearly as many numbers as you could otherwise. The market, like the spider, is a potent stressor and it reduces the amount of information that you can consciously handle. Instead of looking at other alternatives, *people under stress keep doing the same thing--only with more energy*.

Superb investors tend to invest unconsciously in the sense that most of what they do is automatic. They don't even have to think about it. Anything we do well, we do automatically--driving a car, walking, talking, etc. And investing is no exception. There are a lot of floor traders who claim they have an intuitive knowledge of the markets. They don't know exactly what they do. There's nothing magical about that--they're unconsciously competent at what they're doing. Since much of their investing is automatic, stress cannot affect them by reducing their conscious capacity for processing information. Stress comes into play with them by causing burn-out unless they periodically take vacations from the market.

***So, your unconscious mind has a greater processing capacity and less susceptibility to stress?***

Well, I define the conscious mind as everything you're aware of right now and the unconscious mind as everything else--a very objective definition. I don't think there is any stress for the unconscious mind.

***Anything else about stress that should be pointed out? What causes stress? What sorts of stresses are we talking about here?***

Well, stress is a very misused word. I'm defining it as external and internal pressures that reduce one's capacity for processing information. You can find it in various aspects of life--your personal life, your financial life, job, etc. Health is another one. If your health is less than optimum, chances are you are not as effective an investor because your performance is lower. Having a cold is not going to affect your processing capacity very much, but it affects your overall ability to perform by maybe 10%.

There is a level of performance at which you are profitable. Suppose that you are very close to the just-profitable level at your optimum performance level. If your performance suddenly goes down 10%, then you'll start losing. On the other hand, if you are very competent and you are way above that level of just-successful performance, then a 10% reduction in performance might not affect you very much.

Another element is stress protection. You can have a lot of these stressors, but if you are protected, namely you eat the right things, you keep your body in good tune, etc., then you probably won't be affected by the stressors. So elements like eating the right foods, getting the right exercise, having fun, being able to mentally get away from the markets, all those things are important.

Are traders a breed unique from the average population, distinctive in some way?

I'm sure you could find some dimension in which they are. Everybody is unique in some way. I haven't looked for any way that traders are different from others. My interest is in how people do things.

Let's go back a little to the 10 characteristics, O.K.? When I first did this, my goal was to find out what characteristics best predict success, so I could say, "Let's measure them and see how well I can predict how successful someone is going to be in the future." I think I did a pretty good job of that. But then, as I started getting into consulting, I began to learn that these characteristics were really learnable. That became very exciting for me. What I discovered is that if you lump people together, you get an average person. An average person isn't very exciting. But, if you look at an individual and determine how that individual is special, without lumping things together, then you have something significant that you can work with. I'm interested in how they do it.

### ***How the individual succeeds?***

Or fails. When I work with a client, there are three ways to help that person become more successful. Number one is to figure out how they lose and change it in any way. If you lose consistently, then any way is better than the way you do it now. You need to break out of the pattern.

Another way, if they've had a past success, is to model that success and teach it to them. Most of my clients have had a period of success, so I model their past success and then teach it to them. It's much easier to learn how you did it before than it is to learn how somebody else does it. The latter involves learning how somebody else thinks.

A third way, one of my pet projects, is to model top traders. My main concern is to separate how they trade into distinct stages and then determine the mental state that is associated with each stage. I think I will reach a point shortly in which I can begin to transfer these models to other traders who have no past successes.

***We were talking earlier about how, in order to trade the systems that are sold in the market, you have to be able to replicate the state of mind that the author had when he was executing it, and how difficult that was.***

Say you buy a system and try to trade it. There are two reasons that that's very difficult for most people to do. Number one is, unless the system is a computer program that you just follow, chances are the person who developed the system was at a level of unconscious competence. Because they're unconsciously competent, they're not totally aware of everything they do. Consequently, critical elements may be left out of the system. And that's not intentional, it's not that the person is trying to rip off the public, it's just that they are unaware of everything that is essential to successfully executing the system.

The second reason is that the optimal execution of each stage of the system is associated with a particular mental state. That's certainly an unconscious aspect of executing the system. Each state of mind has particular characteristics--the intensity of feelings if feeling is involved; the speed at which one's brain is operating; whether the person is thinking about the past, present, or future; whether one is in control or just letting things happen; one's overall focus, etc. Characteristics like that are critical to each state of mind. Change one of them and you can change the state. And if you don't have an optimal state of mind for executing each stage of a system, you're not going to execute it properly.

***So, if you haven't got a computer doing it for you, which isn't subject to state of mind, then your trading is going to be impacted by these states of mind that you bring to the process of initiating and terminating a trade.***

Right. And if it's not optimal for executing the system, it won't work.

***Won't work or will be working suboptimally?***

Most of the time it won't work.

***That's not optimistic.***

Most systems don't work for many other traders.

***Do you have any anecdotes on that or have other people told you that?***

A number of people have told me how many systems they have that don't work or that they won't trade a system because it doesn't fit them somehow.

***We talked about internal models that people have. How do those impact traders? Do you have to have a model of yourself before you can trade?***

Well, anything you do externally is reflected by a model internally. There's no way you can trade a system, for example, without having an internal model of it. That internal model, essentially, gives you the choices you have, what you can do and in what order.

***So, if a model doesn't have choices in it, you could be ignoring obvious choices?***

Let's look at a simple model. One in which the person is almost nonfunctional. He gets up in the morning and believes the world is awful and wishes he didn't have to get up. He does get up, but does nothing but watch TV all day, wishing the day would end so it would be time to go to bed again. Some people live life with an internal model like that. Essentially it's one of almost no choice. People with internal models like that tend to be very depressed, because the world they experience reflects their internal state of mind.

In contrast, people who practice responsibility know that everything that happens is due, in some way, to choices that they made. As a result, these people develop rich internal models with lots of choices.

***If you don't have choices, you don't have anything, I guess. But getting back to your original thrust, what characteristics predict success best?***

Number one is responsibility. Stress levels are also important and so is unconscious competence. I really don't know how to measure that.

***But you're aware of it in some way.***

Yes, and it's possible to teach it. You can become so familiar with markets and working with markets that you develop unconscious competence. It's experience, but the right kind of experience. You can have experience losing and that might develop unconscious incompetence.

***You know, a lot of traders don't survive long enough to get any experience. They get wiped out too fast.***

You can develop it that way, through trial and error, or you can find something that works and become very automatic in executing it so that you make few conscious decisions yourself.

***That's my preference. That might be a way of surviving. You say then that responsibility and controlling stress are learnable.***

Sure. And emotional control would be another one, but I consider that a part of responsibility.

***Well, there's hope for new traders.***

More than hope. Nevertheless, I guess that even though these characteristics are learnable, most people still are not going to pay any attention to it. The fact that most traders will lose isn't going to change at all. Even if I trained 100,000 people, it still wouldn't have the slightest impact on the market. Most traders would still lose.

***Do you suppose that this is applicable to people who are in institutional settings where their trading may be carefully supervised and to some extent restricted?***

I think so. In fact, a banker approached me at a recent convention about measuring risk levels that banks take, about how that could be done and controlled. It amounts to doing some research and investigating the problem in detail. But I'm sure it can be done. One of the things that excites me is investment organizations in which one person has a certain way of trading and then teaches others how to do it. That's what I help traders do.

***As a counselor, what do you see as your ultimate service to your clients?***

I want to teach people to change their internal models to develop more choice. I don't want to talk to them for 25 years to dig out all their past memories and traumatic experiences. I want to teach people to develop choice.

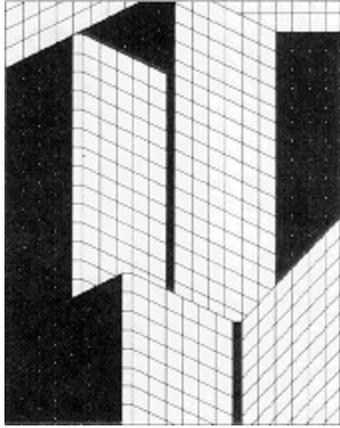
In a typical consulting session, the major portion of it is still gathering information. Our brains learn very quickly and people can change very quickly, but you must learn how people construct their present internal models and how they want to change them. People often don't know whether a trading problem is due to internal conflict or emotional control. For example, if someone has problems with anxiety putting on a trade or something similar, they can fix that in five or 10 minutes by making the appropriate changes.

***Five or 10 minutes?***

Yes, and on a fairly consistent basis. But if that anxiety results from conflicts in the person's values, then that's not going to work. They have to resolve the conflict first and then get the emotional control. As a result, I spend two and a half days gathering information and half a day teaching them how to make changes.

***Pretty efficient....***

That's what you and I did. I had you come here with goals, which means that you'd already thought about the solutions to your problems. We then put each goal into a 10-step format in order to develop solutions to them. You then determined your value hierarchy to determine how your goals fit within the hierarchy and if you had any conflicts. Then I modeled your system to see how you traded. If you had had any problems following your system, I would have determined how you did that, but you didn't. It's all very simple and fast if you gather the right information.



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USING STATISTICS

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# Weekly price cycles: Evidence of auto-correlation

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by *Frank Tarkany*

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This article is a continuation of my article last month which examined Dow Jones Industrial Average weekly closing price data for price auto-correlation and cross-correlation with total weekly NYSE volume. This work found cycles which compare favorably with previous cycle studies. In your trading, you may reasonably use these cycles with more confidence than is typical. Also, there may exist a 22-week fundamental price cycle, with harmonics, in the DJIA weekly close data.

Please see the previous issue for a description of the data and the methodology used in this study.

## **Results**

I identified cycles by selecting those with positive price auto-correlation and chi-square values above the 95% cutoff level of 3.84. Figure 1 summarizes the results. The first column lists possible cycle lengths as multiples of 13 weeks. The next five columns list cycles determined by Gann (1), the Foundation for the Study of Cycles (2), Hurst (3), Garrett (4), and me. In my column, I have italicized cycles found in at least one of the previous studies. I'll discuss the last columns later.

## **Fundamental cycle**

Although last month's article concluded that price and/or volume auto/cross-correlations were virtually random, there were a few highly significant chi-square values at scattered lags in the price-to-price auto-correlation. Recall that the length of a lag is used as a measure for cyclic behavior. One of these few was at 22 weeks where a price auto-correlation chi-square value of 12.61 was far above the cutoff of 3.84 for the 95% confidence level. This strong 22-week value is supported by the 23-week value (at the 95% confidence level) found in this study. Other analysts have identified a 25-26 week study.

In the last column of Fig. 1, I've included the harmonics of this cycle which line up nicely with other cycles identified in the studies listed above. This suggests a possible relationship based on a fundamental 22-week cycle.

## **Conclusion**

A consensus of the studies cited here center around the following possible cycles: 234, 222, 212, 178, 156, 78, 65, 52, 39, 25-26, 12-13, 9-10, 6-7, and 3 weeks. While other analysts have indicated a 25-26 week cycle exists, my weekly price close auto-correlation indicates a possible DJIA harmonic cyclic component of 22-weeks.

## **References**

- (1) William D. Gann, *Truth of the Stock Tape*, 1923; *Wall Street Stock Selector*, 1930, Financial Publishing Company, New York; *45 Years in Wall Street*, W.D. Gann Publisher, Miami, FL, 1949.
- (2) Edward R. Dewey, *CYCLES Selected Writings*, Foundation for the Study of Cycles, Pittsburgh, PA, 1970.
- (3) J.M. Hurst, *The Profit Magic of Stock Transaction Timing*, Prentice-Hall, Englewood Cliffs, NJ, 1970.

(4) William C. Garrett, Investing for Profit with Torque Analysis of Stock Market Cycles, Prentice-Hall, Englewood Cliffs, NJ, 1973.

Figure 1

Weeks	Gann	Cycle	Hurst	Garrett	Tarkany	Consensus	22-Week Harmonics
234			234		234,237	234	242
221			223	221		222	220
208	208,212				214	212	
195		199				198	
182	182			178	178	178	176
169							
156	156		156		156	156	156
143	148						
130					134	132	
117							
104							
91	96						
78			78	78	78	78	
65	65				65	65	66
52	52		52			52	
39			39	39	39,43	39	44
26	25,26	27,28	26	25	22,23	25-26	22
13	12,13	17.16	13	10	12	12-13	11
6.5	6,7,9		6.5		9	9	
3.25	3	3	3.25	2		6-7	
1.625			1.625			3	

# A complete computer trading program

## *part 3*

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by John F. Ehlers

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This is the third of four articles that give a description and BASIC computer program listing enabling you to perform technical analysis on your Apple ][ computer.

In the first two installments of this series, we started with a data read program and added a plotting program for the high, low and close of prices. This article will add to that program, enabling you to plot and superimpose moving averages and the Parabolic system over the price history.

Adding Listing I to your current plotting program is very easy. Simply LOAD the plotting program from the last issue and then type in the line numbers and program as given in Listing 1. When you have completed the typing, just SAVE the program to your disk.

After you have typed the program and saved it, you can immediately begin to use the moving average and Parabolic system functions you have created.

### **Parabolic system**

Parabolic is a trading system that gives protective stops that get successively tighter to protect an accrued profit. The parabolic gets its name from the shape of the curve it generates, particularly in a trending market. The Parabolic system has nothing to do with cycles, however I think the idea of protecting profits with ever-tightening stops is a good idea.

J. Welles Wilder, Jr. thoroughly discusses the Parabolic Time/Price System in Section II of his book *New Concepts in Technical Trading Systems*. I have taken the liberty of adjusting some of the constants from Mr. Wilder's recommendations. You may experiment with these constants in your program and adjust them to your own preference if you disagree with me.

The parabolic stop follows only a few well-defined rules that are simple to program. Assuming we start with a long position, the stop will be the lowest previous low. Tomorrow's stop will be today's stop plus the difference between today's high and today's stop, the difference being multiplied by a constant called the acceleration factor. A second rule is that the acceleration factor is increased by a constant amount each time a higher high is reached while in the position. The final rule is that if the price touches the stop, then the position is reversed and the initial stop becomes the highest high while you were in the long position. Rules are applied in a similar manner for the short position.

The program listing for the Parabolic system is given in lines 4000-4090 of the listing. In line 4010 we set the first two points of the Parabolic to be equal to the first low. The computer program has already scaled the price data for charting before these calculations are made. We also establish the initial conditions for the acceleration factor (AF) and the highest high (H) and lowest low (L). I place the initial value of the acceleration factor at 0.02, causing the difference between the high and the stop to decrease 2% for each day that does not have a new high. This is one of the constants you may want to adjust. The

constants H and L refer only to the immediate highest high or lowest low and are distinctly different from the HH and LL constants used to scale the entire chart.

You may recall that we are always using the last 50 records from your database. If the average of X(2,I) (high) and X(3,I) (low) is greater than X(7,I)(Parabolic), then we have a short position and are therefore directed to line 4060. The reason we define a short position in this manner, rather than as the point where the stop is greater than the average is due to the numbering system used for plotting. Zero is at the top of the screen and the numbers increase toward the bottom of the screen. Since the prices already have been scaled for plotting, the average price will be greater than the stop for a short position.

In line 4020, the next day's Parabolic is adjusted as the difference between the current high and the current stop, multiplied by the acceleration factor. In line 4020, if we get a new high, the acceleration factor is increased by 5%. You may want to adjust this constant because the acceleration factor is increased by 5% each time a new high is reached until limited at 30% in line 4030.

## **The Gaussian distribution estimating feature of unknown events has been applied, and misapplied, to trading.**

Line 4030 compares the low to the stop to sense whether the position has been stopped out and a reversal should occur. If this is not true, the calculations are accomplished for the next data point due to lines 4040 and 4100. However, if the long position is stopped out, the program is directed to line 4050 where the acceleration factor is reset to 2%, the initial stop for the short position is the highest previous high and the highest high constant H is reset to the bottom of the screen. Then, the calculations proceed for the next data point, but the criteria at line 4060 directs the calculation to the short position line numbers.

The short position calculations are made in lines 4060-4090. Each line is an exact counterpart to a similar calculation for the long positions previously described in lines 4020-4050.

When you plot these stops by running your program you'll quickly see, by the lines they create, why they are called Parabolic. I think a word of caution in the use of the Parabolic system is in order because it tends to create an optical illusion that might be interpreted as the entry and exit points of a position. It would be an extraordinary approach if this were true. Be careful to examine the real prices for the entry and exit points when evaluating the profitability of this approach. Ed. *Note: Be patient when you press P to display the Parabolic system; the calculations take a few seconds.*

### **Moving averages**

The famous mathematician Gauss showed that the best estimate of an unknown event with random distribution is the average of the observations. The probability distribution about the average (or mean value) is called the Gaussian distribution. We encounter this situation in many aspects today. For example, the best estimate of IQ is 100, the mean value of observations. The IQs of most people are clustered around the mean. Wide deviations from the mean are uncommon, and we call these people either idiots or geniuses. The Gaussian distribution estimating feature of unknown events has been applied, and misapplied, to trading.

One of the more common trading tools is the moving average. As commonly used, the average can be either uniformly weighted over a fixed number of data points known as a moving window or

exponentially weighted. We will be interested here only in the uniformly weighted moving average. In this approach, an average is taken over a fixed number of data points immediately prior to the data point for which the calculation is made. This is the fixed window. As we progress to the next data point, the number of data points over which the average is taken is constant so the window also moves by one data point.

I would like to make our application of moving averages in this program perfectly clear. This use of the moving average applies solely to price functions that have cyclic content. The application of these moving averages are not intended to be applied to trending markets. (See the December 1985 issue of *Technical Analysis of Stocks & Commodities* for a more complete description of the use of moving averages with cycles).

As it turns out, the moving average taken over a pure cycle will yield the trendline of that cycle. In addition, the most sensitive moving average of that cycle is taken over the half-cycle. One of the characteristics of these two moving averages is that they theoretically cross just as the cyclic price reaches a maximum or minimum. We would like to correlate this with the price action on our graph, and so the object of the computer program is to plot these two moving averages as superpositions over the price history.

With reference to the moving average part of the listing, lines 4500-4530 accomplish the average of the closes, X(4,I). Rather than recalculate the entire moving average each time, the algorithm speeds the calculation by taking the last moving average, discarding the weighted contribution of the "oldest" data point and adding the weighted contribution of the "newest" data point.

### **Adding a menu**

I will begin the interactive part of the program at line 1010 by establishing initial conditions for the horizontal cursor (X1) and the vertical cursor (Y1) and call the subroutines to plot them. Line 1000 asks for the dominant cycle input when you run the program and then computes the default half-dominant cycle and quarter-dominant cycle that may be used in subsequent calculations.

Interaction operates by polling the keyboard to see if any of the allowed options are desired. This is done at line 1020 by looking at the keyboard with the PEEK command and proceeding to the next line only if the keyboard status is different from the previous entry. If so, logic branch points are given in lines 1030-1120 for allowable options. Lines 4500-4530 calculate and plot the moving averages. Line 1040 will clear the screen and let you select a new issue or redraw the existing one. Lines 4000-4110 calculate and plot the Parabolic system. Line 1060 allows you to gracefully quit the program and catalog another disk in the active drive.

Movement of the horizontal cursor is produced by line 1100 and movement of the vertical cursor is produced by line 1110. The horizontal cursor keys are the right and left arrows and the vertical cursor keys are the A and Z keys (chosen for universal application to all Apples) or the up and down arrow keys.

The horizontal cursor subroutine is located in lines 1500-1550. The keyboard is read at line 1020. If the left arrow is typed, line 1510 changes the color to black, erasing the current cursor, changes the color back to white and repositions the cursor one resolution cell (four pixels) to the left. Line 1520 is the same except the cursor is moved one cell to the right. Lines 1530 and 1540 test the extremes of the cursor movement and limit the range to the graph area. Line 1550 does an inverse calculation to find the record number for the given horizontal position and then reads and prints the date for that record number in the

data matrix at X(0,J). Line 1880 plots the cursor at the new position.

The vertical cursor subroutine in lines 1800-1870 operates essentially the same as the horizontal cursor subroutine. Lines 1810 and 1820 erase the current cursor and position the cursor one resolution cell up or down, respectively. Line 1850 calculates the price for the given cursor position and line 1860 converts and prints the calculated price to a string variable. The RETURN at line 1860 enables the polling of the main program to continue.

The program listing thus adds the Parabolic system and moving average techniques to your plotting program, giving you two more tools with which to help do your technical trading. Next, we will complete the plotting program by adding the Commodity Channel Index, Relative Strength Index and Directional Trend Indicator below the price chart.

*This complete computer program (revised by Jack R. Hutson), along with an explanatory example BASIC program, is available on disk directly from Technical Analysis of Stocks & Commodities magazine for \$49.95. Please refer to Volume 5 disk. An IBM version of this program is available for \$99 directly from John Ehlers, P.O. Box 1801, Goleta, CA 93116.*

### **Complete Technical Analysis Program**

```

10 REM COMPLETE TECHNICAL ANALYSIS
BY JOHN F. EHLERS
MODIFIED BY JACK K. HUTSON
(C) 1987 TECHNICAL ANALYSIS, INC.
1000 GOSUB 2000 :
LET P$ = "Input Dominant Cycle? < 21 > : " :
GOSUB 6000 :
LET DC = N :
LET HC = INT (DC / 2 + .5) :
LET QC = INT (DC / 4)
1010 LET X1 = 270 :
GOSUB 1500 :
LET Y1 = 95 :
GOSUB 1800 :
GOSUB 5000
1020 LET PL = PEEK (49152) :
ON PL = X9 GOTO 1020 :
POKE 49168,0 :
LET X9 = PL
1030 IF PL = 205 THEN
LET P$ = " Short Average < " + STR$ (HC) + " > : " :
  GOSUB 6000 :
LET HC = N :
HCOLOR= 1 :
GOSUB 4500 :
LET P$ = " Long Average < " + STR$ (DC) + " > : " :
```

```

GOSUB 6000 :
LET HC = N :
HCOLOR= 3 :
GOSUB 4500 :
REM (M) OIVING AVERAGE
1040 IF PL = 206 THEN
LET P$ = " 1. Redraw 2. New : " :
GOSUB 6000 :
ON N = 1 GOTO 1000 :
GOTO 100 :
REM (N)EXT SELECTION
1050 ON PL = 208 GOSUB 4000 :
REM (P)ARABOLIC SYSTEM
1060 IF PL = 209 THEN
PRINT D$ " PR#0 "
TEXT :
HOME :
INPUT " INSERT NEXT DISK IN ACTIVE DRIVE <RTN>" ;S$ :
PRINT D$ " CATALOG " :
END :
REM (Q)UIT
1100 ON PL = 136 OR PL = 149 GOSUB 1500 :
REM LEFT < (136) OR RIGHT (149) ARROW
1110 ON PL = 193 OR PL = 139 OR PL = 218 OR PL = 138 GOSUB 1800 :
REM A (193) KEY OR UP ARROW (139) OR Z (218) KEY OR DOWN ARROW (138)
1120 GOTO 1020
1500 REM *** HORIZ CURSOR ***
1510 LET XC = PL :
IF XC = 136 THEN
HCOLOR= 0 :
GOSUB 1880 :
HCOLOR= 3 :
LET X1 = X1 - 4
1520 IF XC = 149 THEN
HCOLOR= 0 :
GOSUB 1880 :
HCOLOR= 3 :
1530 IF X1 < 74 THEN
LET X1 = 74
1540 IF X1 > 270 THEN
LET X1 = 270
1550 GOSUB 1880 :

```

```

VTAB 3 :
HTAB 2 :
PRINT MID$ < STR$ (P) ,1,6) :
LET PL = 0 :
RETURN :
REM HORIZ CURSOR MOVE
1800 REM *** WERT CURSOR ***
1810 LET YC = PL :
IF YC = 193 OR YC = 139 THEN
HCOLOR= 0 :
GOSUB 1870 :
HCOLOR= 3 :
LET Y1 = Y1 - 3
1820 IF YC = 218 OR YC = 138 THEN
HCOLOR= 0 :
GOSUB 1870 :
HCOLOR= 3 :
LET Y1 = Y1 + 3
1830 IF Y1 < 5 THEN
LET Y1 = 5
1840 IF Y1 > 125 THEN
LET Y1 = 125
1850 LET P = (5 - Y1) * (HH - LL) / 120 + HH
1860 GOSUB 1870 :
VTAB 5 :
HTAB 2 :
PRINT MID$ ( STR$ (P) ,1,6 ) :
LET PL = 0 :
RETURN
1870 FOR I = 0 TO 4 :
HPLOT 69 - I ,Y1 - I TO 69 - I ,Y1 + I:
NEXT I :
RETURN
1880 FOR I = 0 TO 4:
HPLOT X1 - I ,126 + I TO X1 + I,126 + I :
NEXT I :
RETURN :
REM VERT CURSOR MOVE
4000 REM *** PARABOLIC SYSTEM ***
4010 LET X(7,1) = X(3,1) :
LET X(7,2) = X(3,1) :
LET AF = .02 :

```

```

LET H = 125 :
LET L = 5 :
4010 LET X(7,1) = X(3,1) :
LET X(7,2) = X(3,1) :
LET AF = .02 :
LET H = 125 :
LET L = 5 :
FOR I = 2 TO 49 :
ON (X(2,1) + X(3,I)) / 2 > X(7,I) GOTO 4060
4020 LET X(7,I + 1) = X(7,1) + AF* (X(2,I) - X(7,I)) :
IF H > X(2,I) THEN
LET H = X(2,I):
LET AF = AF + .05
4030 ON X(7,I + 1) < X(3,I + 1)
GOTO 4050:
IF AF > .3 THEN
LET AF = .3
4040 GOTO 4100
4050 LET AF = .02 :
LET X(7,I + 1) = H :
LET H = 125 :
GOTO 4100
4060 LET X(7,I + 1) = X(7,I) + AF* (X(3,I) - X(7,I)) :
IF L < X(3,I) THEN
LET L = X(3,I) :
LET AF = AF + .05
4070 ON X(7,I + 1) > X(2,I + 1)
GOTO 4090 :
IF AF > .3 THEN
LET AF = .3
4080 GOTO 4100
LET AF = .02 :
LET X(7,I + 1) = L :
LET L = 5
4100 NEXT I :
FOR I = 2 TO 50:
LET X = 70 + 4 * I :
ON ABS (X(7,I) - X(7,I - 1)) > 18 GOTO 4110 :
HPLOT X - 4,X(7,I - 1) TO X,X(7,I)
4110 NEXT I :
RETURN :
REM PLOT PARABOLIC SYSTEM

```

```

4500 REM *** MOVING AVERAGES ***
4510 LET X(7,HC) = 0 :
FOR I = 1 TO HC :
LET X(7,HC) = X(7,HC) + X(4,I) :
NEXT I :
LET X(7,HC) = X(7,HC) / HC
4520 FOR I = HC + 1 TO 50 :
LET X(7,I) = X(7,I - 1) + (X(4,I) - X(4,I - HC)) / HC :
LET ST = HC + 1
NEXT I
4530 FOR I = ST TO 50 :
LET X = 70 + 4 * I :
HPLOT X - 4,X(7,I - 1) TO X,X(7,1) :
NEXT I :
GOSUB 5000 :
RETURN :
REM PLOT 2 MOVING AVERAGES
5000 FOR I = 18 TO 24 :
HTAB 10 :
VTAB 1:
PRINT SPC( 30) :
NEXT I :
RETURN :
REM CLEAR BOTTOM GRAPH
6000 GOSUB 5000 :
POKE 32,9 :
POKE 33,30 :
POKE 34,18 :
POKE 49168,0 :
HTAB 1 :
VTAB 21 :
PRINT P$; :
INPUT " " ;N :
LET N = ABS ( INT (N)) :
GOSUB 5000 :
PRINT "Working ..." :
POKE 32,0 :
POKE 33,40 :
POKE 34,0 :
RETURN :
REM NUMBER INPUT ROUTINE
PROGRAM LENGTH: 44 LINES / 2257 BYTES

```

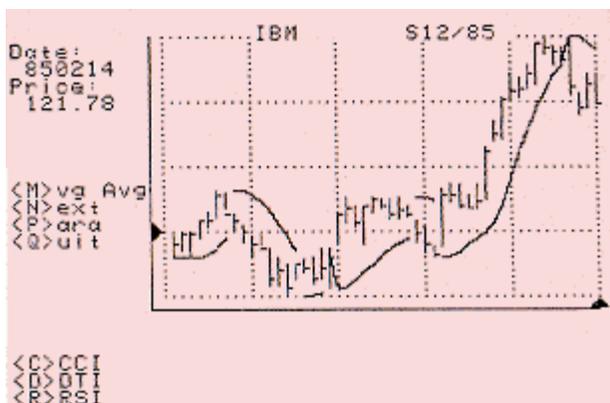


FIGURE 1: Parabolic system plotted over IBM stock prices



FIGURE 2: Six and 14-day moving average of IBM closing prices

# Cycles and chart patterns

---

by Anthony F. Herbst

---

Many who analyze price charts of stocks or commodities recognize that cycles influence the patterns they observe. But few carry this insight through the logical steps that could mean better trade timing. The steps that I am referring to are the isolation, synthesis, (re)combination, and projection of cycles.

The steps involved in the isolation and validation of cycles in data are beyond the scope of this article. Indeed, many articles in *Stocks & Commodities* have dealt with the topic and others will continue to do so. There is also the Foundation for the Study of Cycles which, since its founding in 1941, has been committed to the quest for better understanding of all cyclical phenomena. The Foundation is today the world's leading center for cyclic research and education.

In this article my purpose is to illustrate some effects of the synthesis and (re)combination of cycles. The cycles used here are some that appear to be present in the settlement prices of the December 1986 Standard & Poor's 500 Index futures contract. Further and more refined analysis may indicate some changes in the cycle parameters. But for the immediate purpose, we can assume they are final results and the constant used for charting purposes is an arbitrary value of 25.

When one cycle is an exact multiple of another and they start out together, the result of combining them is to produce double and/or head-and-shoulder tops and bottoms, with trend channels connecting them (see [Figure 1](#)). It shows the effects of combining a 14.28-day cycle with one six times as long, or 85.67 days. Because of the respective phases estimated for these cycles the interesting result of a common neckline or head-and-shoulder (H&S) top and bottom is obtained. Both would be termed "descending" H&S formations.

In [Figure 2](#), we have the 14.28-day cycle combined with one that is 7.2 times as long, a 102.8-day cycle. The result, given their phases, is descending H&S tops with ascending H&S bottoms. The tops and bottoms are connected by trend channels. A variation in the timing (phase) of either cycle can result in double tops (bottoms). So can the combination of three cycles.

The combination of all three cycles considered so far (102.8 days, 85.67 days, and 14.28 days) produce the graph displayed in [Figure 3](#). We see classical double tops and bottoms connected by trendlines. Also, we see that the tops (and bottoms) occur at different levels.

[Figures 4 and 5](#) contain more complicated patterns. However the H&S top is easily discerned, as is the downtrend in [Figure 4](#). The same figure hints of a triangle or wedge at its lower left side. [Figure 5](#) contains what may be seen as a wedge (at least to my eye!).

If we continue adding cycles that we have identified to be present, what will we get? [Figure 6](#) contains the combination of 12 cycles plus a constant of 241.6 plotted with the actual December 1986 S&P 500 settlement prices. Overall, the combination of synthetic cycles provides a good fit. But some questions remain.

Are the sharp peaks and valleys in the actual series that the synthetic combination doesn't fit well indicative of strong non-cyclical influences? Or, are they manifestations of cycles that the analysis failed

to disclose? If this is the reason, is it because they are combined with other cycles in a non-additive way, perhaps by modulating the combination of other cycles? These and similar questions help to make investigation of cycles a continuing focus of interest and source of fascination.

*Anthony Herbst has a Ph.D. from Purdue University's Krannert Graduate School and is a research associate of Columbia University's Center for the Study of Futures Markets. He is author of Commodity Futures: Markets, Methods of Analysis and Management of Risk. Currently, he is a professor of finance and economics at the Roy E. Crummer Graduate School of Business, Rollins College, Winter Park, FL 32789-4499. His Cycle Analysis Programs (C.A.P.) for personal computers (MS-DOS) are distributed by The Foundation for the Study of Cycles in Pittsburgh.*

For those who wish to duplicate the results contained in his article, the formula for creating a sinusoidal cycle is:

$$x(t) = A \sin (\lambda[t - \phi + (T/4)])$$

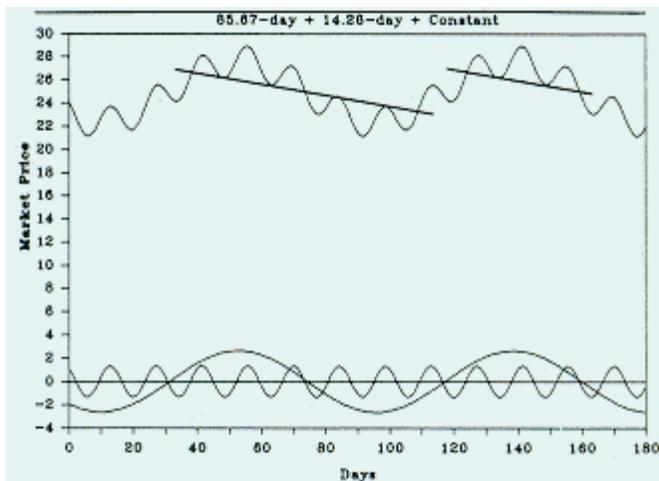
Where  $t$  is an index of time periods past a base date (that is 0, 1, 2, 3,...);  $A$  is the amplitude, or maximum value of the cycle;  $T$  is the cycle's period, or length;  $\lambda$  is  $2\pi / T$ , and  $\phi$  is the number of time periods from  $t=0$  that the cycle first reaches its peak. For more information on this, a useful reference is Chapter One of L.H. Koopman's *The Spectral Analysis of Time Series*, New York: Academic Press, 1974.

The illustrations in this article were prepared with Lotus 1-2-3<sup>TM</sup> on personal computers (a Zenith ZW110 and an AT&T 6300).

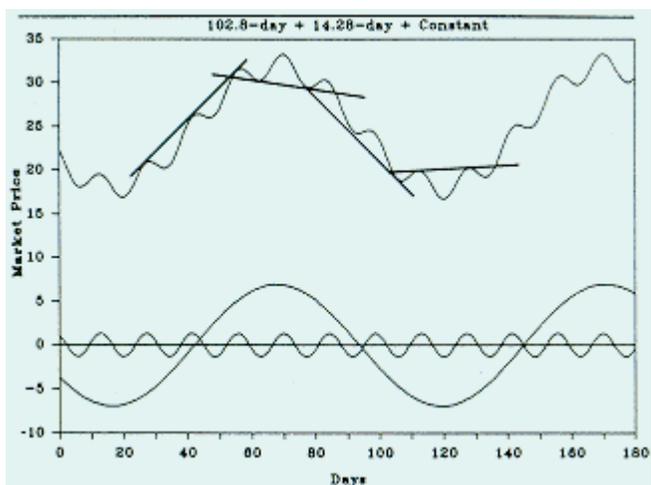
For experimentation, this and other so-called integrated software can be very useful for experimenting with alternative ways of combining cycles and graphing the results. The main drawback is that when working with more than a few cycles the recalculation time quickly becomes excessive.

## References

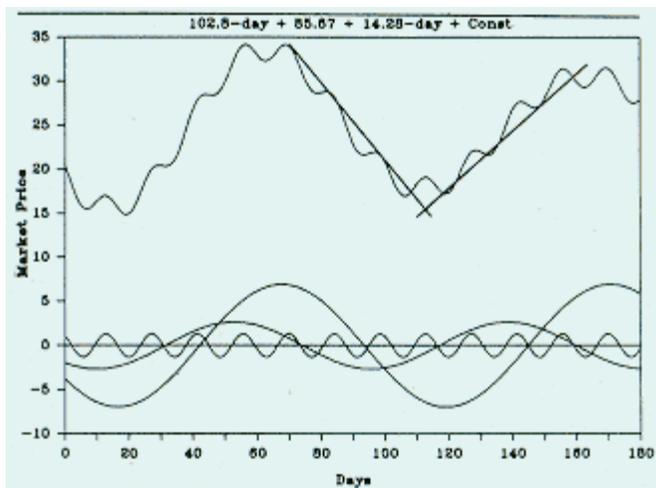
The Foundation for the Study of Cycles offers personal computer analysis and synthesis that are fast and can easily be used with the integrated spreadsheet/graphics programs. The Foundation for the Study of Cycles, 124 South Highland Ave., Pittsburgh, PA 15206, (412) 441-1666. See also: Anthony F. and Betty L. Herbst, "Bringing Cycles and Technicals Together," *Futures*, March 1984, pp. 104-106.



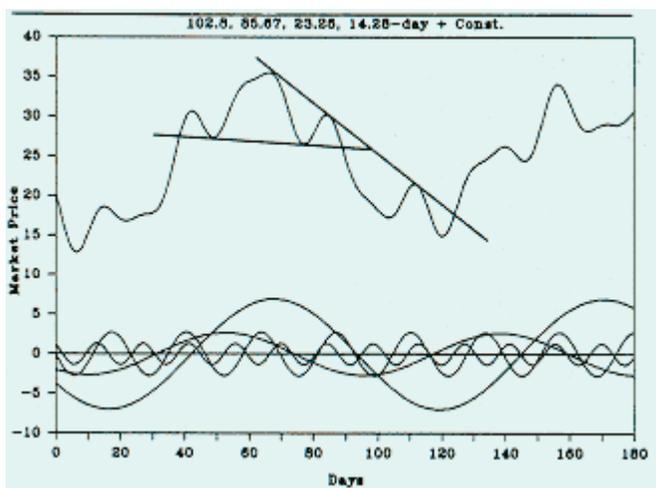
**FIGURE 1:** Synthesis of 2 cycles



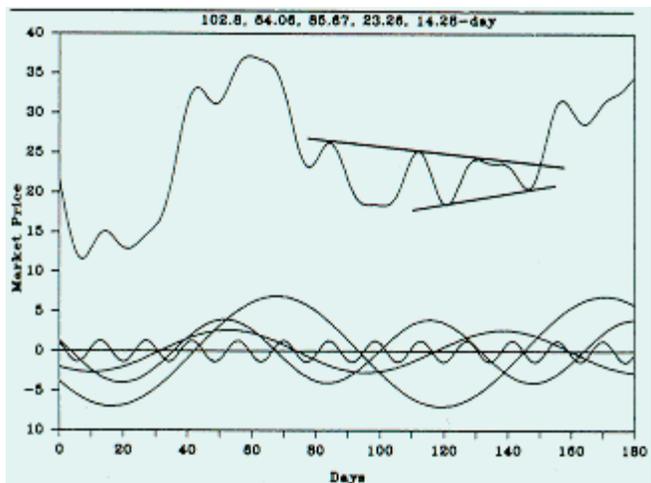
**FIGURE 2:** Synthesis of 2 cycles



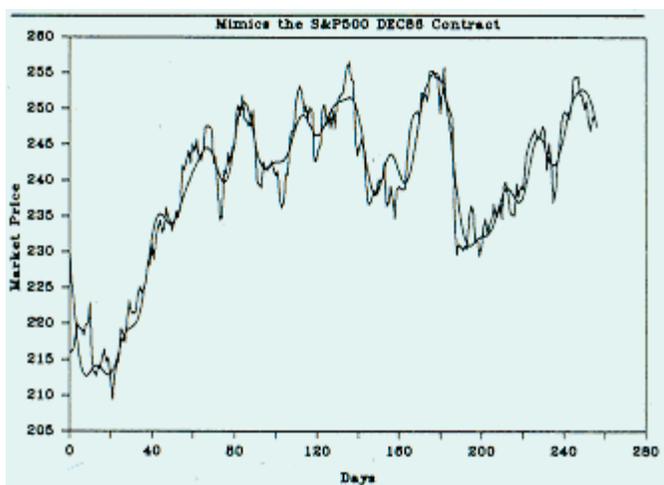
**FIGURE 3:** Synthesis of 3 cycles



**FIGURE 4:** Synthesis of 4 cycles



**FIGURE 5:** Synthesis of 5 cycles



**FIGURE 6:** Synthesis of many cycles

# Enhanced Williams %R

---

*by Robert J. Kinder, Jr.*

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The Enhanced Williams %R Index on Volume and Price (EWRVP) is based on the original %R oscillator constructed by Larry Williams. The original %R . considers only changes in price, while the Enhanced Williams %R Index on Volume and Price reacts to changes in price, volume and the current state of the market.

The original formula is:

$$\% R = \left[ \frac{\text{Period high} - \text{Today's close}}{\text{Period price range}} \right] * 100$$

Plot inverted with 0% on top and 100% on the bottom.

The Enhanced Index ("EWRVP" in the program) behaves much like the original, moving between 0 and 100 to indicate overbought and oversold market conditions. However, the Enhanced Index has the advantage of reacting more quickly to changes in buying power and predicting market turning points.

The Enhanced Index is a composite index of two price indicators and one volume indicator. The two price indicators show short- and long-term price movements based on the length of the index. The short-term price indicator fine-tunes the index to react quickly to price changes. The long-term price indicator slows the short-term price indicator to avoid whipsaws.

The volume enhanced indicator establishes the strength of the price movements. The index cannot produce a signal unless it has the support of volume. The presence of the volume indicator and the logic for its use are the most distinguishing features of the index over similar market indices.

The Enhanced Index is based on the idea that volume, in addition to price, must be accounted for when assessing the current state of the market. Volume and price can interact in several ways, producing different market conditions: rising volume and prices indicate a bullish trend; falling volume and rising prices indicate the end of bullish trend, and so on. The problem is to decide what is a significant relationship between changes in volume and price. Once the relationship between volume and price has been established, predictions of overbought and oversold conditions can be made with accuracy.

To calculate the Enhanced Index, first determine if the market is in an upward or downward trend. If the sign (+ or -) of today's close minus yesterday's close and the sign of yesterday's "modified Williams %R index" on the close are both the same, then the market is assumed to be in a trend. (The modified Williams %R index calculations are explained after further explanation of the Enhanced Index. That is, we must first "modify" that standard Williams %R before calculating the Enhanced Index.)

If the market is in a trend, the interaction between volume and price is checked for confirmation of the trend's continuance. To do this, the modified Williams %R index on the close and the modified Williams %R index of volume are checked for agreement in signs, i.e.: both are of positive or negative sign. If both Williams %R indices are positive or negative, then volume and price conditions reinforce each other and the trend will probably continue. If the modified Williams %R indices are of opposite sign, then volume

and price fail to reinforce one another and a turning point in the market may be near.

### Conditions

Two significant conditions are recognized in calculating the Enhanced Index:

- 1) The close and volume confirm the current trend, and the closing price is increasing. Under this Condition, the trend is upward and today's Enhanced Index will be weighted proportional to today's modified Williams %R index on the close (Close SWR).
- 2) The close and volume do not confirm the current trend, and closing price is decreasing. For Condition 2, the market is falling on rising volume and today's Enhanced Index is again weighted proportional to today's modified Williams %R index on the close.

### Modifying Williams

There are three modified Williams %R indices:

A) Volume Williams %R (Vol WR) is based on a moving average of volume that is half the length of the Enhanced Index study:

$$\text{VolWR} = 2 * \frac{\text{Today's Volume} - 1/2 \text{ period Volume moving average}}{\text{High volume of period} - \text{Low volume of period}}$$

B) Close Williams %R (CloseWR) is based on a moving average of the close that is half the length of the Enhanced Index study:

$$\text{CloseWR} = 2 * \frac{\text{Today's close} - 1/2 \text{ period close moving average}}{\text{High close of period} - \text{Low close of period}}$$

C) The simple Williams %R (CloseSWR) is based on yesterday's close:

$$\text{CloseSWR} = 2 * \frac{\text{Today's close} - \text{Yesterday's close}}{\text{High close of period} - \text{Low close of period}}$$

### The Enhanced Index

The equations for the Enhanced Index (or EWRVP) are:

A) If Condition 1 or 2 is satisfied:

$$\text{Enhanced Index} = \frac{50 * \text{CloseWR} * (\text{CloseSWR} + \text{AF} * \text{VolWR}) + \text{CloseSWR} + \text{AF}}{\text{CloseSWR} + \text{AF}}$$

The AF is an amplitude factor used to control the amplitude of the resulting index. Over an increasing number of days, the index tends to oscillate between 40 and 60 rather than 0 and 100. Increasing the amplitude factor compensates for the smaller index oscillations at longer lengths of study. If the study length is less than 10, AF = 0.25. If the study length is greater than 10, AF = [(Length of the study / 32) - 1/16]. The amplitude factor equation was determined by a trial and error until a suitable fit for the

Enhanced Index was obtained for all lengths of study.

B) When conditions 1 or 2 are not satisfied, the Enhanced Index is not weighted in proportion to the CloseSWR. Instead, the CloseSWR (the simple Williams %R) is set equal to the amplitude factor. The formula then simplifies to:

$$\text{Enhanced Index} = 25 * [\text{CloseWR} * (\text{VolWR} + 1) + 2]$$

Once calculated, the Enhanced Index may be used "as is" or a linear-weighted moving average of the index may be plotted.

The equation for the Enhanced Index can be viewed as a struggle between the three indicators. The magnitude of the three modified Williams %R indicators oscillate between 0.0 and 1.20. When the value of one of the indicators is less than one, it is very difficult for their combination to be larger than one, i.e., to produce a buy or sell signal. Values of one or greater are viewed as signals and values less than one are indeterminate. Therefore, the index tops or bottoms out only when a high degree of correlation between volume and price movements occur.

The Enhanced Index indicates overbought and oversold conditions more precisely than the standard Williams %R index. The Enhanced Index also has a strong tendency to signal market turning points a few days before the market acts. The Enhanced Index is able to signal tops and bottoms clearly due to the reversal effects of volume while prices continue to move with the original trend. Enhanced Index readings above 70 and below 30 indicate the market is at a top or bottom. Divergences are much sharper than those of the original index.

### Comparing indicators

[Figure 1](#) shows the original %R (using a 14-day period) on the December Treasury bond contract. Notice that the upward move in latter November pegged the indicator until early December despite continued upward price movement.

[Figure 2](#) shows an unsmoothed Enhanced Williams %R of 14 days using the same data. Here the indicator peaks during the initial upward move in November and then steadily declines until late December, where the original index also bottomed. This shows the "upmove" running out of steam but would clearly get you in early were you trying to short the upward trend. On the other hand, the late December bottom was a good long entry.

[Figure 3](#) shows a 3-day average of the unsmoothed index shown in [Figure 2](#). This version peaks in mid-November, shows the secondary peak in early December as a divergence and bottoms at the end of December signifying the exhaustion of the move.

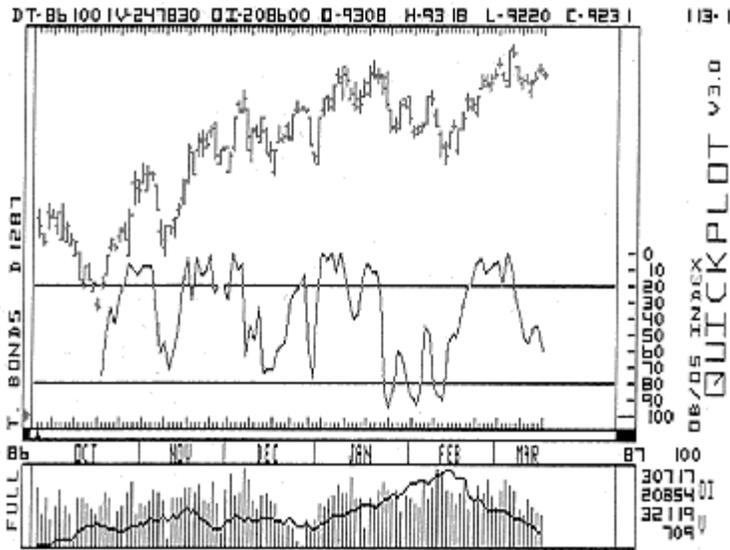
Trend followers could have played this sequence differently. If their indicators were basically long, as hindsight shows was wise, a purchase during the early November retracement and again on the December 31st move by the indicator to the 30 level would have both worked well.

[Figures 4 and 5](#) are provided for your own comparison using Deutschemarks.

Parameters to vary in customizing the indicator are its length and the amount of smoothing or averaging. Even more work might be done with the logic of when to use volume indications. The rules I've described are the results of my experience, but there may be other rules that are effective. I think the

application of logic to traditional indicators may be the next best area for improving trading efficiency.

*Robert J. Kinder, Jr. is a software engineer for the FAX Group, Inc., a Troutville, VA software developer specializing in AI-based market applications. Mr. Kinder may be reached at P.O. Box 843, Salem, VA 24153.*



**FIGURE 1**

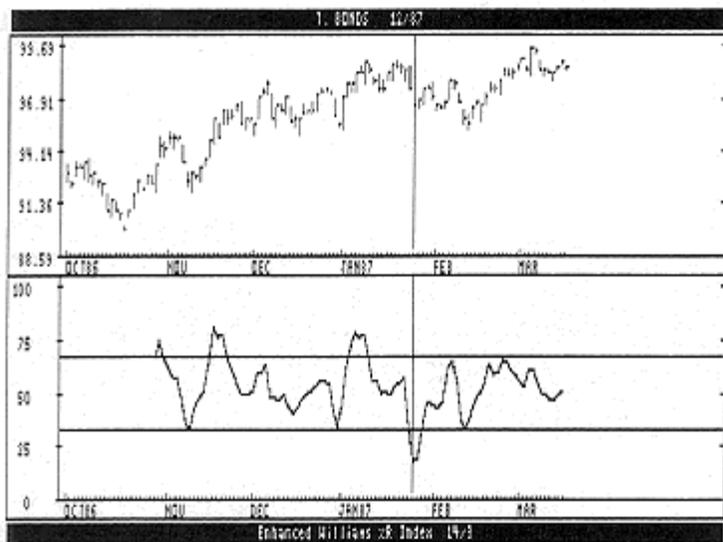


FIGURE 2

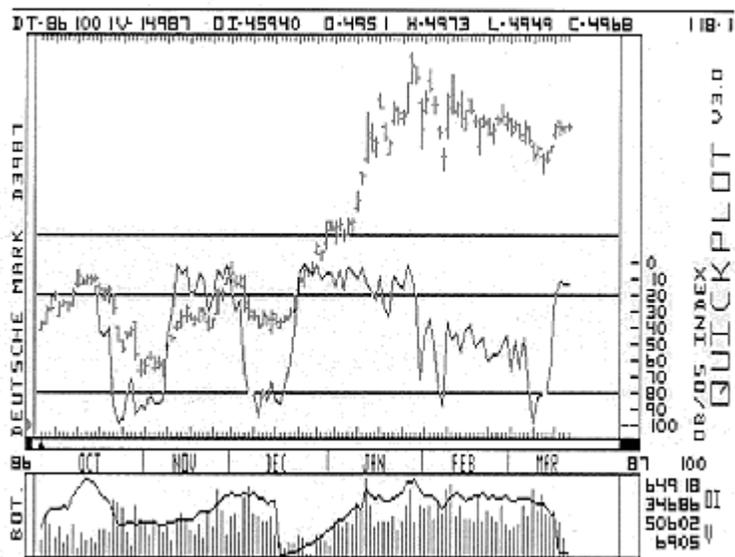


FIGURE 3

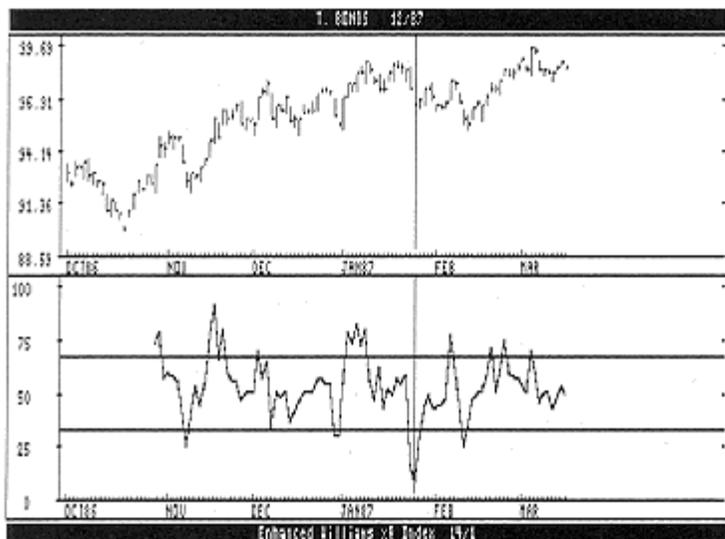


FIGURE 4

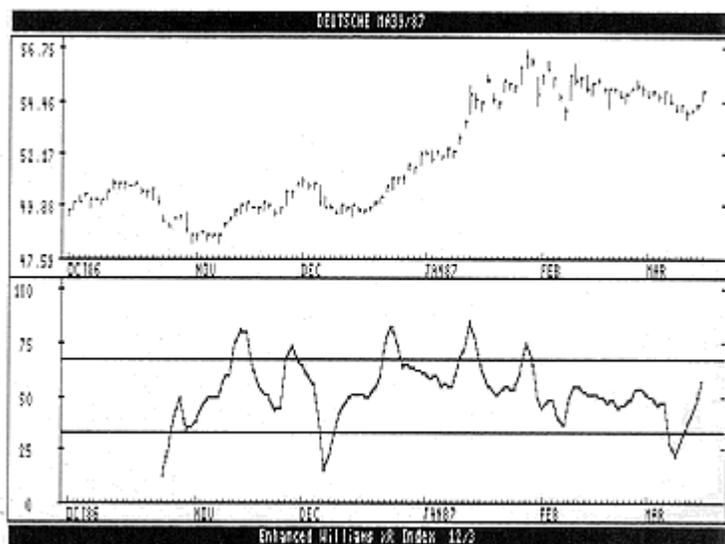


FIGURE 5

# How to spot takeover candidates

---

*by Norman S. Wei*

---

**T**he shares of Celanese Corp. were trading at 218-1/2 at the close of Oct. 31. They shot up to a high of 247-1/2 on Nov. 3 and closed at 242-1/2—an increase of \$24 per share!

Integrated Software's stock jumped from 9 to 12- 1/4 over-night on Nov. 3. In late February 1986, Western Airlines' stock jumped from 8-7/8 to 12-1/4 within a week.

These were all takeover or merger candidates. Celanese agreed to merge with American Hoechst Corp. for \$245 per share. Computer Associates International Inc. acquired Integrated Software for 12-3/8 a share in cash. Western Airlines was taken over by United Airlines.

To the casual observer of stock prices, the explosive nature of these stocks appears to be totally unexpected. For the six months preceding the dynamic jump in price, Integrated Software's prices actually declined from 13 to a low of just under 8. Celanese traded between 204 and 215 for the month preceding the takeover announcement. Western Airlines' stock prices fell for four months prior to its being taken over.

The potential acquirer usually starts to accumulate shares of the target company weeks or months before launching a formal tender offer. It is the purpose of this article to identify the pattern of accumulation through a simple analysis of trading behavior in the open market.

## **Basic concepts**

Price movement of a stock only tells half the story. The other half is volume. Prices go up as a result of increased demand. When they go up on large volume there is accumulation of the stock. Every up-tick in a trade represents stock accumulation; every down-tick represents distribution. The ideal situation is to be able to monitor the trading of a stock tick by tick. The volume associated with each up-tick is added to an accumulation column; each down-tick is subtracted from the same column. At the end of the day, a positive net value shows that the stock has been under accumulation. A negative value shows distribution. Unfortunately, this procedure requires special and expensive computer software to track every stock trade on an intraday basis.

An excellent approximation of the intraday tracking is to take the daily total volume traded and assign it a positive value if the closing price is higher than the previous day's. A negative entry is made if the reverse is true. An entry of zero is made if the closing price remains unchanged.

Summing up the daily positive, negative and zero entries gives you a measure called Daily Cumulative Volume (DCV). Let's say that on Feb. 3, a stock's DCV was -3,416,300. On Feb. 4, the stock closed at 64-1/8 with 109,300 shares traded. This was a decrease in the price from the day before, so 109,300 was subtracted from the DC of -3,416,300, giving a new value of -3,636,800. On Feb. 6, the stock closed unchanged, a zero was entered in the volume column and the DCV remained the same.

A plot of the DCV for a period of four to six months can show a clear pattern of either accumulation or distribution. My two years of research on the price and DCV charts of takeover or merger stocks have shown that certain basic relationships exist between price movement and DCV. More importantly, these

relationships often can foretell price action for special situations such as takeover, merger, stock buy-back and restructuring. This article discusses two relationships between stock price and DCV: spatial divergence and temporal divergence.

## **Confirmation of unusual trading activities came on Oct. 29 when 103,200 shares changed hands with a price increase of \$4.50 and closing at 218-1/2.**

### **Spatial price-DCV divergence**

The most prominent pattern of spatial divergence occurs when stock prices trace out a falling trend while, at the same time, the DCV remains either steady or in an uptrend.

The price and DCV charts of Western Airlines represent a classic example of divergence. From late October 1985 to late January 1986, the airline's stock prices ([Figure 1A](#)) fell steadily while the DCV ([Figure 1B](#)) remained stable amidst rumors of a takeover attempt. The same divergence pattern re-emerged several weeks later and lasted another four months before the actual takeover of the company by United Airlines.

The price chart of Quotron ([Figure 2A](#)) shows that from early June to mid-September 1985 the stock prices were in a downward trend while the DCV ([Figure 2B](#)) was relatively stable. The stock then jumped up several points to near 16 on takeover rumors in late September. These rumors were denied and the stock subsequently fell back to the low 10s just as rapidly as it shot up. But the telltale sign was in the DCV, which never retreated to the previous level prior to the unfounded rumors. Note also how the price diverged briefly from the DCV for about a month just after the denial of the rumors. In fact, the DCV started to move up on a very definitive uptrend until June 1986 when Citicorp tendered an offer of \$19 for Quotron's shares. The stock moved up more than five points in 10 trading days.

Let's look at the Celanese price ([Figure 3A](#)) and the DCV ([Figure 3B](#)) charts from May to November 1986. Nothing extraordinary took place until the second half of September. For three weeks, the stock traded within a narrow range between 203 and 208. Yet the DCV was on a sharp uptrend during the same period. This spatial divergence shows there was accumulation of that stock by the "smart money"—an activity not evident in the price chart. It is only by comparing the two charts that we see the accumulation.

Confirmation of unusual trading activities came on Oct. 29 when 103,200 shares changed hands with a price increase of \$4.50 and closing at 218-1/2. The normal trading volume of this stock was about 40,000 shares a day. This unusual jump in the price on high volume occurred just four trading days before the company announced its merger with American Hoechst. On Nov. 3 the stock was trading at 242-1/2.

In looking at the price ([Figure 4A](#)) and DCV ([Figure 4B](#)) charts of Integrated Software Systems, one sees a pronounced example of spatial divergence. During the months of May, June and July 1986, the stock was in a downtrend while the DCV showed the opposite. Following this divergent period, the DCV leveled off into a slight upward movement.

On Nov. 3, Computer Associates International Inc. announced its plans to acquire Integrated Software Systems for 12-3/8 a share in cash. The result was a jump in price from 9 to 12-1/4.

The USG Corp. charts for the price ([Figure 5A](#)) and DCV ([Figure 5B](#)) show strong evidence of spatial

divergence with rising DCVs and falling prices. This is a case of "hidden" accumulation. USG was a rumored takeover candidate. It was reported on Nov. 20, 1986 that the Belzberg family had purchased 2.8 million shares of USG or approximately 5% of all outstanding shares.

On the same day, USG announced it would buy back up to 20% of its own 63.7 million outstanding shares in the open market. The stock went up 4-1/4 to 40-3/4 on the stock buy-back news. USG closed at 43-5/8 on Nov. 28, 1986.

Beatrice stock, during the months of August and September 1985, traded within a narrow range of 33 to 34-1/2 (Figure 6A) while the DCV moved in a definite uptrend (Figure 6B). Shortly after this period of divergence, the stock moved up to the high 40s. Note also how the DCV chart showed a "breakout" on Sept. 30 with confirmation the next day. In February 1986, the company agreed to a leveraged buyout for \$40 cash and \$10 of securities. The deal was completed in May with the stock trading at \$50.

### **Temporal price-DCV divergence**

Temporal divergence occurs when a stock returns to a previous price and the DCV is at a much higher level. This happens in cases when a stock goes up in price and comes back down to the same level. If one were to look at stock prices alone, there would be no discernible pattern. However, in the case of stocks that are under active accumulation, analysis of the DCV charts often reveals the DCV is at a much higher level the second time around. This is evidence of accumulation.

The DCV chart (Figure 7B) of Lockheed is a classic example of temporal price-DCV divergence. Note that back in January 1986, the stock price (Figure 7A) was 44 with a DCV of -4079 (point 1). In the next 10 months, the stock price went up to a high of more than 59 and came back down to as low as 43-5/8 on Oct. 7. Yet the DCV on Oct. 7 was +39,870 (point 2)—a much higher value than nine months earlier when the stock was traded at 43-3/8. That is sure evidence there was a net accumulation of shares during that period. Five weeks later on Nov. 13, the price jumped to 47-1/4 on heavy volume of 3.1 million shares. Rumors abounded that Lockheed was a takeover candidate. The stock traded as high as 56-3/4 on Nov. 28 and closed at 55.

Bally Manufacturing is another clear example of temporal divergence. On Nov. 5, 1985, the stock price (Figure 8A) closed at 14-7/8 with the DCV (Figure 8B) at -8800 (point No. 1). During the next year, the stock reached 23 and dropped back to 14-3/4 on Sept. 12, 1986. Note, however, that the DCV on Sept. 12 was at +22,829 (point 2)—considerably higher than 10 months earlier. This is strong evidence of stock accumulation over that period. Shortly after this, the price of Bally stock increased to 22-1/8 on Nov. 17, 1986. Bally was a rumored takeover candidate. It closed at 22-3/8 on Nov. 28.

The charts of Carter Hawley Hale show both spatial and temporal divergence. From mid-June to mid-September 1986, the stock prices (Figure 9A) were in a downtrend while the DCV (Figure 9B) was in a strong upward move. This indicates stock accumulation. This pattern was further reinforced by temporal divergence. On June 4, Aug. 12 and Sept. 16, the stock traded at or near 34-1/8. But note the respective DCVs for these dates: 840 at point 1; 19,545 at point 2, and 29,942 at point 3—definite evidence of underlying accumulation.

On Nov. 25, 1986, the company received a \$55-per-share tender offer from a partnership made up of Limited Inc. and Debartolo Corp. Its stock closed at 50-1/2 on that day, an increase of 7-1/4 points.

From May to October 1986, the price (Figure 10A) and the DCV (Figure 10B) charts of Chesebrough

Pond showed clear signs of spatial divergence—a pattern further confirmed by the temporal divergence displayed throughout a six-month period.

A quick comparison of the DCV of 7,779 (point 1) at 44-7/8 on April 15, the DCV of 29,781 (point 2) at 45 on Oct 8 and the DCV of 39,786 at 45 on Oct. 24 confirmed the accumulation pattern.

On Nov. 25, American Brands Inc. made an offer of \$66 a share to acquire Chesebrough Pond. The stock closed at 49-1/4, up 4-1/4 in very heavy trading. On Nov. 26, it soared 12-1/4 points to 61-1/2. The volume was 29 times the average daily volume.

### Selecting candidates to watch

For the average investor, it is virtually impossible to chart every stock in the market. Some commercial charting services offer weekly or monthly charts which, very often, are too late for the investor to take any action. Real-time charting services are prohibitively expensive for the average investor.

The best approach is to use the financial dailies and scan the most active stocks. *The Wall Street Journal* provides the 10 most active with closing prices and volumes. *Investors Daily* lists the 20 most active stocks with prices and volumes as well as percent volume change. Any stock on this list that shows 10 times or more of the 50-day average volume traded and has closed on an up-tick should be a candidate for screening. This newspaper also lists the 40 stocks with the greatest percent rise in volume. Some of these stocks are not on the most active list, but they indicate unusual activities that warrant tracking. Again, pick the ones which close higher than the day before.



*"Sorry about the mess, we just kicked Figby upstairs."*

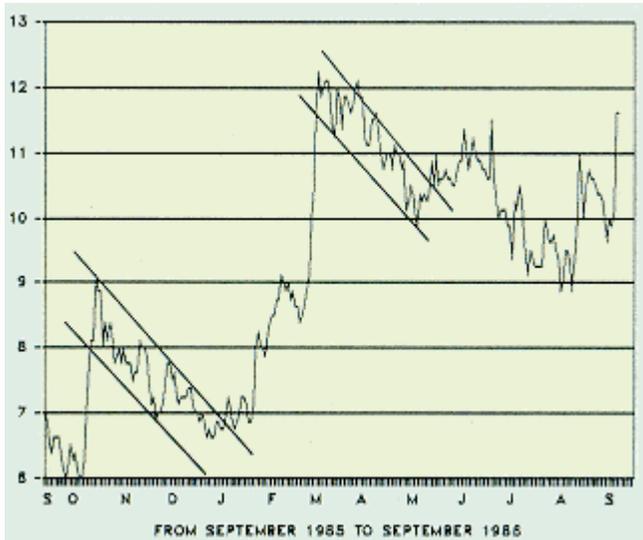
Once the candidates have been selected, the next step is to obtain historical data on closing prices and trading volumes either manually or by computer. At least six months of *daily* data should be used, so the use of a computer is highly recommended.

Investors with personal computers and a modem can sign up with commercial databanks such as Dow Jones New/Retrieval, CSI or CompuServe. Calculations of the DCVs and charting also can be done manually or by computer.

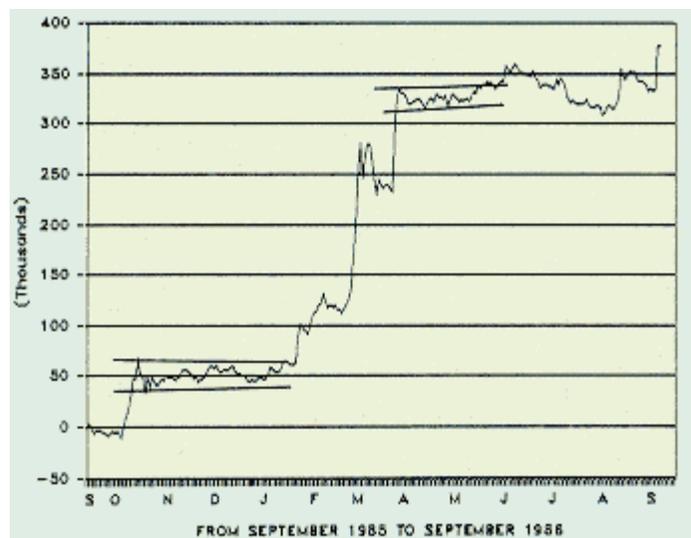
Comparing price and DCV charts shows that takeover or re-structuring stocks can be identified weeks or months before the official announcement. Of the 10 stocks studied in this article, five were taken over. As of the end of November 1986, tender offers had been made on two others and the remaining three

were persistently rumored as takeover candidates. Whether they were all finally taken over is immaterial. What is important is to be able to profit from the explosive price increases.

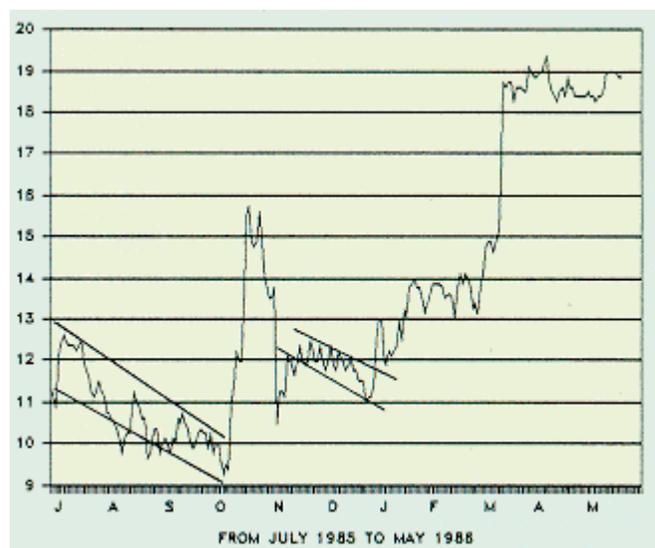
*Norman Wei is an active stock and options trader. He has spent the past two years studying techniques for identifying potential takeover and restructuring candidates. This article is based on his book Market Timing for Special Situations which is available for \$50 from Norman Wei, 13616 N. 43 St., Suite 200, Phoenix, AZ 85032, (602) 996-9607.*



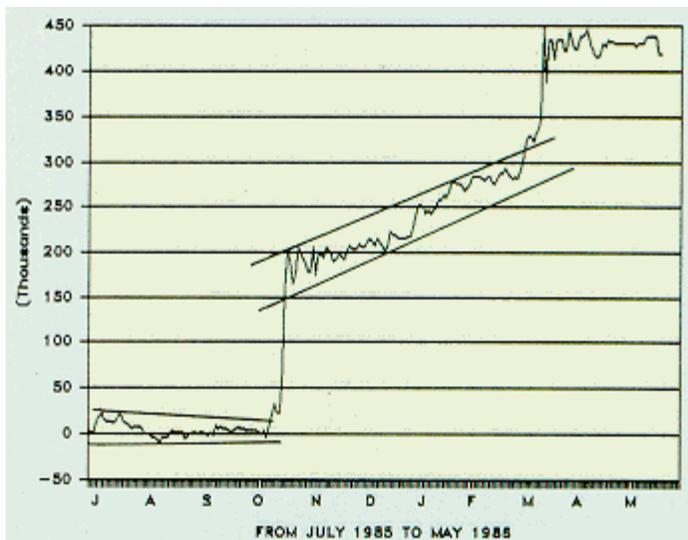
**FIGURE 1A: WESTERN AIRLINES (WAL) PRICE**



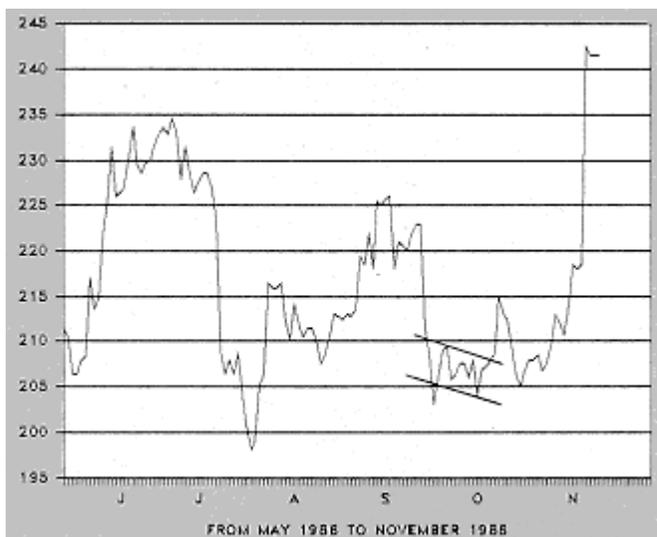
**FIGURE 1B: WESTERN AIRLINES (WAL) DCV**



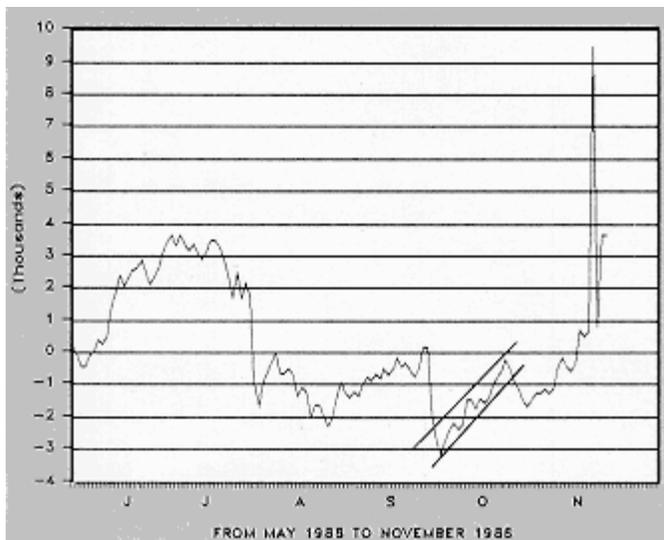
**FIGURE 2A: QUOTRON (QUOT) PRICE**



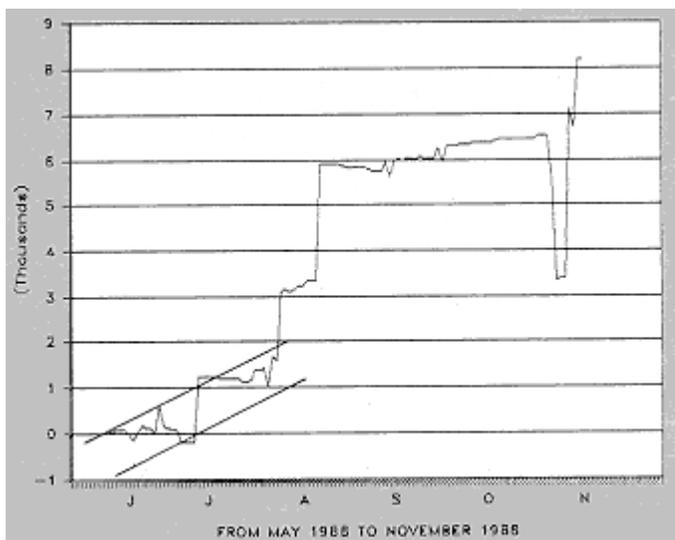
**FIGURE 2B: QUOTRON (QUOT) DCV**



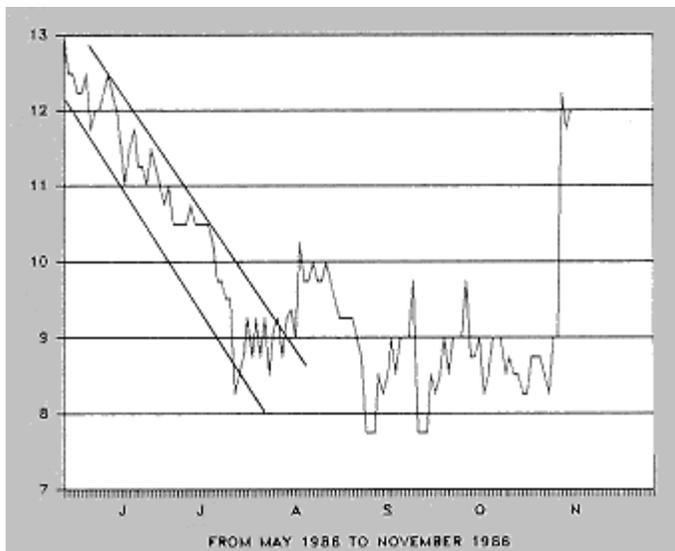
**FIGURE 3A: CELANESE CORP. (CZ) PRICE**



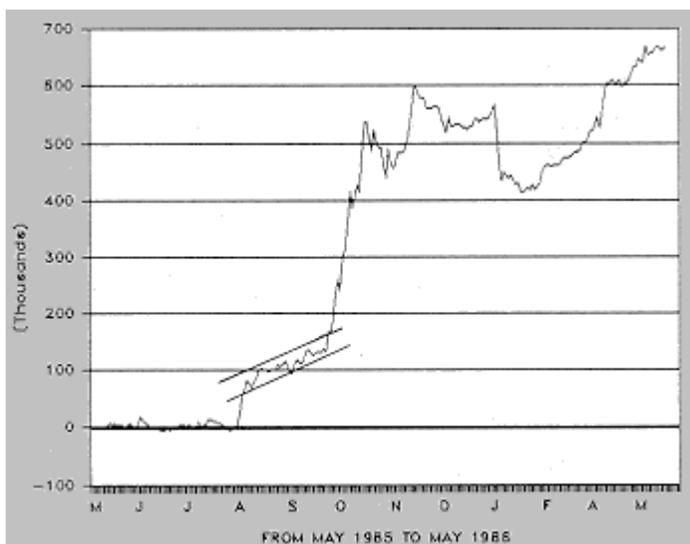
**FIGURE 3B: CELANESE CORP. (CZ) DCV**



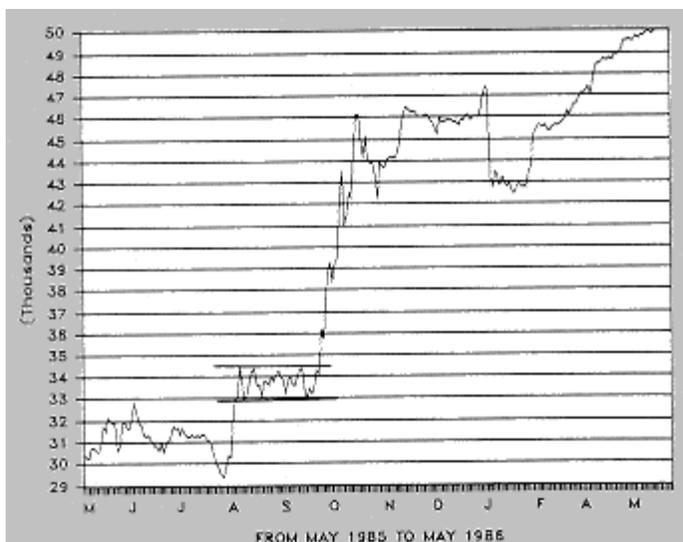
**FIGURE 4A: INTEGRATED SOFTWARE (ISCX) DCV**



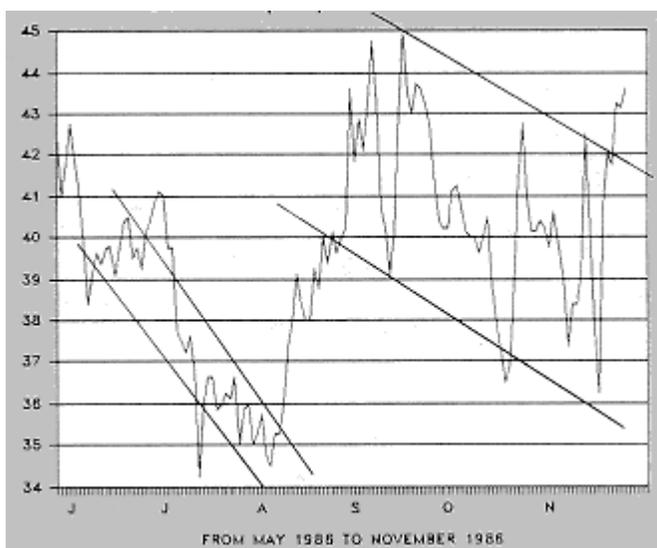
**FIGURE 4B: INTEGRATED SOFTWARE (ISCX) PRICE**



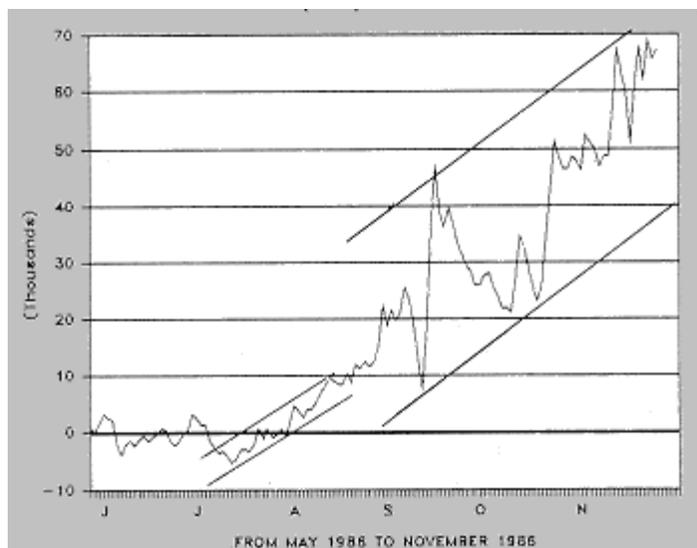
**FIGURE 5A: USG CORP. (USG) DCV**



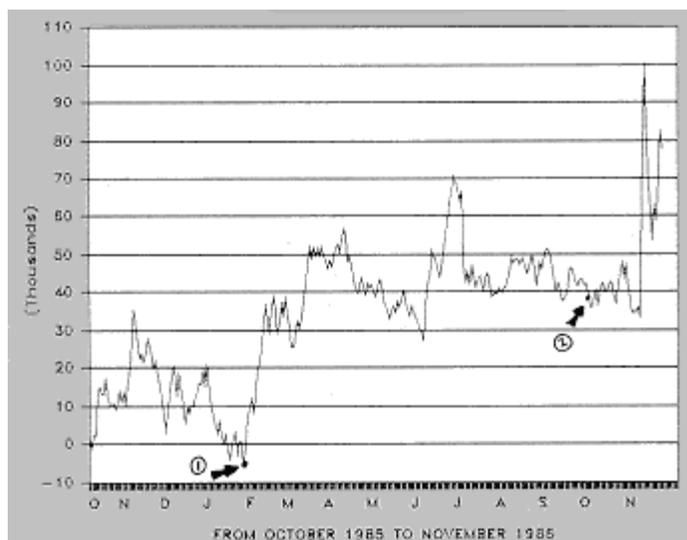
**FIGURE 5B: USG CORP. (USG) PRICE**



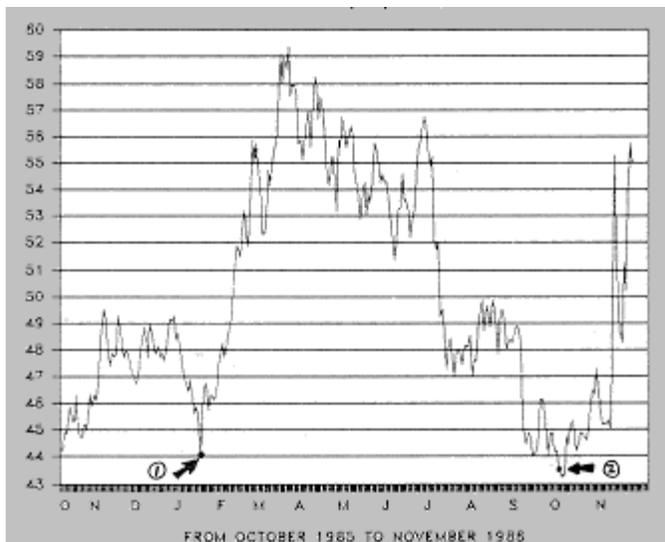
**FIGURE 6A: BEATRICE (BRY) PRICE**



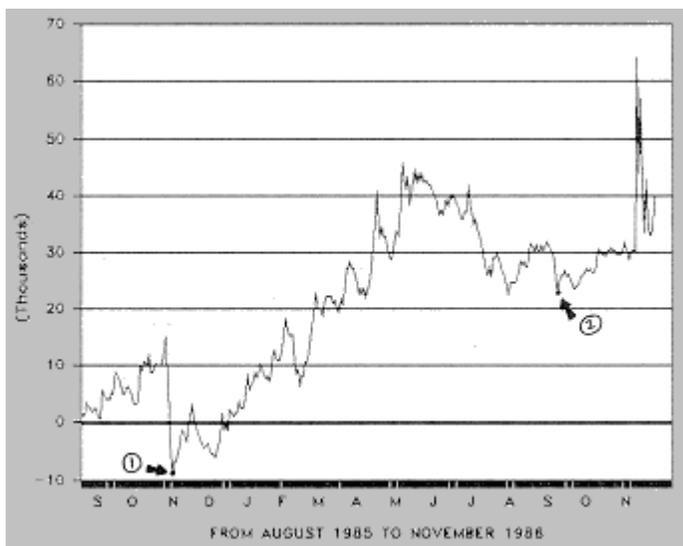
**FIGURE 6B: BEATRICE (BRY) DCV**



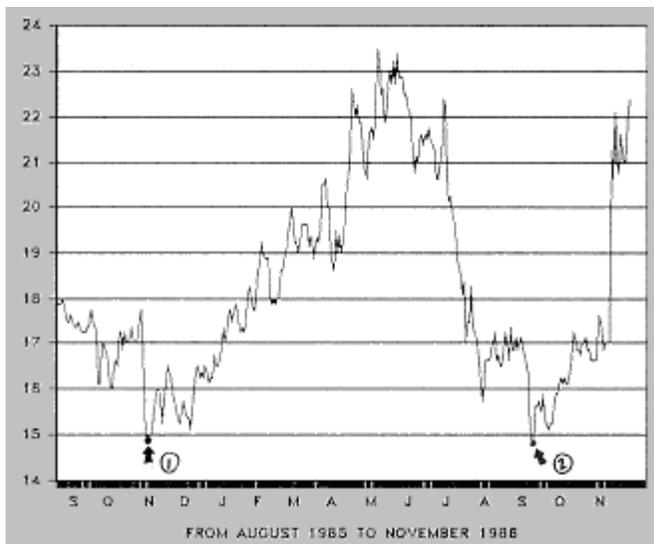
**FIGURE 7A: LOCKHEED CORP. (LK) DCV**



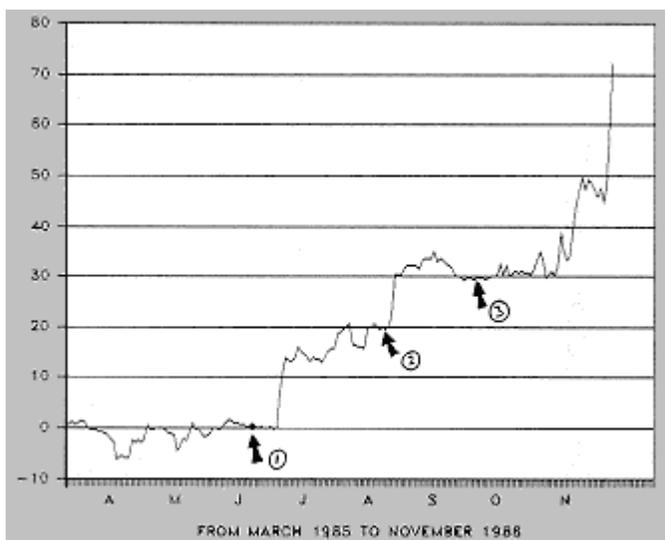
**FIGURE 7B: LOCKHEED CORP. (LK) PRICE**



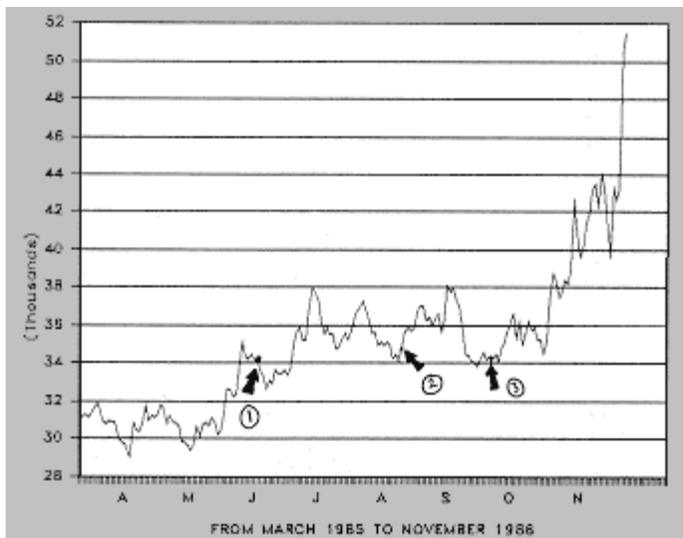
**FIGURE 8A: BALLY (BLY) DCV**



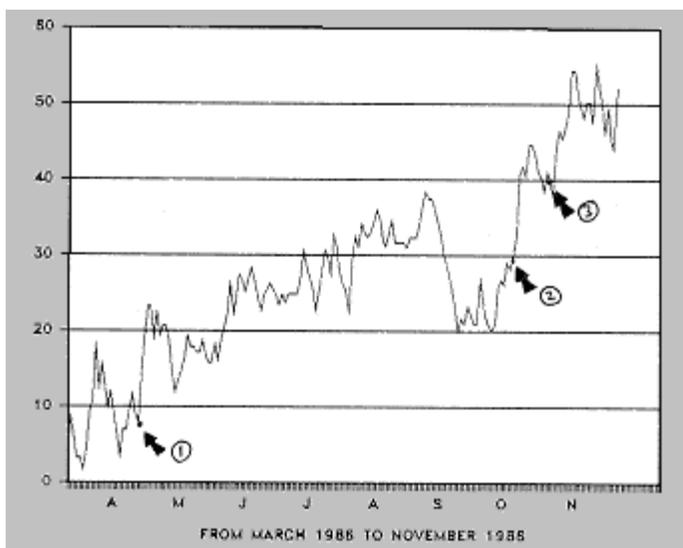
**FIGURE 8B: BALLY (BLY) PRICE**



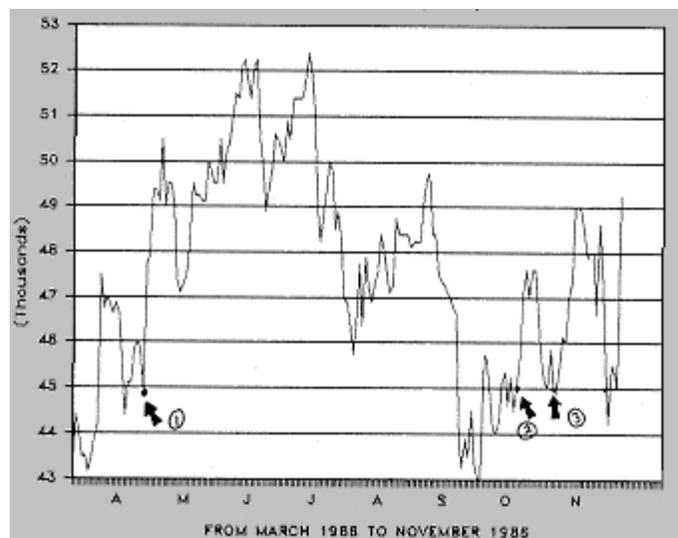
**FIGURE 9A: CARTER HAWLEY HALE (CHH) DCV**



**FIGURE 9B: CARTER HAWLEY HALE (CHH) PRICE**



**FIGURE 10A: CHESEBROUGH POND (CBM) DCV**



**FIGURE 10B: CHESEBROUGH POND (CBM) PRICE**

## IN THIS ISSUE

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*by John Sweeney, Associate Editor*

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I mentioned in an earlier issue that we were going to be doing more on the psychological aspect of trading. As technicians, we're not interested in introspective mumbo-jumbo on today's pop psychology. We are interested in workable day-to-day techniques and verifiable research.

To gather more information on the actual experiences of traders, I'd like to hear from both successful and unsuccessful traders at every capital level. Naturally, I don't ask you to do this for free. I'm offering a chance for a free profile with Van Tharp to encourage you.

Traders who agree to be interviewed about their experiences will be included in a pool from which three free profiles will be chosen randomly. I found the profile process to be helpful personally. I can't guarantee it would be productive for you, but I'm virtually certain it will do no harm!

Your experiences will help us focus future articles and contributors on subjects that traders need covered. All disclosures will be held in confidence by Dr. Tharp. If you're interested, drop a note to Van Tharp, Ph.D., 1410 East Glenoaks Boulevard, Glendale, CA 91206.

Thanks to the folks who've called to let me hear their interests and ideas. Your desires are showing up in this issue. For one thing, we're cleaning up our act in the Trading Liquidity presentation. Let us know what you think of the new format: it's supposed to tell you where the most tradeable action is for both stocks and futures. We think it should help keep you in the hot markets.

Finally, for those of you interested in systems, there may be a genuine good deal available. John R. Hill at Futures Truth Company (704/692-6971) has a report out on the success or failure of several widely distributed, retail-level systems. It identifies the systems that were successful amongst those they tested.

The short answer is that you want the "Dual Thrust" system developed by Mike Chalek or possibly Bob Dennis' RSI system. There are a number of other systems you definitely don't want. For details, scrape up \$10 plus a stamped, self-addressed envelope and call the number above. Alternatively, write to Futures Truth Company, 815 Hillside Road, Hendersonville, NC 28739.

By the way, Futures Truth itself is available for \$95 per year. A monthly, it's devoted to trading gossip and system testing. Profits generated from the newsletter are said to go to various charities. Mr. Hill is a genuine old hand, widely respected amongst traders.

*Good Fortune!*

# LETTERS TO S&C

## Comments

Editor,

In response to your editorial in the March issue of STOCKS & COMMODITIES, I would like to offer a few comments and suggestions.

I enjoy your magazine very much, but I think it could be improved. I would like to see more articles describing new or improved trading systems and indicators. The mathematics should be described in cook-book fashion and an example given. This way everyone would understand exactly how to calculate the indicator or system. A table should be included showing date and exact price when buy and sell signals were given. The reader can then judge how profitable the system or indicator has been. Arrows on a chart showing buy and sell signals can be deceiving. As a trader, I am interested in articles that will teach me something new that I can use in my trading next week and hopefully make money with.

I would like to see less in the way of articles under the heading "Using Statistics," especially articles by Frank Tarkany and Clifford Sherry. As a trader, these articles haven't helped me one bit. They are not written by traders.

I enjoy reading the letters from your readers. Interviews and new product reviews also interest me. I think the Liquidity Report on Stocks is a waste of space.

I hope you find these few comments and suggestions helpful and will use some of them in the future. Keep up the good work.

THEODORE HALATSIS

*Vancouver, Canada*

*Thanks for your comments. We would like to publish more systems but few authors are willing to publish new ones. Old ones may still have value and we are looking into our ability to publish them. We agree, too, on the method or format of presentation.*

*We know the statistics stuff is tough. I personally believe that the systems of the future will be a combination of logic and statistically defined experience. Large institutions are pursuing this aggressively and, they say, successfully. I will work to make it more immediately useful.*

## Cycle Correlations

Editor,

I recently subscribed to your magazine, ordered all the back issues and have really enjoyed the articles, particularly the ones relating to cycles. The interview with Peter Eliades, and the article in the March issue "In Search of the Cause of Cycles" by Hans Hannula were especially interesting.

Mr. Eliades describes a 60-year DJIA cycle. Since the Dow is slightly over 100 years old, is there

sufficient data to make this determination?

Dr. Hannula shows in Figure 1 a planetary cycle of 208 weeks as consistent with combinations of the positions of Mars, Venus, Earth and Jupiter. It also happens that 208.7 weeks is the length of the Election Cycle. I would like to see the correlation between the "Master Clock" cycle of 83.5 weeks and the 208 Planetary (or Election) cycle, and other known cycles such as the Kitchen (174 weeks) and Juglar (495 weeks).

LYLE S. RINKER

*Maitland, FL*

### **Lotus Capabilities**

Editor,

I am a subscriber to your excellent magazine and look forward to each issue. In response to your request, I have an area to be explored that would interest all of us who use spreadsheets for the freedom and research capability that they provide.

I am sure that many of these people have the same concerns that I have. Specifically, some of them are:

I am a user of Lotus 1-2-3 version 1A in investment work and it is an excellent package. I do need two Y scales so that I could compare the action of two indices of different values such as the Dow Jones about 2200 and the New York Stock Exchange Index at 160. If you try this with one Y scale you get two straight lines, one at the top and the other at the bottom, and an ocean of empty space in between. Lotus gives you only one Y scale.

I also need to plot open, high, low and close in the standard market format. I understand that more advanced versions of 1-2-3 can do that, but no moving averages or anything else can be entered on the same graph.

A semi-log scale would certainly be helpful. Using a log scale on the Y axis enables you to see easily which stock has the greater percent move.

I have also purchased Javelin which has two Y scales but persists in deleting the time scale along the X axis, giving only the starting and finishing dates and making the graph of limited use.

There must be a lot of us spreadsheet users out there who would appreciate direct help or a forum where we could get some guidance through the forest of programs that exist.

WILLIAM O'DONOHUE

*Shorewood, IL*

*We are forwarding a copy of this to Jennifer Strayton at Lotus Development Corp. We know of no way around this problem.*



# Market Analyzer PLUS

**Dow Jones & Company, Inc.,**

P.O. Box 300,

Princeton, NJ 08543-0300

**Phone:** Mark Fischer (609) 520-4641

Erin Rodgers (609) 520-4642

**Customer Service:** (800) 257-5114

**Price:** \$449

**Hardware:** IBM PC/XT/AT or AT&T PC 6300, Tandy 1000, 1200 or 3000, 2 DSDD floppies or better, 300-2400 baud Hayes or true Hayes compatible modem, monochrome or color monitor, CG or EGA card, Epson FX or MX compatible printer, DOS 2.0+ or MSDOS 2.11. This package will use about 640K of storage on a hard disk, plus space for data.

## **Ratings:**

Ease of Use: B

Documentation: A

Reliability: A

Error Handling: A

Vendor Support: A+

Analytical Level: Intermediate

What we have here, as I remarked in reviewing Market Manager PLUS, is a very solid, very thorough, well-debugged program. On its own, Market Analyzer PLUS ("MAP" for brevity's sake) will call up Dow Jones, download and store your data, run through all your own personal analyses, and then print out the charts and data for your review. Clearly, daily routine is well handled—it all works beautifully. Installation and setup is particularly well done—literally step by step.

MAP is a hybrid, being developed and sold by a data vendor for analytical purposes. Most of MAP's strengths and weaknesses stem from this situation: it provides a world of capabilities but lacks the individual strengths of packages dedicated to intense technical analysis.

Thus, to use this product comfortably, you probably want a convenient assemblage of four things: data, analysis, portfolio management and database access. You may use MAP on those stocks, bonds, options and mutual funds available from Dow Jones or use other vendors' ability to convert their data into the Dow Jones data format in order to analyze, say, futures. (Alternatively, many analytical packages read the Dow Jones data format.) You'll find that most of the analytical techniques herein are from the stock

world with its greater emphasis on volume.

Beyond that, the package includes a wealth of utilities and analytical options which, if not as rich as dedicated analytical packages, will certainly carry you a long way.

[Figure 1](#) is a screen dump of the options facing you on the main menu. Do you want to sort the stocks you follow by volatility? By percentage change in price?

Want a quick portfolio report ([Figure 2](#))? A summary of all your transactions? Your return on investment with the latest prices? It's all here.

How about dialing up Dow Jones News Retrieval for the latest on Teledyne or cholesterol lowering drugs? That's been thoughtfully provided.

Frankly, this is as convenient a package as I've seen for handling the nuts and bolts. I found its portfolio manager easier to use than Winning on Wall Street's. I'm almost at a loss as to why MAP was produced by the same company.

What about the technical side, though? It's solid. Its strengths are well-executed standards and two outstanding features: point-and-figure charts and a formula generator. I won't belabor my long crusade for point-and-figure charts here, but it's encouraging to see that Dow Jones, too, thinks they are an analytical essential. Here, they are fast, flexible and well-graphed ([Figure 5](#)).

Your basic bar chart will arrive on your screen with a minimum of fuss ([Figure 3](#)) and the semi-log scale option is a very nice extra not commonly available. From there, averages (simple, weighted, exponential), trendlines, trading bands, least squares regression lines, support/resistance lines and speed lines can all be tacked in and printed out. Up to four different charts can be displayed in the four quadrants or two halves of the screen. The feature is invaluable for on-screen comparisons of stocks within a trading group.

[Figure 4](#) is an example of this.

The only glitch in the basic analytics is that you must tell the program the price at which you want a horizontal line drawn—from a chart with very few scale markings on its side. In fact, picking off a price from the chart is impossible, although using the grid feature makes it slightly more tractable. If you ask for the data option, all you'll get will be closing price and you'll page through all the data to find it—assuming you can pick off the date of the price bar you want to inspect.

Charts which can be immediately added to the bar chart are a host of volume related indicators: negative volume, positive volume, cumulative (or On Balance) volume, price volume and the accumulation/distribution indicator.

Here we come to a very strong feature: the ability to create your own indicator using a formula generator. Now, this is not a full-featured time-series manipulator. Its mnemonics are much like the obscure ones used by TechniFilter. However, you can use all the price and volume information plus the canned volume indicators cited above, non-nested parentheses and your basic four mathematical functions to generate proprietary indicators. An example is in [Figure 6](#).

A lag function is also here, but no exponentiation. Also, you must be careful not to exceed the number size limitation of this BASIC: 32766. Limitations aside, generation of the formula is as easy as pressing "I", putting in the formula and hitting "Enter." If you don't like the result, it can be redone very quickly. This capability isn't as powerful, featurewise, as, say, N-Squared's, but it's a lot easier to use and, at this price, it clearly is ahead of other data vendors who don't provide this feature.

Technical indicators included in MAP are some from the world of futures: Welles Wilder's directional movement and relative strength indices. I take it these were added in the 1986 version of the package and are part of the growing intrusion of expertise from the futures world into the stock world. RSI can be seen graphically while directional movement and the so-called "action index" can only be had numerically from the Trend Report.

To summarize from a technical analysis viewpoint, we have a package from a solid vendor in which certain features stand out: the auto-run capability, the formula generator and the execution of what is included—even though it has less analysis capability than that of dedicated packages such as Back Trak and the Technician.

If you're approaching Dow Jones as a *stock or bond* data source, I'd rate this as better than CSI, which is a futures-oriented vendor which also supplies sophisticated analytical software. If you're from the world of futures, this isn't your package—go with CSI. If your data source is set, this package is on a par with MetaStock, our current favorite for this level of analysis. If you're looking for data *and* analysis *and* portfolio management *and* database access, MAP's an easy choice.

Once you've used up the power here—and you may retain it despite the limitations of its BASIC and its data format (limited maximum length of data files, no space for open interest) just because of its convenience—you could consider dedicated technical packages. But for a technical package tied to a stock/bond data source, especially with its seductive access to piles and piles of "databased" information, this is the one.

Dow Jones Market Analyzer PLUS		
PORTFOLIO MANAGER	CHARTING	UTILITIES
A- New Transaction	U- Bar Chart	J- Transfer Stocks
B- Close Transaction	V- Semilog Bar	K- Delete Stocks
C- Edit Information	W- Comparison	L- Edit Stock Data
	X- Relative Strength	H- Edit Stock Names
PORTFOLIO REPORTS	Y- Point & Figure	N- Edit Quote List
	Z- Learn Run	O- Spread Sheet Data
D- Profit & Loss	A- Auto Run	P- Adjust for Splits
E- Return on Investment		R- Edit Indicator
F- Status	DATA UPDATES	T- Close Tax Year
G- Cross Reference		U- Switch Data Disk
I- Performance	B- Quotes from DJN/R	
J- Commission	C- Multiple Days from DJN/R	EZ TERMINAL
K- Transaction Details	D- New History from DJN/R	
L- Tax	E-Quotes from Keyboard	V- Access DJN/R
	F- From Quote List	W- View Text
DAILY REPORTS	G- Restart DJN/R Retrieval	X- Print Text
	I- New History from Keyboard	Y- Delete Text
M- View Quotes		
N- Print Quotes		S- SETUP
O- View Summary		H- HELP
P- View Trend		Q- QUIT
AUTOMATED RUN		
R- Start Run		
T- View Log		

**FIGURE 1:**

**FIGURE 2**

Return on Investment			PORTFOLIOS: MARYSIRA		
Symbol	Cost	Price Gain	%ROI	Ann. ROI	Current Yield
TXN	18,400.00	187.50	1.02	123.98	0.00
TDY	100,200.00	225.00	0.22	27.32	0.00
IBM	22,650.00	356.25	1.57	191.36	2.48
CYR	49,200.00	550.00	1.12	136.01	0.00
BA	10,600.00	125.00	1.18	143.47	0.00
Total ROI:			1,443.75		
Total %ROI:			0.72		
Annualized %ROI:			87.37		
Average Yield:			0.28		

date: 03-27-1987	1 day change		12 day average		14 day volatility			
stock	close	change	% ch	c/adc	v/adv	vlty	posn	rstr
BA	53.00	0.12	0.2	1.01	1.13	1.92	61	55
IND	2372.60	9.10	0.4	1.03	0.93	0.18	85	77
CYR	123.00	-3.00	-2.4	0.98	0.80	3.13	22	53
TXN	181.75	-6.00	-3.2	1.05	1.52	2.25	75	68
TDY	329.00	-5.50	-1.6	0.98	0.93	0.17	2	45
BNI	69.50	0.50	0.7	1.02	0.88	1.80	81	65
ML	50.75	-0.50	-1.0	1.03	1.01	2.38	80	67
TAN	48.75	-1.75	-3.5	0.96	1.49	2.89	17	40
DD	117.88	0.63	0.5	1.04	0.72	2.01	93	76

FIGURE 2:

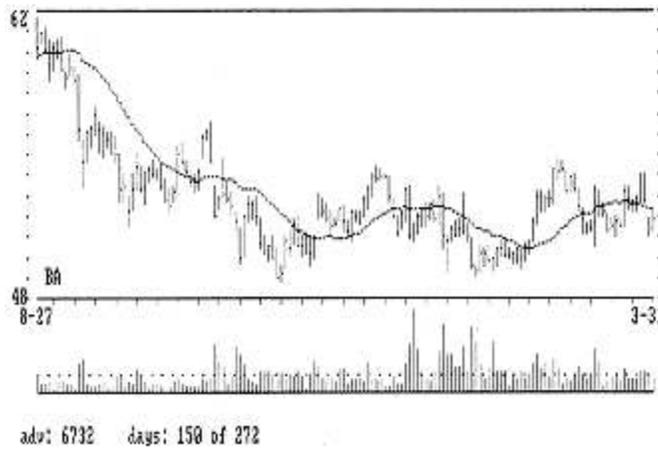
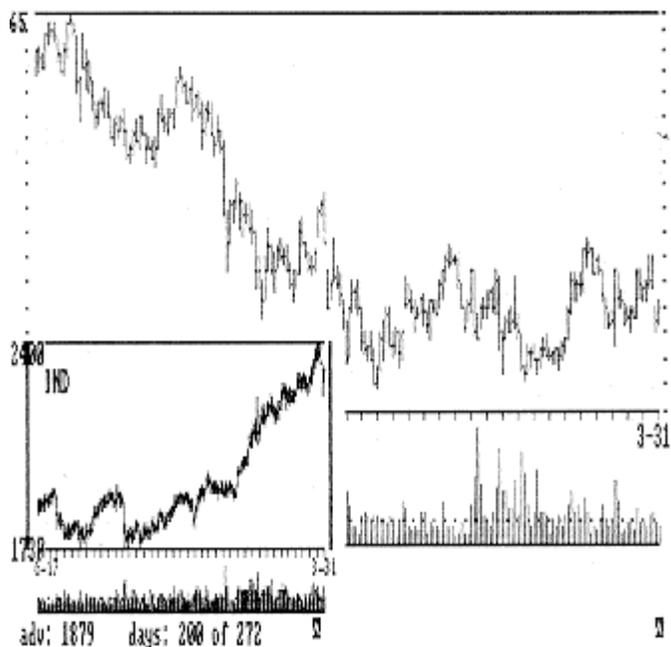
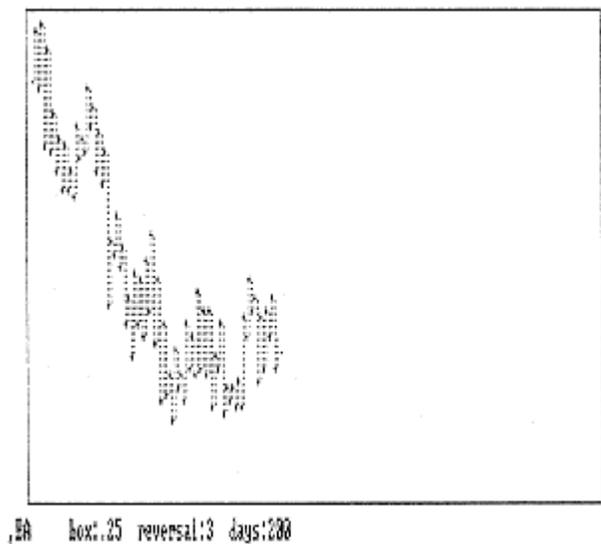


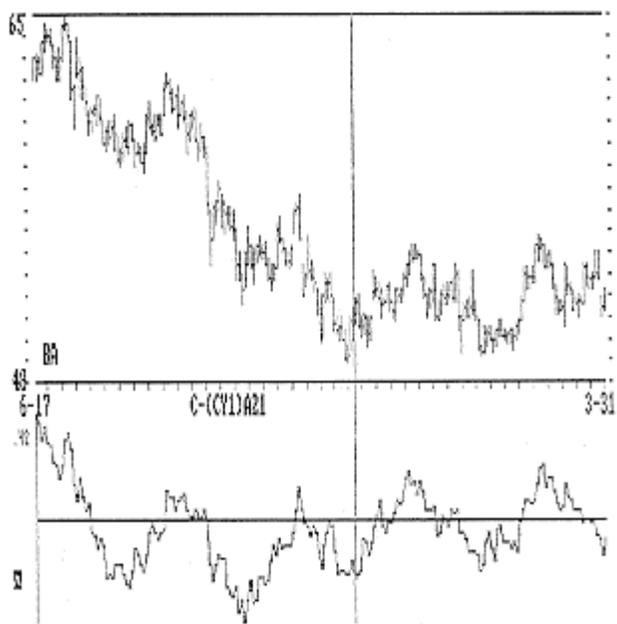
FIGURE 3: Basic bar charts are available in full page or reduced sizes



**FIGURE 4:** Up to four charts can be displayed on the screen at one time.



**FIGURE 5:** A fast, flexible point-and-figure charting routine is included



**FIGURE 6:** *The formula generator allows you to define your own indicator. Here, the 21-day average of the one-day lagged close is subtracted from today's close.*

## Refining chart analysis

### *Wyckoff method of trading stocks part 10*

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*by Jack K. Hutson*

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**A**t this point in our examination of Richard D. Wyckoff's methodology for stock market analysis, we have explored all of the major tenets of this classic technique—from basic charting to the more esoteric consideration of trendlines, position sheets and chart interaction.

Now, we are ready to pursue the technical refinements which distinguish slapdash amateurs from proficient and effective traders and investors. If this is your beginning foray into technical analysis, you may be feeling a bit overwhelmed by all that we've introduced about the Wyckoff Method. At this point, too, experienced technical traders may have the natural reaction to pick and choose pieces of Wyckoff's design and try to meld them with other, more familiar systems.

**To both the new student and the proficient analyst I would caution against "any inclination to grow faint-hearted," as Wyckoff would put it, and to take shortcuts with his method.**

To both the new student and the proficient analyst I would caution against "any inclination to grow fainthearted," as Wyckoff would have put it, and to take shortcuts with his method. This is a complete system combining mental attitude with interconnected technical details. Separating facets of this method from the rest is like drawing random pieces from a puzzle box—you've got the parts, but no picture.

If the Wyckoff Method at this point in your study seems unduly complex, rest assured that with practice it will all boil down to a matter of routine reasoning. Steps that may seem detailed at first become second nature. Principles that appear numerous and confounding soon become instinct.

I have summarized Wyckoff's most important tests for buying and selling in [Figure 1](#). The indications are applicable to market and group averages, as well as individual stocks. Notice, too, that these telltale tests rely on both Figure and Vertical charts, the two charts from which all refinements are created and the two charts that are always used in conjunction with one another to portray the most accurate picture of market activity.

Before we look for these indications on sample Figure and Vertical charts, the Wyckoff student should incorporate a few more market phenomena into his or her body of knowledge. These can occur at various times and, unless understood, can lead to erroneous conclusions from the Vertical and Figure charts.

The first of these phenomena is the shakeout—either ordinary or terminal. An ordinary shakeout is a sharp downward movement such as an exaggerated selling climax. A terminal shakeout is even more pronounced. It is a rapid downward movement occurring at or near the end of extensive preparation for an advance.

Viewing it through the eyes of a market "manipulator," the plunge of a terminal shakeout is intended to scare a stock's persistent hangers-on into selling out, to catch stop orders placed below earlier support prices, or even induce the unwary public into short selling. The manipulator buys

up the stock offered by sellers frightened or caught by the terminal shakeout, and the ensuing scarcity of the stock on the market sends the price rapidly or gradually higher.

A thrust is the reverse of a shakeout. It may also be known as an upthrust or a terminal markup. Whatever the name, it is a sharp run up and out of an area of distribution, or a temporary bulge through the top of a trading range. The inability to hold these thrusts or quick bulges indicates weakness.

At times, the trader may also be caught unawares by another phenomenon—a sharp rally out of a plunging oversold condition that is not heralded by the customary evidence of accumulation. In such a case, a declining stock's Figure Chart may not show the usual long, compact horizontal trading range that forecasts a major recovery. Instead, the horizontal trading range indicates a small upward movement. The attuned Wyckoff analyst, however, notices that this small upward movement would break the diagonal trendline formed by the previous decline. With such a possibility, the entire downward movement could be re-evaluated as a probable zone of support and previous horizontal formations reviewed for the potential price objective of a major upswing.

Of course, a Figure Chart's horizontal formations alone cannot be taken as evidence of an impending rally. A "chart fiend," as Wyckoff calls them, might easily mistake a Figure Chart's long horizontal formation as the basis for a tremendous rise when, in fact, the Vertical Chart would plainly show it to be an extended trading range where small changes in supply and demand neutralized each other for a considerable time.

As a quick review, we'll examine the Vertical and Figure Charts of a hypothetical stock ( [Figure 2](#)) for buying tests and other phenomena. The following numbered comments correspond to the charts which depict the stock of Hypothetical, Inc. recovering from an oversold position.

- 1)**The speed and severity of the decline from 31-1/2 to 17-7/8 occurs without corrective rallies and creates an oversold condition.
  - 2)**During the decline, the sudden breaking of previous supports around 24-25 appears to be a shakeout and is confirmed with the rapid recovery revealed by the 3-point Figure Chart .
  - 3)**An abnormal volume expansion indicates the movement's climax and the development of preliminary support (Buying Test No. 3).
  - 4)**The line of 29s in the 1-point Figure Chart indicates a downside objective, which is accomplished when the stock reaches 18(Buying Test No. 1).
- Steps 1 through 4 are the preliminary symptoms of a turning point. Here, the stock would be placed tentatively on the Position Sheet in Position 1 and a purchase somewhere around the low point, say 19 with a stop at 16 5/8, could be ventured.
- 5)**A quick rally to 20-3/8 with light volume indicates a scarcity of offerings, and breaking the supply line B-C confirms the change from weakness to strength (Buying Test No. 5).

Also, the stock should rally easily compared to the general market (not shown). Its low points lift while the average responds sluggishly (Buying Test No. 4).

6) The 1-point Figure Chart more clearly defines the preliminary support. When the price reacts from 20-3/8 to 18-5/8 on light volume it is definitely in Position 1 on the Position Sheet and it is time to buy another lot or make the first purchase if the earlier opportunity was missed.

7) A fast rally on increasing, but still light, volume adds to the accumulating evidence of strength (Buying Test No. 2), and the stock is clearly stronger than the market that is hitting new lows.

8) The rally is checked by general market weakness and the supply line A-B. Cancel Position 1 in anticipation of a setback and wait for another buying opportunity if it reacts towards the 18 supports on diminishing volume.

When the stock reacts, volume tapers off, and the price holds at higher supports, it is back in Position 1. On the Figure Chart, support at 19 has stretched to a count of five and the line of 20s is at six.

9) Price and volume have narrowed to an extreme, developing a perfect apex or hinge. A rally now would easily penetrate the supply line A-B and put the stock on the springboard at 21—another buying opportunity.

10) Price penetrates the supply line A-B on light volume (a bullish sign) and responds to an upturn in the general market. With higher supports and higher tops, it fulfills Buying Tests No. 6 and 7. The stock is now in Position 2 and the Figure Chart adds one more point to the objective, fulfilling Buying Tests No. 8 and 9.

With this example and the consolidated lists of Buying and Selling Tests, take the time to review past chart illustrations in this series and other historical charts. When you can recognize Buying and Selling Tests with an entire chart in front of you, test yourself by covering the righthand of an unfamiliar chart and revealing the action day by day as if you were watching it unfold in real time. With practice, the principles of Wyckoff analysis will become second nature.

### **Glossary:**

*Terminal shakeout*—a rapid downward price movement occurring at or near the end of extensive preparation for an advance.

*Thrust*—a sharp price run up and out of an area of distribution, or a temporary bulge through the top of a trading range that does not hold and indicates weakness.

<b>Buying and Selling Tests</b>	
<b>Buying Tests</b>	
(Applied to an average or a stock after a decline)	
<b>Indication:</b>	<b>Determined From:</b>
1) Downside objective accomplished	Figure Chart
2) Activity bullish (volume increases on rallies and decreases on reactions)	Vertical Chart
3) Preliminary support	Vertical and Figure
4) Average or stock stronger than market (i.e., more responsive on rallies and more resistant to reactions)	Vertical Chart
5) Downward stride broken (i.e., supply line penetrated)	Vertical or Figure
6) Higher supports (daily low prices rising)	Vertical or Figure
7) Higher tops (daily high prices rising)	Vertical or Figure
8) Base forming (horizontal price line)	Figure Chart
9) Estimated profit is at least three times the indicated risk	Figure Chart for profit objective; Vertical Chart for stop order placement
<hr/>	
<b>SELLING TESTS</b>	
(Applied to an average or a stock after an advance)	
<b>Indication:</b>	<b>Determined From:</b>
1) Upside objective accomplished	Figure Chart
2) Activity bearish (volume decreases on rallies and increases on reactions)	Vertical Chart
3) Preliminary support	Vertical and Figure
4) Average or stock weaker than market (i.e.: more responsive on reactions and sluggish on rallies)	Vertical Chart
5) Upward stride broken (i.e.: support line penetrated)	Vertical or Figure
6) Lower tops (daily high prices falling)	Vertical or Figure
7) Lower supports (daily low prices falling)	Vertical or Figure
8) Crown forming (lateral movement)	Figure Chart
9) Estimated profit is at least three times the indicated risk	Figure Chart for profit objective; Vertical Chart for stop order placement

**FIGURE 1**

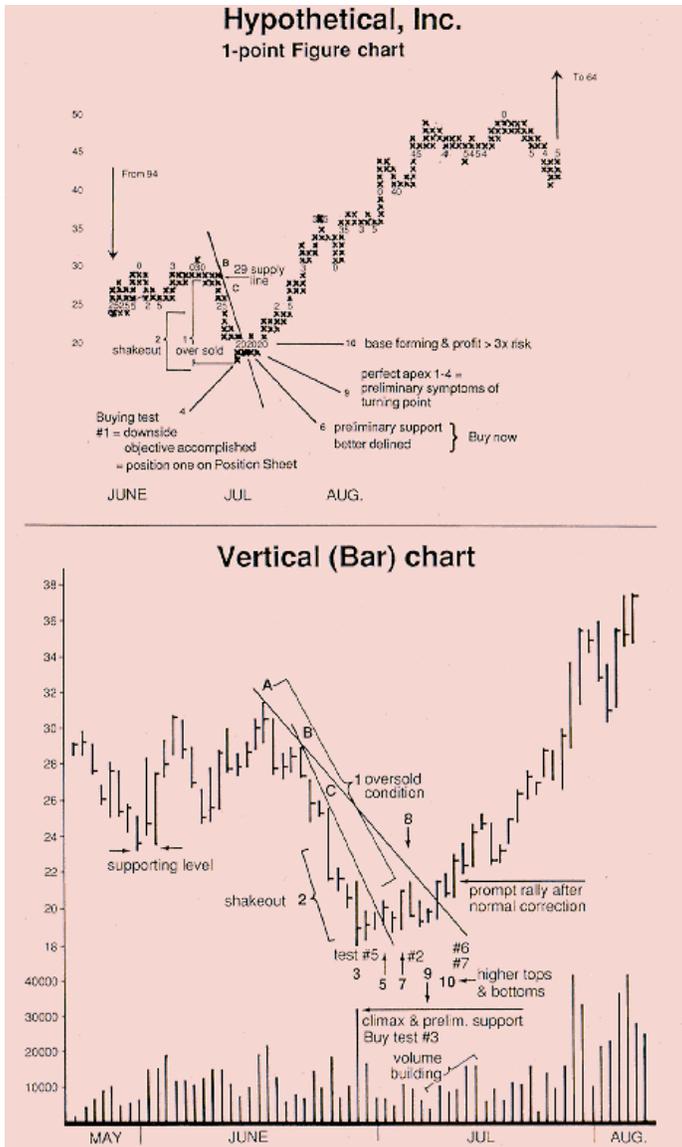


FIGURE 2

# Relative Strength Index profitability with money management: Eurodollar futures

## Part 2

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*by Thomas P. Drinka and Steven L. Kille*

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In the April 1987 issue of this magazine, we reported the results of applying moving averages, momentum, Williams' %R, Wilder's Relative Strength Index, and Wilder's Directional Movement Index to Eurodollar futures traded at the International Monetary Market of the Chicago Mercantile Exchange. In the April article and this one, we report simulated trading of the 1983-1985 March, June, September and December contracts for the period of Dec. 2, 1982, through Dec. 1, 1985. Simulations were conducted on the nearby contract only, with roll-over occurring on the first trading day of the expiration month. Trades were made at the open, and a \$100 commission was charged per turn.

**In this issue we explore the impact of money management on total net profit from simulated trading of Eurodollar futures RSI.**

As reported in the April issue, optimization revealed that Wilder's RSI was the most profitable of the seven selected technical indicators analyzed in the three-year study period. We had run 8,064 combinations of RSI parameters and the greatest profit (a total of \$22,825) was generated by a 16-day RSI with short parameter at 86 and long parameter at 44.

In this issue, we explore the impact of money management on total net profit from simulated trading of Eurodollar futures with RSI. We ran 1,089 RSI parameter combinations: RSI length was incremented from four days to 20 days by 2-day steps, the short parameter was decremented from 90 to 60 by 3-point steps, and the long parameter was incremented from 10 to 40 by 3-point steps. These parameter combinations are fewer, relative to those reported in our April article, since the purpose of this article is not to optimize but, rather, to explore the use of money management to enhance total profit.

### Basic optimization

We began the analysis by optimizing with respect to total profit over the 1,089 RSI parameter combinations. Within this constrained set of parameter combinations, the most profitable RSI was found to be a 14-day, with short parameter at 87 and long parameter at 40. This trading technique resulted in a total net profit of \$20,725 (see [Figure 1](#)).

To explore the stability of this parameter set, we reoptimized with a filter which identified all parameter combinations resulting in total profit of at least \$15,725: that is, total profit within a range of \$5,000 from the highest total profit. Seventeen such RSI parameter sets existed (see [Figure 2](#)).

Among these 17 sets shown in [Figure 2](#), the days parameter ranged from 10 to 16, the short parameter

ranged from 84 to 90, and the long parameter ranged from 34 to 40. At most, there were 16 trades during the three-year study period and the largest drawdown was found to be \$6,000.

While these results suggest that the optimal parameter combination could be used with some confidence, they also suggest that a trader would consider re-optimization with the short and long parameters incremented beyond 90 points and 40 points, respectively.

### **Stop strategies**

Four popular stop strategies were imposed on the basic RSI optimization: 1) from-entry stop, 2) trailing stop from close, 3) take-profit stop, and 4) from-entry stop combined with take-profit stop. Following the activation of a stop, reentry to the market required a signal reversing the original position.

#### **From-entry stop**

A from-entry stop is utilized to minimize loss. Upon assuming a market position, the maximum loss—say,  $x$  points—that will be risked on the trade is determined. If the market moves against the position by  $x$  points from the entry price, the stop is activated and the position is offset.

To investigate the usefulness of such a strategy, we reoptimized over the 1,089 basic day/short/long parameter combinations by introducing the stop incremented by 5-point steps from 5 to 50 (in dollar terms, the stop was incremented by \$125 steps from \$125 to \$1,250). Thus, we re-optimized over 10,890 parameter combinations relative to total profit.

The most profitable parameter combination ([Figure 1](#)) was found to be a 14-day RSI with sell parameter at 87, buy parameter at 40, and from-entry stop at 40 points. There were 13 trades, the stop was activated three times, the largest drawdown was \$3,225 and total profit was \$20,900.

To test the stability of this parameter set, we reoptimized with a filter which identified all parameter combinations resulting in total profit of at least \$15,900. There existed 45 such combinations: the day parameter ranged from 10 to 16, the short parameter ranged from 84 to 90, the long parameter ranged from 34 to 40, the stop ranged from 40 points to 50, the number of trades ranged from nine to 16, the stop was activated two to six times, and the largest drawdown ranged from \$2,050 to \$4,100.

Thus, the use of the from-entry stop as a money management technique improved the trading performance of RSI. There were 45 parameter sets (compared to 17 without the stop) which resulted in total profit within \$5,000 of the most profitable set that did not utilize the stop and one of them improved total profit slightly. Additionally, the parameters within this group of 45 sets had fairly narrow ranges and drawdown was improved significantly.

#### **Trailing stop from close**

A trailing stop is designed to both limit loss and protect profit. If, on the one hand, the market initially moves against the trader's position by  $x$  points from the entry price, the stop is activated and the position is offset. In this case, a trailing stop is identical to a from-entry stop.

If, on the other hand, the market initially moves in favor of the position, the stop is re-positioned  $x$  points from the settlement price. If the settlement price continues to move in favor of the trader's position, the stop is repositioned each day  $x$  points from the most favorable settlement price and, at some point, could be positioned at a price that will guarantee a profit.

If, now, the market turns against the position, the stop remains positioned  $x$  points from the most favorable settlement price, and is activated when the market moves  $x$  points from the most favorable settlement price.

We re-optimized over the 1,089 RSI parameter combinations by introducing the stop by 5-point increments from 5 to 50. The most profitable parameter combination (Figure 1) was a 12-day RSI with short parameter at 87, long parameter at 37, and trailing stop at 45 points. There were 12 trades, the stop was activated five times, the largest drawdown was \$2,525 and total profit was \$19,775.

To test the stability of this parameter set, we reoptimized with a filter which identified all parameter sets resulting in profit of at least \$14,775. There were found to be 46 such sets: the day parameter generally ranged from 10 to 14 (two were 16-day), the short parameter ranged from 84 to 90 points (there was one 78-point), the long parameter ranged from 31 to 40, the stop ranged from 45 points to 50, the number of trades generally ranged from nine to 15 (although one parameter set resulted in 16 trades, and one resulted in 22 trades), the stop was activated three to eight times, and the largest drawdown ranged from \$2,050 to \$4,025.

### **Take-profit stop**

A take-profit stop is utilized to protect profit. This stop is activated when the market moves in favor of the position by  $x$  points from the entry price. We re-optimized over the basic 1,089 RSI parameter combinations by introducing the stop by 5-point increments from 5 to 150. The most profitable parameter combination (Figure 1) was a 14-day RSI with sell parameter at 87, buy parameter at 40, and take-profit stop at 130 points. There were 13 trades, the stop was activated four times, the largest drawdown was \$4,725 and total profit was \$14,450.

We re-optimized with a filter which identified all parameter combinations resulting in total profit of at least \$9,450. There were 151 such parameter sets. Nineteen of these sets involved a 4-day RSI, five involved a 16-day, while the day parameter ranged from 10 to 14 among the other 127 sets. Thirteen of the 151 parameter sets involved a short parameter of 84 points, while the short parameter of the remaining 138 ranged from 87 to 90. The long parameter ranged from 34 to 40 points. For 132 of the parameter sets, the number of trades ranged from nine to 16, while 19 sets (namely, those involving a 4-day RSI) resulted in 34 trades. The stop ranged from 75 points to 150 and the stop was activated two to seven times (under four parameter sets, the stop was not activated). The largest drawdown ranged from \$3,900 to \$6,000.

### **From-entry and take-profit stops**

While the purpose of a from-entry stop is to minimize loss, the purpose of a take-profit stop is to protect profit. The most profitable from-entry stop was found to be a 40-point stop, while the most profitable take-profit stop was found to be a 130-point stop. We combined these two techniques by re-optimizing the basic 1,089 RSI parameter combinations by simultaneously incrementing the form-entry stop by 5-point steps from 30 to 50, and the take-profit stop by 5-point steps from 120 to 140. The activation of either stop was sufficient to offset a position.

The most profitable parameter combination (Figure 1) was a 14-day RSI with short parameter at 87, long parameter at 40, from-entry stop at 40 points and take-profit stop at 130 points.

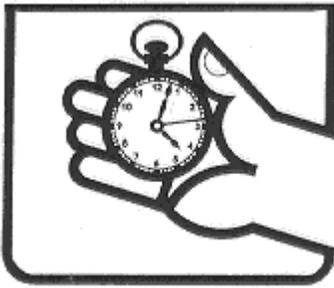
There were 13 trades, the stops were activated seven times, the largest drawdown was \$2,050 and total

profit was \$14,625.

To test the stability of this parameter set, we re-optimized with a filter which identified all parameter combinations resulting in a total profit of at least \$9,625. There were found to be 501 such parameter sets. Of these sets, 67 resulted in profit of at least \$12,625, and 13 resulted in profit of at least \$13,625. Of these 13 most profitable sets, the day parameter ranged from 10 to 14, the short parameter ranged from 78 to 90, the long parameter ranged from 34 to 40, the from-entry stop ranged from 40 points to 50, the take-profit stop ranged from 120 points to 130, the number of trades ranged from 12 to 22, the stops were activated six to seven times and the largest drawdown ranged from \$2,050 to \$2,775.

As seen in [Figure 1](#), the use of stops as a money-management strategy can have a significant impact on trading profitability. While three of the four selected stop strategies reduced total profit, one of them increased it slightly. Additionally, the frequency of trades was not increased, while the largest drawdown was reduced significantly. The filter tests also suggest that the optimal parameter sets are fairly reliable.

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## Largest Profits Using RSI With Stops

	Stop Strategy				
	No Stop	From-entry	Trailing Close	From entry with Take-profit	Take-profit
Parameter Set	14, 87, 40	14, 87, 40	12, 87, 37	14, 87, 40	14, 87, 40
Stop	---	40	45	130	40, 130
Number of Trades	13	13	12	13	13
Days in Market (out of 758 tradable days)	581	431	374	462	311
Number of Stops Activated	---	3	5	4	7
Total Profit	\$ 20,725	20,900	19,775	14,450	14,625
Long Profit	\$ 18,100	19,675	18,625	11,825	13,400
Short Profit	\$ 2,625	1,225	1,150	2,625	1,225
Number of Winning Trades	10	9	8	10	9
Total of Winning Trades	\$ 25,525	25,225	23,925	19,250	18,950
Largest Winning Trade	\$ 7,725	7,725	7,725	3,250	3,250
Largest Obtained Equity	\$ 21,250	21,425	20,300	14,975	15,150
Number of Losing Trades	3	4	4	3	4
Total of Losing Trades	\$ 4,800	4,325	4,150	4,800	4,325
Largest Losing Trade	\$ 2,475	1,100	1,300	2,475	1,100
Largest Unrealized Loss	\$ 3,775	925	1,100	3,775	925
Largest Drawdown	\$ 5,550	3,225	2,525	4,725	2,050

FIGURE 1

<b>Filtered RSI</b>					
<b>Total Profit</b>	<b>Parameter Set</b>			<b>Number of Largest</b>	
	<b>Days</b>	<b>Short</b>	<b>Long</b>	<b>Trades</b>	<b>Drawdown</b>
\$20,725	14	87	40	13	\$5,550
20,200	10	90	40	13	4,725
19,250	14	90	40	12	5,550
18,200	10	90	37	12	4,725
18,025	10	90	34	12	4,725
18,025	12	87	40	13	5,750
17,900	12	87	37	12	5,450
17,775	14	87	34	10	4,725
17,525	16	87	37	10	6,000
17,450	16	84	37	10	6,000
17,100	14	90	34	9	4,725
16,700	16	90	37	9	5,250
16,275	14	84	40	14	5,550
16,175	12	90	40	12	5,750
16,050	10	87	40	16	5,400
15,825	16	87	40	11	5,700
15,750	16	84	40	11	5,700

FIGURE 2

# Technical Analysis of the Futures Markets

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by John Sweeney

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**Author:** John J. Murphy

**Publisher:** New York Institute of Finance

70 Pine Street

New York, NY 10270

(212) 344-2900

**Price:** \$45 plus \$2 shipping

(U.S. only)

Mr. Technician, John Murphy, has written a book to meet the need for a "good solid text that [begins] at the beginning and [takes] the reader through most of the important areas of technical analysis as they [apply] to the futures markets in a logical, step-by-step fashion...." This is a tall order, given the disparities in the many approaches taken to technical analysis.

Still, there's no doubt he's succeeded. This is definitely in the textbook style with all the pluses and minuses of that *genera*. It's thorough, educational, filled with **lots** of illustrations, exhaustively referenced—and somehow unexciting. I'm reminded of my ancient algebra book which I periodically haul out to recall forgotten techniques. It's there. It's useful. I just can't get worked up over it.

Throughout the book everything from the random walk theory to the "fan principle" in charting get a straightforward treatment with little or no exotic math. This makes the book good for the novice who needs a thorough survey. That's why the book was created, and it fills a vital niche.

Included is one of the most extensive discussions of chart formations and their associated market conditions that I've run across. Just about every buzzword you've ever heard is explained here, along with when you can expect to see it in the market and what it might mean. All of this is done with both idealized and actual examples. This is not to say that it makes chart reading precise—nearly every explanation is necessarily couched in "you can expect," "most often," "usually" and other qualifiers. No one could make this art precise!

The book is especially valuable because it exploits John's long history in the market. Who else remembers that Robert Joel Taylor developed a Technical Reliability Index in August 1972 that classifies the percentage of times that a given chart pattern actually does what it is supposed to do. Intriguing ideas like this are found throughout the book—with references included so you can do further research.

Only a seasoned soul like John can take you through the intra-day origins of point-and-figure charts and their evolution into an excellent inter-day technique, thence into the optimal combination of box size and reversal criterion. He even shoots through the price targeting technique with many examples. In a way, this is a depressing book—it reminded me that there exist so many techniques and not enough time to explore them all, let alone integrate them into daily trading.

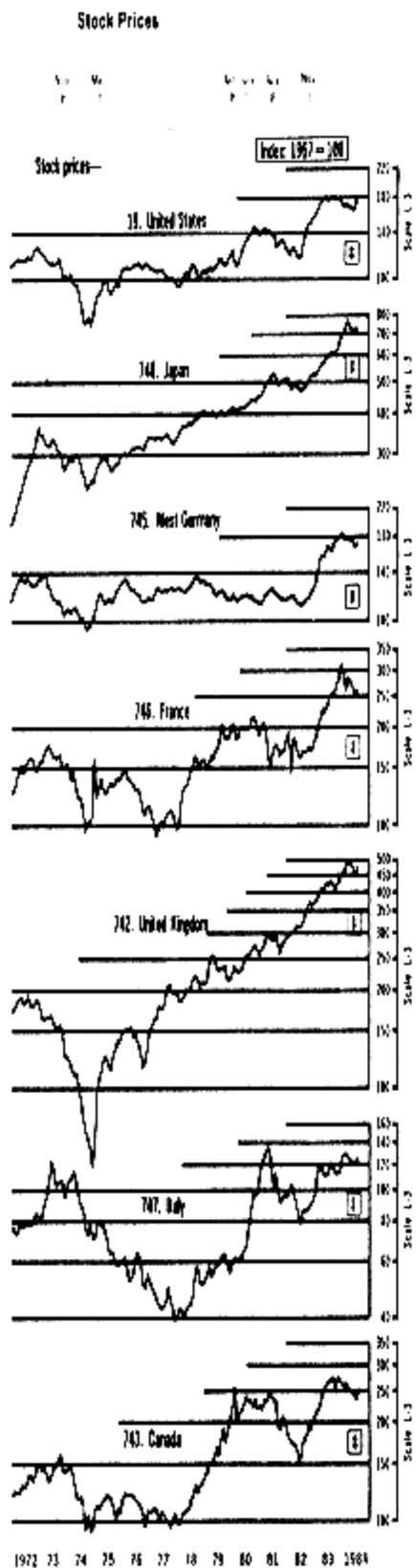
Murphy rarely goes afoul. At one point, he discusses exponentially smoothed averages without giving the formula to create them. He also starts an excellent discussion of the calculations to determine the size of your trading position but then drops it abruptly. Had he proceeded, he'd have followed his rule 3 (and the most important of all) to determine whether the expected loss is bearable in proportion to trading capital.

He discusses objectives in reward-to-risk calculations without making any dent in the problem of predicting the reward in a trade. If we knew the reward, there'd be no risk in trading. All we can control is the loss, and it's best to minimize that.

Valuable tidbits: results from the Merrill Lynch 1978-82 moving average studies, best values for many different trading indicators, tidbits from his experience writing the technical notes for Commodity Research Bureau. A tremendous variety of information has been compiled here.

We undervalue simplicity in the high-tech era, but this book plumps for it straightforwardly. It's an approach I support, and it finds good expression here. The senior traders I know have gone beyond intricately complicated trading schemes and reverted to the means found here. Moreover, anyone will be able to understand these discussions, and the information is absolutely fundamental in trading. It even has a decent indexÑ a rare find these days.

Of the traders I know, it's the senior traders and novices who'd like this book the most. If you're starting up and you're not quantitatively oriented, get it. Someone from the high-tech age might be more comfortable with Schwager's *A Complete Guide to the Futures Markets* with its much more detailed and quantitative approach. My guess is that Murphy's book will be "the first" for many traders and then find an honorable place on the shelf next to many an algebra book.



# The Big Hitters

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by Dr. Alexander Elder

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**Author:** Kevin Koy

**Publisher:** Intermarket Publishing

401 S. La Salle

Chicago, IL 60605

**Price:** \$26.95

"The rich are different from you and me," wrote F. Scott Fitzgerald during the Roaring Twenties. At that time, Bernard Baruch was swinging deals on the New York exchange, R.N. Elliott was still keeping railroad accounts in Chile and most of today's big traders had not yet been born. The Great Gatsby's author shared in the common misconception that the rich are a breed apart and have a secret trick for making money.

Kevin Koy, the editor of *Intermarket Magazine*, has interviewed 11 prominent traders and asked them canny questions about how they acquired their market riches.

These interviews offer a fascinating glimpse into the thinking and operating modes of some very successful men. They offer no get-rich-quick secrets, but a treasure trove of information laden with nuggets of wisdom. Trading is a lonely business and this book allows us to compare our trading experiences with those of other good traders.

Tom Willis and Bob Jenkins, noted floor traders and pool operators, describe their money management: "The thing we do that these guys don't is get out of the trade when the smoke first is coming under the door. We don't have to open the door, burn our hand on the handle, plus have the fire leap on top of us. If we smell a little smoke, we get out of there. If the building is not on fire, we'll get back in." They talk about stops: "We use stops more to get into the market than to get out. Lowball it or highball it. Use stop-close only." They talk about the basic principle of trading: "We're trading mob psychology. We are not trading corn, soybeans or S&Ps. There's no substitute for discipline and for knowing what you want to do. To be a success in this business, you've got to screw your head around 180 degrees. Whether you're of average intelligence or above-average intelligence, you've been raised on the same media as the rest of the world, taught to react as everyone also reacts."

Few traders manage to remain closemouthed when questioned by Kevin Koy. Richard Dennis, the legendary Chicago floor trader, briefly talks about his program for training his team of traders, but mostly holds forth on politics. He illustrates the point that Ernest Hemingway had made in response to F. Scott Fitzgerald: "Rich are no different from you and me. They just have more money." Having it does not make them any more savvy when it comes to politics, or art collecting.

Several big market participants offer insights from uncommon vantage points. Clayton Yeutter, former president of the Chicago Mercantile Exchange, talks about less developed countries' "free lunch" policy. That's not what high officials usually say in public.

Koy interviewed Kevin Heuwetter, former chief trader and part-owner of Drysdale Government Securities, whose 1982 collapse had severely shaken the multibillion-dollar government securities market. Heuwetter tells, between sobs, how "someone with \$20 in his pocket can wind up receiving \$10

billion worth of credit on a given day."

Several traders make wonderfully unexpected comments. Says Brian Monieson, "I have a mathematical background, a lot of higher mathematics and computer programming. But I've learned to overcome those obstacles." Tom Baldwin, a major floor trader in the T-bond pit, explains his understanding of trading dynamics. Charlie Andrews describes his transformation from a cattle trader on Mexico's border into a foreign currency trader and consultant for multinational clients.

Robert Prechter, the Elliott Wave theorist, tells how he had pulled 444% profit in one quarter trading index options. He describes the differences between forecasting and actually trading the markets that are seldom discussed. In his characteristically open manner, Prechter describes several important forecasting concepts and tools, such as sublinking of cycles and tracing bottoms via oscillators in addition to prices. "To be on the correct side of the turns, you must go opposite to what your personal emotions usually tell you about the market. You have to be a decoding machine interpreting your indicators."

The interview with Peter Steidlmayer deserves to be read by every serious trader. This 22-year veteran of the Chicago Board of Trade spent four years developing CBT's Liquidity Data Bank. This new tool for intraday market analysis has generated a great deal of interest, but unfortunately, Steidlmayer, like many brilliant people before him, developed his own language for describing his system. Koy's persistent questioning draws the author out to explain his ideas in English and the reader begins to grasp them.

Steidlmayer emphasizes the importance of looking at the markets from several different time frames at the same time: "The market promotes itself through price and regulates itself through time....The market will always go to a price area that will allow the most activity to take place....Over the long term, the market self-corrects once the dominant force has overextended itself....In the short run, while the market is blowing out the excesses and people with short term time frames are selling, the market is advertising opportunity to people with a longer-term perspective. They buy."

The voices of major traders can be heard in the room as you read this informative, entertaining and educational volume. I could not put down Kevin Koy's book until I finished reading the last page.

*Dr. Elder publishes The Elder Viewpoint on Futures, a weekly futures advisory and educational service. A current issue is available by writing to him at P.O. Box 20555, New York, NY 10023.*

# Tools for thinking traders: MicroVest's Steven Kille

**S**uccessful software development was nowhere in Steven Kille's life plan when he headed off to Western Illinois University for a master's degree in economics. Computer programming, in fact, wasn't even on the agenda. But when his mother presented him with a Franklin computer, the now 28-year-old founder of MicroVest discovered an unrivaled addiction in programming.

He wrote his first technical trading program as an teaching assistant to Dr. Thomas Drinka, associate professor at Western's Department of Agriculture. By graduation, Kille had developed two saleable programs and opened MicroVest's office. Today, his duo of charting and research programs—High Tech and Back Trak—have received consistently high marks from traders and reviewers alike.

S&C talked to Kille at his desk (which he seldom leaves) in Macomb, Illinois, to get his views on today's and tomorrow's technical analysis software. And by the way, Thanks, Mom!

## ***Who's your major competition?***

I view my major competition as CompuTrac™. I've seen it run and we have the same approach—we're trying to give the traders the methods and techniques they already want rather than trying to sell them a system we've devised. Most of the people who call me—and I'm sure CompuTrac also—have been to a seminar on stochastics or %R or something else. They've already got an idea of what they want and our programs provide those.

## ***What do traders want in the way of technical analysis? Is it becoming more sophisticated?***

Everybody who calls wants something different. Everybody who buys my program says, "This is great. This is just what I was looking for, but...I've been working with this indicator for a long time and it really works great. If you put it in your program I'm sure you'll sell more programs than CompuTrac ever thought they could." Consequently, I've got a folder that's about two inches thick of new features and indicators to put in the program. Some of them are minor modifications. Others would take a lot more work—like doing moving averages over a spread, rather than just the prices themselves. That's the reaction I get from my customers, and I'm sure CompuTrac gets the same thing.

Traders don't seem to be asking for more sophisticated indicators, what they seem to want is flexibility with existing indicators. There are dozens of ways to trade stochastics and traders would like to experiment with every one. Combining and filtering signals from technical indicators is one area in which traders have become more sophisticated.

## ***Do you find many of these ideas fruitful?***

All of them! I don't get too many quacks with harebrained ideas. They're almost all good ideas, but there are only so many hours in the day.

## ***What's the market for trading software, who's buying technical analysis programs?***

With the types of products I produce, it's been almost all professional. I really don't run into the dabblers

that much anymore—but I really haven't done a lot of advertising for Back Trak. It's all been by word of mouth. So lately, the interest I'm getting is all professionals—brokers and institutional traders, people who already have a good grasp of technical analysis.

***How much of your client base includes people from institutions—banks, insurance companies?***

More and more—the majority are professional traders or brokers doing a lot of trading themselves. I can only think of a couple working for banking and insurance companies who are using it for managed accounts. Something gives me the feeling the institutional people are still a little bit more fundamental than technical. I don't see them being that technical in nature; I think most of them have come from efficient market backgrounds.



*Steven Kille*

***How does this fit in with your economics training? They didn't advocate technical trading at WIU, did they?***

Not at all. The economics department is pretty much efficient markets oriented. I remember one of my instructors who insisted that the only factor in successful trading was luck. He felt the markets were so efficient that a successful trader was simply a lucky trader. He reasoned that if skill was the determining factor behind a good trade then a skillful trader should be able to repeat his success on every trade. Of course, that's completely irrational. That's like saying a completed 90-yard pass from Jim McMahon to Willie Gault must be attributed to luck since they can't repeat the feat on every down. Needless to say, that was the last time I took a class with that particular instructor.

But I would like to get into more econometrics-type stuff. Unfortunately, it's not the kind of thing you can "can" and send out to somebody who absolutely doesn't understand it from the word go.

Econometrics-type programs are out of range for the average trader—you couldn't sell enough to make any money.

***What's your thought on the theory—are technical traders barking in the woods or is it possible to trade effectively with technical indicators?***

If you look at the successful traders, they all seem to be doing it technically. So I would think, yes, that is the way to go. You know, in your February issue, you had an interview with Jack Schwager, and I think he pointed it out very clearly that it's very difficult to do it with fundamentals alone.

***Do you prefer futures or stocks?***

I prefer futures; I think most people doing technical analysis would or should—all the leverage is there. If you are trying to pick off the tops and bottoms, I'd think you'd want the leverage.

***Do traders go through fads where they're infatuated with one indicator over another?***

I would definitely say it's a fad, no doubt about it. When I started it was point-figure, point-figure, point-figure. Then it was %R, then RSI, stochastics, moving averages. Convergence/divergence was one of the later ones. It always seemed to correspond to somebody doing a seminar. I could always tell when somebody had a hot seminar circuit.

***Are software buyers in two separate camps, then? Either they use tool boxes or they want a package?***

Most people who call me up and buy my program have already tried the packaged software. I have very few customers who have my program, and my program only. Almost everyone of my customers has two, three, four different programs. In fact, I have had a couple customers who have everything. One of my customers—I take a trip and see him every once in a while—has everything even though he hardly trades. He's a "systems junkie." He loves it!

***So your customers are out there thinking and scheming and conceptualizing how to trade the markets? They're not turning on the machine and turning off their minds?***

The customers I'm getting are people who have already thought it out. Programs like Swing Trader or Spectrum, those are somebody's personal trading systems and habits. You really can't second-guess them because you don't know what they're doing in the first place. When you buy them, you're buying them with the intention of taking whatever signals they give you.

Every once in awhile I'll get calls from people who know almost nothing about technical analysis or the indicators and they want to know how my program works. Basically, I tell them they're going to have to sit down and think things out first. It's not a plug-and-go system. You don't punch a lot of buttons and have it come out with the precise high and low. But a lot of people who are just getting into it, that's what they're looking for and, of course, that program isn't out there.

Trading takes a lot of work. If you're going to make the kind of money that's in commodities, nobody's going to give it to you. You're really going to have to work at it. Nobody's going to give you a program that you punch up several buttons and you're going to be up 1,000% every year. There's just too much money involved in commodities and there's an awful lot of people out there working very, very hard at it. Commodities is a zero sum game. It's a perfectly competitive business and you're going to have to work equally as hard if you're going to beat those people out of their money.

***Then what does the ultimate tool box look like? Lots and lots of routines?***

I think to take it the whole route you have to come up with something where the trader can do virtually anything he wants. He can control the way the program rolls over from one contract to another, control how many contracts he's trading, the whole thing. You'd almost have to give him some kind of a language so that he could write his own testing program. It's one of my next projects. It's going to have to be done in some sort of a spreadsheet format so he can see exactly what he's doing because traders are not programmers. They're not going to be able to write code, compile it, run it and try to debug it. They're going to have to be able to see exactly what happens—when they do this, what's the result.

The whole trading area is so diverse, so vast that there's really no way that anybody can program everything. Back Trak does a lot, but there's absolutely no way it can do everything.

***You know, when you plunk down \$200 or \$400 for a trading program, it makes you think somebody's getting rich. For that kind of money, what kind of development goes into a program?***

I think most people have a tendency to think software developers are making a lot of money. They send me \$700 to \$1,000 and get a few hundred pages of documentation and some disks. They know it doesn't cost more than about \$30 to \$40 to put together. What they don't realize is that the average software developer probably will sell only one to two hundred programs and that \$700 has to cover a lot of time and expenses. It's a pretty thin market. You would need a blockbuster program to sell more than a thousand to futures traders and actually get rich, something I hope to accomplish with Back Trak.

Personally, with Back Trak, I've been writing it for two years and I don't think I've ever put in less than 80 hours a week on the program. MicroVest, until recently, has been a two-person business—the secretary and myself. It takes an awful lot of work. There was a long time where I would actually just stay at the office and have someone bring me my lunch and my dinner and I would stay from 6 in the morning to 12 at night—and that's what it takes to get these programs out.

So far, I've sold about 100 Back Trak programs since it came out in May of 1986, but it's picking up real fast. I haven't pushed it yet because there's always been that one feature that I wanted to add on before I start selling hundreds. For some reason, those features just keep piling up on me.

What I definitely enjoy the most about this is working with the people who use my programs. I have a very close rapport with all of my customers. Most of them, as soon as they say hello, I can tell who it is.

***Do you expect the big software development companies—the Apples, the Microsofts—to swallow up the technical analysis software market?***

I think this market's pretty well safe from that. They're looking for the markets that have the possibility of selling two million programs like Lotus™ 1-2-3. If I'm in danger of being swallowed up by anybody it'd be a trader who's starting to work 80 hours a week programming a program like Back Trak—and I don't think there are too many of those people out there.

***Do you have to be a proficient trader before you can be a proficient programmer?***

I don't know if you have to be a proficient trader. I traded for a summer, mostly agriculture, the hogs. (We're down here among all the corn fields so that, of course, sparked my interest.) But I spend a lot of time talking to traders, and you learn quite a bit that way. It's a lot more expensive to learn it with your own money!

***Back Trak got a tremendous review from Bruce Babcock in his CTCR newsletter. What's your connection with him?***

I sent him my program, and I've been talking with him for a couple of years. He reviewed my earlier programs. I'd like to get together with him to see if some of his systems can be programmed into a formula builder I'm working on because when someone calls and asks me if they can build their own formulas, a lot of them are trying to program some of the systems Bruce is selling. It's a small community.

***What's after the formula builder?***

I would say the next area that I think is pretty well neglected right now in the trading industry is the fact that there's an awful lot of information out there, but there's no way for one person to sit down and have the computer go out, get all the information you want and bring it back into one place. Right now, you pretty much have to go out and manually search all these separate databases for the kind of information you want.

I really think that some type of program that would not only bring up a lot of the technicals for you, but at the same time bring in a lot of the fundamental information—like what the Fed did today—is probably something that's overlooked right now and will catch on. And also there may be an idea to get a central database together where a lot of advisers can send in their advice at night and a person can retrieve that particular adviser's advice for the next day, rather than getting something in the mail.

***In your first issue of High Tech/Back Trak you mentioned several different data sources, but with the latest release it's pretty much CSI.<sup>TM</sup> You also have an opinion about CSI?***

I've tried several other databases and for some reason I keep going back to CSI. They have probably 99% of the market and that's probably well-founded: they're obviously doing a good job service-wise and data-wise. I talked with Tom McDonald of Nite Line recently and they're completely overhauling their data service to a point where I think they may give CSI some good competition.

In a service like that you're, of course, going to have unpleasanties. But if you go to somebody else trying to do the same thing, you find out they're having problems, too. It's a big job!

You know, traders are also consumers and they'll go to the store and buy a toaster oven and if it doesn't work they take it back to the store and get a brand new toaster oven. They expect the same out of a software developer or a data vendor. Unfortunately, it isn't possible to come up with a perfect item like a toaster oven. It's impossible! There are going to be problems and people are going to have to accept that, as long as an honest effort is made to keep the problems at a minimum and to correct the problems that exist.

***You've done a series of articles for S&C on which are the best parameters to use with the popular indicators. What's your gut feeling from all the number grinding? Are there sets of stable parameters that people can use with these indicators?***

When we do that crunching, we have the point of view that if someone is going to use a parameter we're testing, he's already going to have decided for himself it's a valid indicator and it does work. There's not enough space in a magazine article to do a lot of reliability testing, but some of the articles we have planned for the future address that.

***What's your feeling about the optimization debate? With all the number grinding you've done and the program you've put together, you must support the idea of some sort of optimization.***

Most people who criticize optimization are well-meaning, but usually they miss the point. Typically, they'll show that you cannot optimize parameters to a random indicator (an indicator that does not work) and expect the optimized indicator to work in the future. That is a concept which is so obvious, it needn't be pointed out.

Optimization is a technique which is meant to be used with a valid indicator over data which displays some repeatable characteristics. If you do have a valid indicator and your data does contain cycles, then optimization is the only viable method for finding the best parameter sets given a certain set of data. Welles Wilder's RSI is a perfect candidate for optimization. Welles Wilder states that a 14-day RSI should be used because 28 days is the average cycle of all commodities. That doesn't mean that 28 days is the cycle length of T-bonds or live hogs. If you are going to use RSI over T-bonds, you should test a range of RSI lengths over a sufficient amount of data to find the best correlation between T-bond cycles and RSI length.

Optimization as a technique should never even be questioned. It is a very powerful and effective technique for testing ranges of parameters over large amounts of data. The debate should center on the indicators and the data being optimized. If the data does, indeed, contain cycles or some other repeatable characteristics, and the indicator does identify these patterns, then optimization will work well. If either the data or the indicator is random in nature, then optimization will fail miserably.

# A complete computer trading program

## Part 4

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by John F. Ehlers

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This is the conclusion of four articles that give a description and listing of an Applet® ][ BASIC computer program, enabling you to perform technical analysis on your computer with 48K of memory and one disk drive. This article adds the Commodity Channel Index, Directional Trend Indicator and Relative Strength Index to the graphical representations of price, moving averages and the Parabolic system.

### COMMODITY CHANNEL INDEX

The Commodity Channel Index (CCI) is calculated in lines 2500-2560 of the listing. Channels and the CCI were described more completely in the April 1986 issue of *Technical Analysis of Stocks & Commodities*. In line 2510, the first column of the work matrix Y(0,I) is used to store the average of the high, low and close for each of the data points. Line 2520 computes the dominant cycle moving average of the daily average and stores it in the second column of the work matrix as Y(1,I). If you have a question regarding the moving average algorithm, please review part 3 of this series. Line 2530 computes the dominant cycle moving average of the difference between the daily average and the dominant cycle moving average of the daily average. (This really does make sense even though there are lots of averages involved.) This average of the differences is stored in the working matrix as Y(2,I).

The calculation of the CCI is concluded in line 2560, where the difference between the daily average and the dominant cycle is normalized to the dominant cycle average of their difference. The normalized value is scaled so that the ratio varying between +2 and -2 will be plotted on your computer screen in the vertical region between pixel points 140 and 190. Since these limits can be exceeded by the calculation, line 2540 and 2550 ensure the graphing limits will not be exceeded by clipping them.

### Directional Trend Indicator

The Directional Trend Indicator (DTI) is calculated in lines 3000-3070 of the listing. The Directional Trend Indicator was discussed more completely in the March 1986 issue of *Stocks & Commodities*.

Line 3010 clears the working matrix to avoid using any leftovers from the CCI calculations. If the difference between successive highs is greater than the difference between successive lows, that difference is stored in the first column of the work matrix as Y(0,I). On the other hand, if the difference of successive lows is greater, that difference is stored in the second column of the work matrix at Y(1,I). Otherwise, both values of the work matrix are set to zero.

The positive directional trend (DP) and the minus directional trend (DM) are calculated as the quarter-dominant cycle moving average of the respective successive differences in lines 3040-3060. If the average is zero, then the average is assigned the neutral plotting value of 165 to avoid computational problems. The first average of the Directional Trend Indicator is calculated in line 3050. Since the ratio

of the sum and difference of DP and DM can vary between +1 and -1, the program scales Y(2,I) so these values will occur between the 140 and 190 vertical position on your screen. Lines 3060 and 3070 take another quarter-dominant cycle moving average of the DTI to complete the calculation.

### Relative Strength Index

The Relative Strength Index (RSI) is calculated in lines 3500-3570 of the listing. The Relative Strength Index was discussed more completely in the February and December 1986 issues of *Stocks & Commodities*.

Line 3510 clears the work matrix so that any residual calculations will not be used in calculating RSI. Then, it calculates the first column of the work matrix, Y(0,I), as successive difference in closing prices. Positive differences are averaged over the quarter-dominant cycle as the second column of the work matrix, Y(1,I), and negative differences are averaged over the quarter-dominant cycle as the third column of the work matrix, Y(2,I), in lines 3520-3540.

Lines 3540-3560 compute the interim RSI as the ratio of the positive differences to the total differences. If the total differences are zero over the quarter cycle, computational difficulties are avoided by line 3540. Lines 3560 and 3570 complete the calculation of RSI by again taking the quarter-dominant cycle moving average of the interim RSI calculation. Since the RSI ratio can vary between zero and 1, line 3570 scales the value to fall between 140 and 190 on your screen.

In conclusion, I hope your effort in entering the program given in these four articles will be of benefit to you in your trading program by placing more technical analysis tools at your disposal.

*This complete computer program (revised by Jack K. Hutson), along with an explanatory example BASIC program, is available on disk directly from Technical Analysis of Stocks & Commodities magazine for \$49.95. Please refer to Volume 5 disk. An IBM version of this program is available for \$99 directly from John Ehlers, P.O. Box 1801, Goleta, CA 93116.*

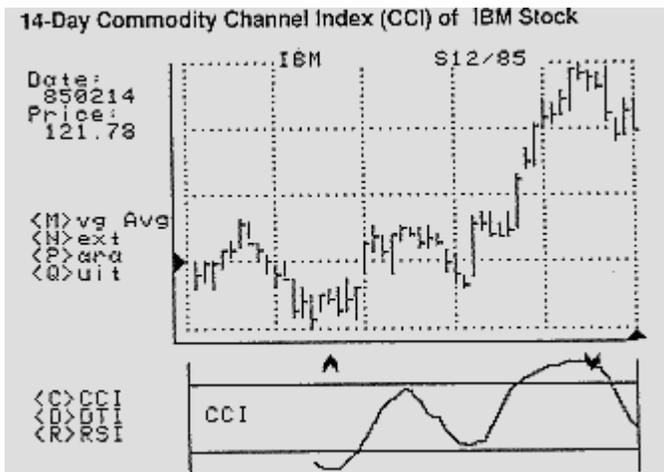


FIGURE 1

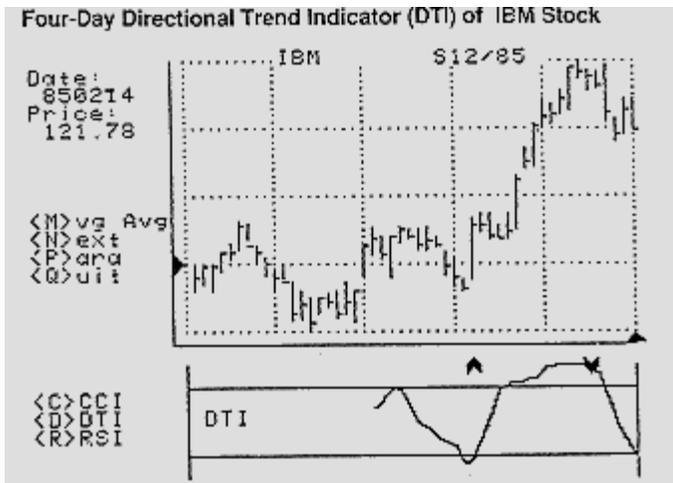


FIGURE 2

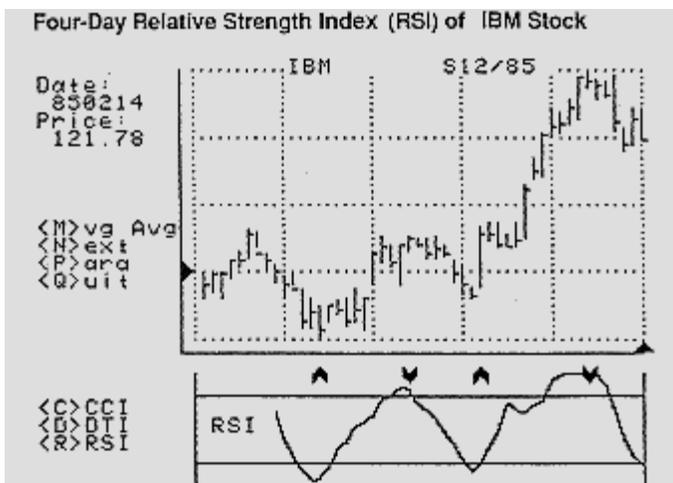


FIGURE 3

# Artificial Intelligence

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*by Neil Gordon, Ph.D.*

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**A**rtificial intelligence (AI) is the field of computer science that attempts to imitate human cognitive behavior in computers. In problem solving, AI reflects the approach, knowledge, viewpoints and biases of the human. Previously, computers have been used to solve only algorithmic problems—write a formula, give the computer complete data and the computer calculates the answer.

But all problems do not lend themselves to algorithmic solutions. AI programs differ from more conventional computer applications because they deal with non-numeric (qualitative) data and can function with uncertain or incomplete information.

## **Today, we are at the birth of commercial AI development.**

An expert system is an actual AI program which relies on a body of knowledge to perform a difficult task usually performed by a human expert. Today, there exist expert systems that rival the best performances of human experts at specialized tasks.

### **History**

AI research began in the 1950s, mainly in university research laboratories, where researchers tried to develop computers that could think and learn. They discovered basic principles of knowledge representation and reasoning through experiments such as teaching a computer to play chess.

In the 1970s, researchers combined very specific areas of knowledge with the general problem-solving techniques they'd learned earlier to create the first expert systems. The performance of these systems was equal in ability to the recognized human experts. Examples include:

MYCIN - medical diagnosis of infectious blood diseases and PUFF - medical diagnosis of pulmonary functions (Stanford University); R1 - automatic configuration of computer systems (Digital Equipment Corp.); PROSPECTOR - location of mineral deposits (Stanford Research Institute), and MACSYMA - mathematical equation solving (Massachusetts Institute of Technology).

While the early AI programs were successful and proved the viability of the technology, certain constraints prevented their widespread use. The first constraint was the requirement of large, expensive computers. The second constraint was the lack of low-cost AI system shells—the thinking or reasoning portion of an AI program.

Today, we are at the birth of commercial AI development. AI system shells are available at very reasonable costs, for well under \$1,000. Commercially available system shells include Texas Instruments' Personal Consultant, Teknowledge MI and others. System shells can be developed using Lisp or Prolog software. Expensive computer hardware also is no longer an issue—AI software is available which runs on the IBM PC and its clones.

### **How AI is created**

The two main ingredients of an AI system are a knowledge domain and a reasoning system that can exploit that knowledge domain as illustrated in [Figure 1](#). The data and rule set define the knowledge domain. Data contain the dynamic knowledge of the AI system, the information that changes frequently, may be uncertain or incomplete, and is used by the set of rules to reach a result. Rules define the static knowledge of the AI system, the fundamental relationships that rarely change.

The rule set is composed of production rules, usually of the IF/THEN form, although calculations are often included. The premise, or IF part, of each rule describes the conditions that must be met for the rule to apply. The conclusion, or THEN part, of each rule describes the result if the premise is valid. For example:

PREMISE: If the month is February and the location is Seattle;

CONCLUSION: Then it must be raining.

Such rules can be used either to draw conclusions from data or determine what tests should be made to determine if the hypothesis is true.

AI systems allow for the inclusion of imprecise knowledge and uncertain data through the use of certainty factors. Certainty factors are similar in concept to probabilities. For example, with imprecise knowledge:

PREMISE: If the month is February and the location is Seattle;

CONCLUSION: Then it must be raining (cf =.91).

One can be 91% certain its raining in Seattle in February. The use of certainty factors with uncertain data is similar:

PREMISE: If the month is unknown and the location is Seattle;

CONCLUSION: Then it must be raining (cf =.67).

The reasoning system that applies rules to data is called the inference engine. The inference engine employs various logic techniques, such as forward chaining logic which reasons from facts and rules to conclusions, and backward chaining logic which reasons from a tentative hypothesis to supporting facts. The inference engine also may explain how an AI system behaves or reaches a conclusion.

A knowledge engineer is the individual who creates an AI system by examining the problem area, identifying the experts, developing the knowledge domain based on the experts' knowledge, selecting a suitable inference engine, and evaluating the performance of the AI application.

Of these, the single most important ingredient is the quality of knowledge about the problem domain. Simply stated, you must find an expert on the problem or the most sophisticated software and hardware are useless. To recognize the expert from the non-expert, the knowledge engineer also must have a clear understanding of the problem area and be able to evaluate the experts for validity.

### **Stock market price prediction**

The prediction of stock market price movements is a complex problem with insufficient and inaccurate data. Fundamental and technical analysis are successful to a limited degree, but the forecasts which these techniques produce are fully dependent on the accuracy and timeliness of data and on the individual forecaster's ability to use the methods. A successful AI solution, based on years of research and now in

use, employs Paul Cootner's classic random walk model which assumes stock market price movement is random with respect to time, but bounded by reflecting barriers. (See [Figure 2](#))

The reflecting barrier in Cootner's model assumes professional investors (experts) will act contrary to non-professional investors when stock values are above or below their intrinsic value. For example, when stock values are high because of non-professional investor buying, the professional investor will sell. The selling action of the professional investor will stop the stock market from rising in value. As the non-professional buying diminishes, the stock market will return to lower values. These actions culminate as reflecting price barriers.

The assumption of stock market value being random with time is often criticized. Random does not mean uncaused. Certainly, the price behavior of the stock market is determined by the laws of supply and demand. But with few exceptions, the laws of supply and demand are not time dependent. Therefore, stock market value is random with respect to time.

The random walk assumption has an interesting consequence. If one knows the market is high (or low), one cannot predict the next time a market high (or low) will occur. Yet, knowing the market is high (or low) is enough information to make a profit.

The AI solution measures when a reflecting price barrier in the random walk model is encountered by actually utilizing two AI systems. One AI system imitates the thought processes of the expert investor; the other imitates the thought processes of the non-expert investor. Both are necessary to determine supply-and-demand relationships.

**In selecting a group of experts, the knowledge engineer must determine the qualities an expert possesses to correctly solve more complex problems.**

This simple approach, however, reveals the complexities of understanding human thought processes. In particular, how do expert and non-expert thought processes differ? We know that as the complexity of a problem increases, the probability of an accurate solution falls off rapidly for experts and non-experts alike. In fact, for very complex problems, one is often better off guessing than trying to solve the problem.

But the experts' accuracy involves problems that are more complex than those tackled by non-experts. (See [Figure 3](#)) The experts are smarter, have more experience and usually more timely and accurate information than the non-experts. This leaves a region of complexity where a difference of opinion exists between the expert and the non-expert—the same region where stock market highs and lows occur.

In selecting a group of experts, the knowledge engineer must determine the qualities an expert possesses to correctly solve more complex problems. The following characteristics are prevalent:

**Age** - The longer a person is exposed to complex problems, the higher the probability of reaching the correct solution.

**Specific experience** - The more specific the experience, the more accurate the solution.

**Emotional control** - Experts have the ability to sense the emotion of the market, but not follow their own emotional impulses.

**Access to timely and accurate information** - Individuals with a larger information base tend to make more accurate decisions.

**Long-term outlook** - An expert understands the long-term, cause-and-effect relationships between stock values and economic conditions.

In assuming the existence of expert and non-expert groups of investors, two questions need to be answered. First, is the expert group actually different from the non-expert group? Second, how can the knowledge engineer measure the group's consensus opinion and reasoning without allowing individual personalities to influence the group's collective mind?

The following method is recommended: 1) A group is formed of experts (and non-experts) in the problem area. 2) The members of the group remain separate and anonymous with respect to each other. 3) The members are asked their opinion on the area of interest. Their opinion is sampled by using questions which require a graduated agree-to-disagree response (i.e., 0 - strongly disagree, 5 - neutral, 10 strongly agree). 4) Members receive feedback as to the other members' responses through an opinion distribution graph. 5) Members are repeatedly asked for opinion and receive feedback until consensus is reached.

An essential tool is the opinion distribution graph such as [Figure 4](#). The repeat feedback of other members' opinions results in a converging of opinion so that opinions will vary, but not as widely as in the beginning.

The comparison of expert and non-expert groups should reveal a difference of opinion or judgment unless the problem is extremely simple or complex. Using common-sense criteria for determining the experts usually results in a difference as shown in [Figure 5](#). In general, the initial non-expert opinion distribution is more widely spread than the initial expert opinion distribution. In the process of feedback and reaching a group consensus, the expert opinion distribution spread decreases a greater percentage than the non-expert opinion distribution.

On occasion, it is necessary to remove non-experts from the expert group. The non-experts reveal themselves as a secondary distribution within the expert group opinion distribution as in [Figure 6](#). Since the group membership is anonymous, this is accomplished without the individuals' or the group's knowledge.

### **Developing the AI system**

The first step is to standardize the questioning of expert and non-expert groups. Group opinion and reasoning must be referenced to a standard set of questions. For example, a standard question is, "Is the stock market in a bull phase?" The group's opinion will range from strongly disagree (given a value of 0) to strongly agree (given a value of 10).

Production rules and the subsequent data requirements are obtained from questioning each member of a group as to how they arrived at their assessment of the stock market condition. The rules include a latitude for error which is expressed in the certainty factor. Two production rule sets are generated to simulate the thought processes of the expert and non-expert investor groups. The AI system is currently run twice weekly, once with the expert rule set and then with the non-expert rule set.

An indicator is constructed which measures the probability of whether the stock market is in a bull or bear phase. This Stock Market Indicator (SMI) compares expert and non-expert opinions by measuring the positives and the negatives of the hypothesis, "Is the stock market in the bull phase?" In a method

similar to human reasoning, the SMI subtracts the negative probabilities from the positive probabilities so the indicator ranges from 0% to 100%. The probability that the stock market is bullish is almost certain when the indicator is 100%. Conversely, the probability of a bear stock market is almost certain when the indicator is 0%.

Interpretation of the SMI into buy/sell signals follows common sense. The investor should sell stock at the end of the bull market. The end of the bull market occurs after the SMI has reached a maximum (70% to 100%) and is trending downward to a neutral (40% to 60%) value.

Similarly, the investor should buy at the end of a bear market. The end of a bear market occurs when the SMI has reached a minimum (0% to 30%) and is trending upward to a neutral value. Recently, the transition from bear to bull markets has been very rapid. Early stock buying should commence whenever the SMI is very negative (0% to 30%) in order not to completely miss the market bottom.

Since this stock market forecasting AI system was first initiated in 1982, the SMI has had a remarkable record of predicting the stock market highs and lows. The results from 1982 through 1985 are shown in [Figure 7](#). The recent trend of the SMI is shown in [Figure 8](#). As of Nov. 4, 1986, the SMI was recommending to buy stocks.

### **Future areas of research**

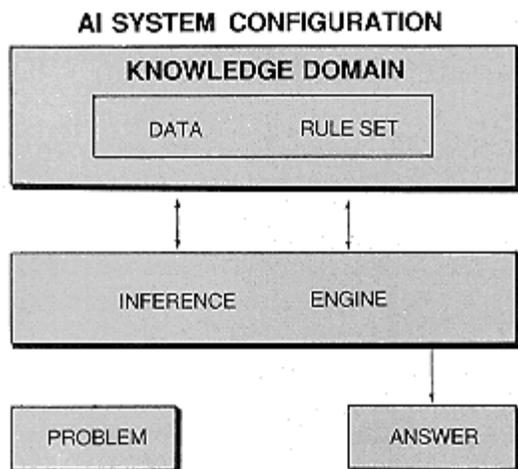
The AI techniques described in this article may be extended in two directions.

First, the AI system may be run more frequently. The present system is run weekly and this frequency is more than adequate for predicting general stock market trends. With proper support facilities, the AI system could be run daily or hourly and production rule changes would reflect the reasoning of expert and non-expert short-term traders.

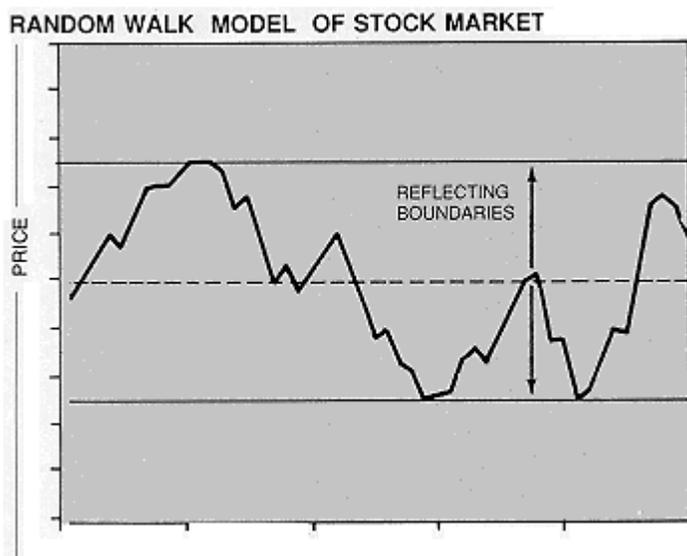
Second, the AI procedure could be used to predict the price movements of any traded stock, group of stocks or commodity. This endeavor would require that the selected subject be governed by the laws of supply and demand and not be controlled by other forces. For example, bond price prediction may prove difficult due to Federal Reserve control of interest rates. One could, of course, create an AI system to simulate the Federal Reserve! Gold or silver price prediction would be a likely candidate. New production rules would be generated once the expert and non-expert groups were identified.

The future of artificial intelligence is very bright. The impact of this new computer technology on market trading will be revolutionary.

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**FIGURE 1**



**FIGURE 2**

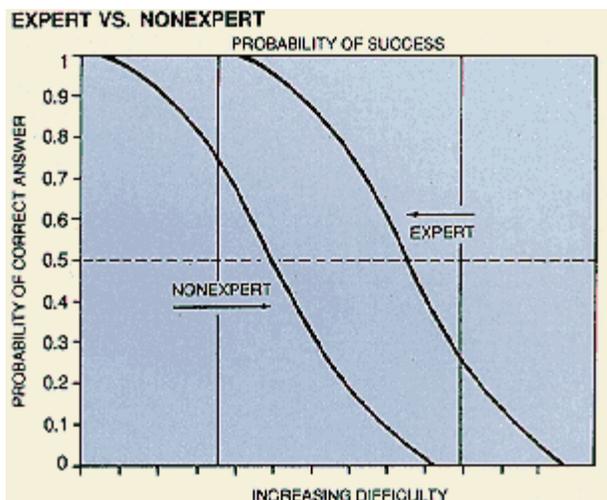


FIGURE 3

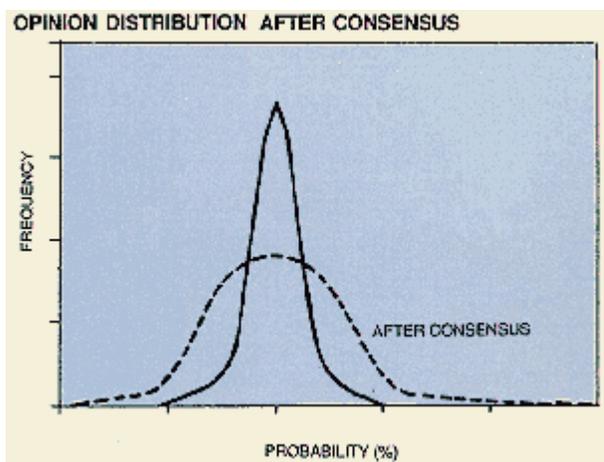


FIGURE 4

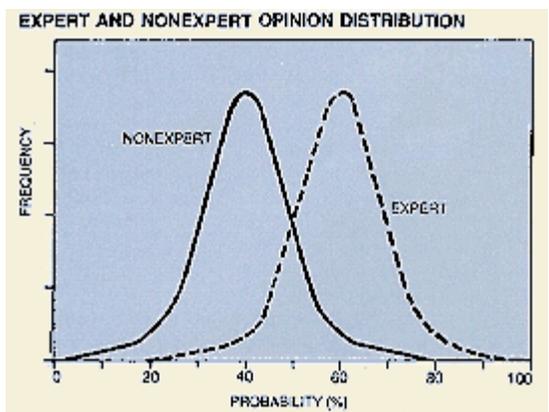


FIGURE 5

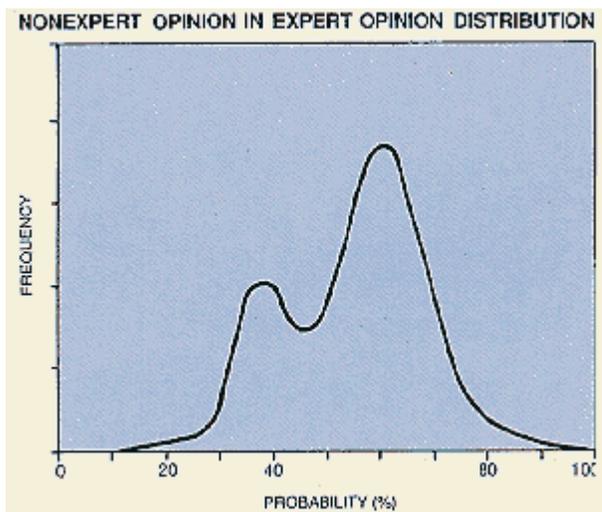


FIGURE 6

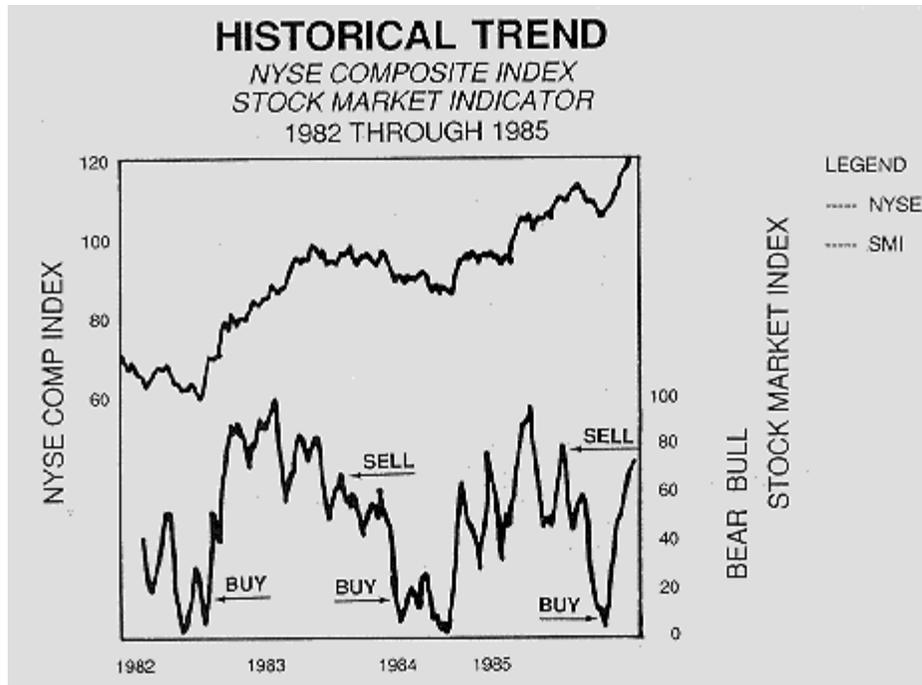


FIGURE 7



FIGURE 8

# Eurodollar futures using entry/exit methods combined with stops

## *Part 3*

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*by Steven L. Kille and Thomas P. Drinka*

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In the May 1987 issue of this magazine, we reported the impact of money management on total net profit from simulated trading of Eurodollar futures with Relative Strength Index (RSI) using stops and filters. We simulated trading of the 1983-1985 March, June, September and December contracts for the period of December 2, 1982 through December 1, 1985. The simulations were conducted on the nearby contract only, with roll-over occurring on the first trading day of the expiration month. Trades were made at the open, and a \$100 commission was charged per turn. We ran 1,089 RSI parameter combinations: RSI length was incremented from a 4-day to a 20-day by 2-day steps, the short parameter was decremented from 90 to 60 by 3-point steps, and the long parameter was incremented from 10 to 40 by 3-point steps.

The analysis was begun by optimizing with respect to total profit over these 1,089 basic RSI parameter combinations. The most profitable RSI was found to be a 14-day, with short parameter at 87 and long parameter at 40. This trading technique resulted in total net profit of \$20,725. To investigate the impact of money management on trading results, four popular stop strategies were imposed upon the basic RSI optimization, and a filter was utilized to test for parameter stability. In this issue, we continue this analysis by examining the impact on total profit of entry/exit methods.

### **Entry/exit methods**

All optimizations that we have thus far reported simulated market entry and exit on the open of the trading day following a trading signal. The optimization over the 1,089 basic RSI parameter sets was conducted in this fashion (the results are designated as "Open" in [Figure 1](#)). Interday technical indicators are calculated after the close each trading day, and trading signals are generated at that time. Following a trading signal, the earliest opportunity one has to execute a trade is on the open of the next trading day, and it is a relatively easy matter to instruct one's broker to have the trade executed at that time.

Seven alternative methods of entering and exiting the market were imposed on the basic RSI optimization: 1) on today's close, 2) on a favorable move from tomorrow's open, 3) on an unfavorable move from tomorrow's open, 4) on a favorable move from today's close, 5) on an unfavorable move from today's close, 6) on the first level of support or resistance and 7) on filled gaps.

### **Today's close**

To trade off the daily close, one must anticipate the settlement price that would be required to cause a technical indicator to generate a trading signal. If such a price is anticipated, the broker would have to be instructed—during the trading session—to trade before the close. If the market is observed to be overbought (or oversold), it may be to one's advantage to sell (or buy) on the close before selling (or

buying) pressure drives the price down (or up) on the open of the following trading day. A disadvantage of this trading method is the amount of effort required to implement it.

To investigate the usefulness of such a strategy, we re-optimized over the 1,089 basic day/short/long parameter combinations, requiring all trades to be made at the close. The most profitable parameter combination (Figure 1, column 2) was found to be a 14-day RSI with short parameter at 87 and long parameter at 40. Total profit was \$21,625, and the other trading results were satisfactory when compared to the results of trading on the open.

### **Favorable move from tomorrow's open**

Trading on false signals may be avoided by utilizing this entry/exit method. During the trading session following a trading signal, one would wait for the market to show some strength (or weakness) before entering a long (or short) position. That is, one attempts to determine whether the market agrees with one's analysis, before taking a position.

We re-optimized over the 1,089 RSI parameter combinations by requiring the market to move in favor of the trading signal by a minimum number of points from the open. The number of points was incremented by two-point steps from two points to 20. In the event that the market does not move by the required number of points during the trading session following a trading signal, the trade is not executed. One would then maintain the present market position until another trading signal is observed. (The remaining entry/exit methods considered herein share this constraint.) The most profitable parameter combination (Figure 1, column 3) was found to be a 10-day RSI with short parameter at 90, long parameter at 40 and a 12-point favorable price-movement from the open. Total profit was \$21,550.

### **Unfavorable move from tomorrow's open**

Following a trading signal, one may be able to enhance profit by extracting a few extra points from the market as follows: trade during the following trading session if the price moves from the open against the direction of the trading signal. Thus, one would wait for the market to show some strength (or weakness) before entering a short (or long) position. This strategy would presumably only be employed in conjunction with a fairly reliable indicator.

We re-optimized over the 1,089 RSI parameter combinations by requiring the market to move against the trading signal by a minimum number of points from the open. The number of points was incremented by two-point steps from two points to 20. The most profitable parameter combination (Figure 1, column 4) was found to be a 14-day RSI with short parameter at 87, long parameter at 40 and a 4-point unfavorable price-movement from the open. Total profit was \$21,650.

### **Favorable move from today's close**

This technique is analogous to the favorable-move-from-tomorrow's-open method considered above. One advantage of this method is that—before the open of the next trading session—one knows the price to be traded during the trading session (i.e., the close plus-or-minus the optimal number of points), and the broker can be instructed accordingly before the open.

We re-optimized over the 1,089 RSI parameter combinations by requiring the market to move in favor of the trading signal by a minimum number of points from the close. The number of points was incremented by two-point steps from two points to 20. The most profitable parameter combination (Figure 1, column

5) was found to be a 14-day RSI with short parameter at 87, long parameter at 40 and a two-point favorable price-movement from the close. Total profit was \$20,450.

### **Unfavorable move from today's close**

This technique is analogous to the unfavorable-move-from-tomorrow's-open method considered above. We re-optimized over the 1,089 RSI parameter combinations by requiring the market to move against the trading signal by a minimum number of points from the close. The number of points was incremented by two-point steps from two points to 20. The most profitable parameter combination (Figure 1, column 6) was found to be a 10-day RSI with short parameter at 90, long parameter at 40 and a 4-point unfavorable price-movement from the close. Total profit was \$21,800.

### **First level of support or resistance**

Under this method, one enters a long (or short) position on the trading day following a trading signal, if the daily support (or resistance) level is reached. We define the support and resistance as follows:

Support =  $DA - (HI - DA)$ , and

Resistance =  $DA + (DA - LO)$ ,

where  $DA = (HI + LO + CL)/3$ ,

HI = the high of the day of the trading signal,

LO = the low of the day of the trading signal, and

CL = the settlement price of the day of the trading signal.

This method of entry and exit may be appealing to traders who enjoy picking daily tops and bottoms. The disadvantage of this method is that a profitable trade may be missed if the support or resistance price level is not reached, and one must wait until the technical indicator generates another trading signal.

The most profitable parameter combination (Figure 1, column 7) was found to be a 10-day RSI, with short parameter at 90 and long parameter at 40. Total profit was \$20,500.

### **Filled gaps**

Gaps are sometimes left between one day's high and the next day's low, or between one day's low and the next day's high. In the event that the market opens outside the previous day's range, it may be to one's advantage to delay entering a long (or short) position until the market moves to the previous day's high (or low), if one is confident that the gap will be filled. The most profitable parameter combination (Figure 1, column 8) was found to be a 10-day RSI, with short parameter at 90, and long parameter at 40. Total profit was \$20,325.

### **Stops combined with entry/exit methods**

In the May 1987 issue of *Stocks & Commodities*, we reported that the most profitable stop that we investigated was a from-entry stop set at 40 points, used in conjunction with a 14/87/40 RSI. Total profit was found to be \$20,900. In this article, we report the most profitable entry/exit method to be the unfavorable-move-from-close method set at four points, used in conjunction with a 10/90/40 RSI. Total profit was found to be \$21,800.

Finally, we combined these two methods: the from-entry stop was incremented by five point steps from 35 to 45, while the unfavorable-move-from-close entry/exit method was incremented by one point steps

from one to four. The most profitable parameter combination (Figure 1, column 9) was found to be a 10/87/40 RSI combined with the from-entry stop set at 40 points and the unfavorable-move-from-close entry/exit method set at three points. Total profit was found to be \$23,125.

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FIGURE 1

**Trading results by RSI parameter set with selected entry/exit methods resulting in Highest Total Profit, 1983-1985 Eurodollar futures**

Entry/exit method	Entry/exit method									
	Open	Close	Favorable Move From Open	Unfavorable Move From Open	Favorable Move From Close	Unfavorable Move From Close	Support/Resistance	Gaps	Stop With Unfavorable Move From Close	
Parameter set	14, 87, 40	14, 87, 40	10, 90, 40	14, 87, 40	14, 87, 40	10, 90, 40	10, 90, 40	10, 90, 40	10, 87, 40	
Entry/exit	na	na	12	4	2	4	na	na	3	
Stop	na	na	na	na	na	na	na	na	40	
Number of Trades	13	13	11	12	13	13	13	13	15	
Days in Market (out of 758 trading days)	581	582	467	559	579	643	591	650	508	
Total Profit	\$20,725	21,625	21,550	21,650	20,450	21,800	20,500	20,325	23,125	
Long Profit	\$18,100	19,150	21,550	18,550	17,625	21,200	19,425	19,950	22,525	
Short Profit	\$2,625	2,475	0	3,100	2,825	600	1,075	375	600	
Number of Winning Trades	10	10	9	9	10	10	10	9	10	
Total of Winning Trades	\$25,525	25,925	23,750	26,325	25,275	26,750	25,225	25,700	27,850	
Largest Winning Trade	\$7,725	7,600	7,275	7,825	7,550	7,725	7,725	7,725	7,725	
Largest Obtained Equity	\$21,250	22,150	22,075	22,175	20,975	22,325	21,025	20,850	23,650	
Number of Losing Trades	3	3	2	3	3	3	3	4	5	
Total of Losing Trades	\$4,800	4,300	2,200	4,675	4,825	4,950	4,725	5,375	4,725	
Largest Losing Trade	\$2,475	2,300	1,900	2,550	2,475	2,275	2,225	2,475	1,100	
Largest Unrealized Loss	\$3,775	3,600	1,800	3,850	3,775	3,575	3,525	3,775	925	
Largest Drawdown	\$5,550	5,075	3,600	5,675	5,700	4,525	5,575	4,725	3,275	

na: not applicable

# How to be wrong and still profit

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*by David L. Caplan*

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**W**hy bother learning and using professional option strategies? Why spend the time and energy to learn how and when to use options and option strategies when, in trading futures, all you have to do is use your technical, fundamental or system analysis, pick the direction of the market, follow the trend, buy low, sell high and reap the profits?

In comparison to those two or three decisions that have to be made in trading futures, option strategists have almost 40 billion decisions to make! Should options be bought or sold? Should puts or calls be used? Which strike prices should be used? Which trading months offer the best premium value? Which combinations of strategies should be used? And should options be used at all? In totality, it has been computed that there are more than 40 billion potential combinations of strategies that can be used on any ONE commodity to making a trading decision. In fact, it is so complex that, similar to chess, a computer program has not yet been invented that can outperform an expert.

The real reason to trade options is that it is the only way you can get a real "jump" on the markets—what I call a "trading edge." Why do we need a trading edge? First of all, an often-repeated statistic is that more than 80% of traders lose money. Two significant reasons for this are: 1) professional traders who seem to profit consistently are among the 20% of winning traders and will often make large amounts of money (which has to be taken from someone) and 2), most telling, 10% - 25% of an active trader's portfolio is eaten up in commissions, expenses, education, seminars, etc.

The real significance can be seen by comparing a trader to a businessman. If you are an average businessman this year in the United States, you will make about \$40,000; however, if you are an average trader in the United States with a \$100,000 portfolio, you will lose approximately \$15,000. If you are a very good business executive in the United States this year, you will make about \$100,000; however, a trader in the same category will be lucky to break even.

Another excellent reason to learn how to trade options is, even if you are not a trader, you are passing up an unparalleled opportunity in a field where the current average level of expert traders and brokers on a scale of 1 to 10 is in the 1-to-3 range. In fact, it is probably less than that because with the little knowledge most traders and brokers have with options they invariably buy or sell at the wrong time or use an inappropriate strike price or trading month.

Let's examine ways that using commodity options can give us a trading edge over the market.

## **Where the market isn't going**

A typical futures trader must determine whether the market is going up or down and then institute a trade which is usually followed by a stop determined by his money management techniques. Quite often, a trader will find himself stopped out by some gyration in market direction which later turns around. Then the market will proceed in the direction originally predicted. The market could stay in a trading range for anywhere from several weeks to a year or more tiring out all but the most seasoned long-term trader.

My associates and I use commodity options quite often to institute long or short positions only by

determining "where the market isn't going." For example, the S&P 500 in 1985 (Figure 1) did not indicate to us that a major rally was going to occur. (We are probably the only advisory newsletter to admit after the fact that we did not predict the October 1985 rally.) However, our analysis did tell us there was less than a 10% chance of the market going to 175! Therefore, we instituted a synthetic option position where we purchased the 195 December call and sold the 175 December put at a \$300 credit.

**By determining only where the market is *not* going, we were able to obtain a trading edge on this market.**

This position had significant benefits over any futures position. First of all, although the market was in a short-term downtrend, our technical analysis of market action and volatility indicated to us that we were looking at a potential change in market direction. Further, our work strongly suggested the decline was slowing and that we should not see considerably lower prices in the near future. However, if we went in and bought a futures contract, we would be making the classic mistake of picking a bottom. Do this often enough and you are certain to lose money in trading.

However, in the position we took, all we were predicting is that the market was not going to break below 175 prior to the expiration of the option contract (two months). As long as the futures contract was above 175, we would make \$300 on a \$1,000 margin investment. Additionally, we had unlimited profit potential if a rally occurred over the 195 level. There were three out of four possible market scenarios: 1) market rising, 2) market remaining neutral, 3) market moving slowly lower, and 4) market moving quickly lower. What we liked about this position was that in three out of four scenarios, we would have a winning trade. We also felt the probability of a continued, quick down move was about 25%. This increased our probability of profit on this trade to over 90%.

This is the type of trade we look for. If we were trading a futures contract, I am sure we would have been stopped out of this trade, as after we put on this trade the market did, in fact, trade quite a bit lower. However, because of the leeway we had in this type of spread, we were never at more than a \$75 loss. The secret of this trade is that the continual loss of time value by the overvalued, out-of-the-money put provides significant protection to allow the trader to hold this position. By determining only where the market is *not* going, we were able to obtain a trading edge on this market.

### **Ratio spreads**

Along with the synthetic futures position described above, another spread that we find has a very high probability of profit is the ratio spread. This spread consists of purchasing an option that is at or near the money and the corresponding sale of two or more farther out-of-the-money options. We normally recommend this trade be done at a credit and that the distance between the strike prices be as far away as possible.

A major benefit of this spread is that if the market moves against your predicted direction, a profit can still be made since the spread has been initiated with a credit. In fact, the only way the trader can lose on this spread, when properly initiated, is if the contract exceeds the strike price of the options sold. However, unless the market has moved straight up very quickly, even in this case, a profit normally will be available to the trader even if the trade is closed out at these higher levels, due to erosion of premium value.

### **Trading without determining market direction**

Statistical research has shown us that markets are in a trading range more than 80% of the time. These ranges cannot be traded profitably by most futures traders and these markets are frequently characterized as choppy, dull and boring. However, it is these same boring markets that can give the futures options trader a trade that can have the highest probability of profit.

Without having to determine market direction, but only a trading range, an option trader can sell a put and call outside the trading range and profit while the commodity chops around within its trading range. If the commodity continues to trade within this range, the entire premium will be collected. However, in many cases, premiums are so high that the trader can be adequately protected from a move in either direction by both the continuing loss of time value in both options and the fact that, as the commodity moves towards one direction, the other option will be losing more of its value.

This is apparent in [Figure 4](#), the April live cattle market in January and February. We sold out-of-the-money puts and calls in these markets since we determined option premium was at historical high levels and we felt the contract would maintain a trading range between 5800 and 6400. Thereafter, the market gyrated in both directions, the time premiums of the options continued to deteriorate, and the options eventually expired worthless. We earned a profit even though the price went outside our trading range.

This type of market is perfect for a balanced sale of puts and calls: a high option premium, a trading range market, and two months or less to expiration. Although definitely the most boring trade, it also can be the most profitable, providing returns of 50% to 100% on margin in two to three months.

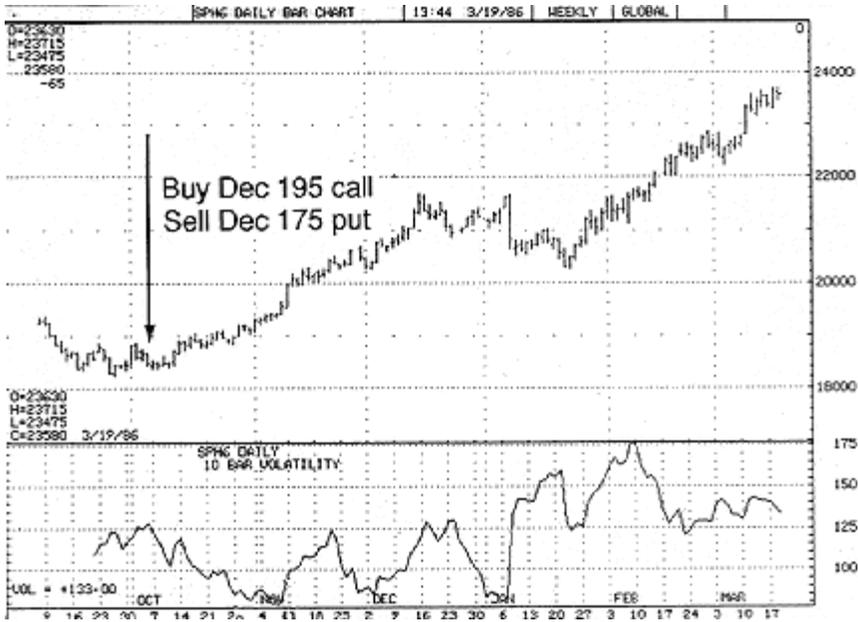
### **No-loss hedging**

Even if you are a member of the elite 10% to 20% who continually profits from futures trading, you can derive significant benefits from futures options. [Figure 5](#) is a graph of the S&P 500 which has moved straight up for a week. Our research has shown that if a market has made a new contract high or low, the odds are 90% or better that the trend will continue. However, after this vertical move up, the market can be subject to violent corrections. By using options to hedge this position, we can purchase a near-the-money put and sell one or more far out-of-the-money calls at no cost to the trader. This will lock in most of the profits from a cash or futures position and still allow for a more than 7% appreciation (\$7,500 per position).

In fact, unless the market were to trade over 265, this strategy would cause no loss of profit to the trader and, even at that point, the only loss would be that the trader could not receive profits over the 265 level. This is a very small price to pay for protection in these volatile markets. The hedge also can be removed at any time the trader decides and, in many cases, will be profitable itself.

These several examples are but a few of the strategies and methods a trader can use to get a trading edge over the markets. They are difficult to use, boring at times, yet option strategies can provide the trader with one of the most powerful weapons in a trading arsenal.

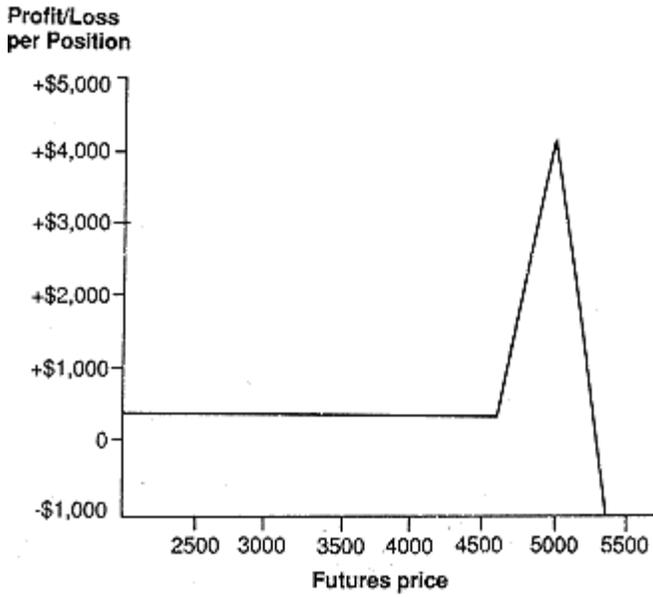
*David L. Caplan is an option trader whose expertise lies in structuring option strategies through mathematical probability to reduce trading risks and increase potential for profit. He is the editor of the monthly newsletter Opportunities in Options. P.O. Box 2126 Malibu CA 90265, (213) 457-3199, and has authored The Professional Options Trader's Manual, an in-depth guide for advanced option traders.*



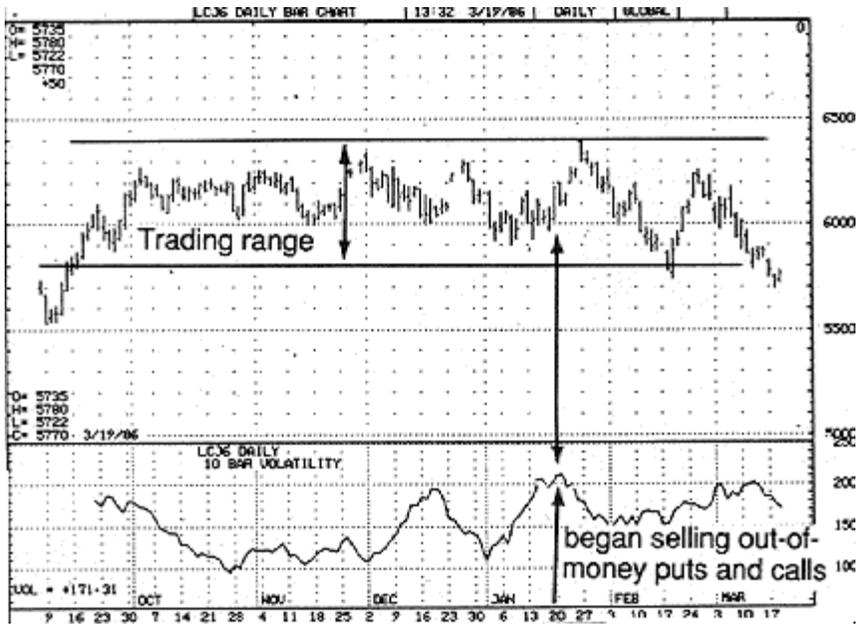
**FIGURE 1 S&P 500 March Contract Synthetic Option.**



**FIGURE 2 December 1985 Swiss Franc Ratio Spread** *The Swiss Franc moved up 1,000 points from May through October and option premiums were very high. The ratio spread of long the 46 calls and short two 49 calls was instigated at a \$200 credit. This spread had a very high probability of profit, and a profit range from 0 through 5,200.*



**FIGURE 3 December 1985 Swiss Franc Ratio Spread** Buy a 46 call and sell two 49 calls at \$200 credit profit is certain from range of SF 0 to SF 5200.



**FIGURE 4 April Live Cattle Balanced sale of Puts and Calls.**



**FIGURE 5 S&P 500 Hedging Profits with Options** *To protect profits in an outright long position while allowing for further appreciation, purchase a near-the-money put and sell one or more out-of-the-money calls.*

## IN THIS ISSUE

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by John Sweeney, Associate Editor

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Included in this issue is an article on modern portfolio theory. I'm popping this in for educational purposes. While old hands will have been through this line of thought before, new folks should be aware of the argument for diversification. Diversification is a key element in the newer trading systems we are seeing and every trader should be aware of its impact on return and risk.

On another subject, trading hardware and software, we're going to try something different. Quite often a package will come to us for review but it will be continually bumped from publication by our extremely limited space. Sometimes it's a product that needs seasoning—like a trading system. Sometimes it's one that's changing faster than we can review it. Sometimes, something better shows up. Thus we find ourselves with numerous meritorious products unpublicized.

To beat this we'll prepare shorter "Quick Scans" of products that look promising on arrival. We won't reach a decision about where it fits in our hierarchy of choices and we'll continue to ignore products which we feel are (a) junk and/or (b) not properly prepared for the market. Still, we should be able to point out the product's availability on a more timely basis and give you our first impression. Nevertheless, buyer beware!

You may remember my valiant attempt to get rid of all the junk mail in my mailbox? That was when I published the challenge to review all the products that people were trying to sell me through my post office box.

You may also remember that only one vendor took me up on it and chose to have his product thoroughly reviewed by *Stocks & Commodities*: Vilar Kelly of the Kelly Hotline.

I'm pleased to say we've completed the review and it is to be published next month. Perhaps virtue does win out now and then! At any rate, may be worth your money to look into his approach.

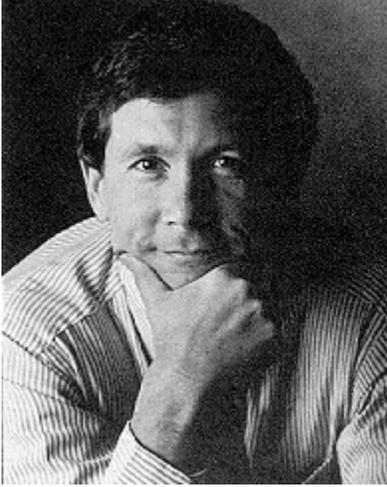
Since the approach is not disclosed, I can't discuss it intelligently, but one interesting idea it uses is to limit profits. It will take any \$1,500 profit that comes its way. This is the second system I've run across (the other being Robert Dennis' Relative Strength system) that turns accepted wisdom on its head. Since Micro Vest found sufficient interest in this approach to include it in their system alternatives, I conclude that many of you are taking your money and running-quickly!

I personally can see this working within the random component of what we trade. That is, in a trendless market, we could conceivably enter almost randomly, set our targets (and presumably our stops) and wait for them to be hit. Even a trending market may offer this opportunity, with a bias in one direction or another. Come to think of it, this might be a good test for trending activity: whether or not our targets are being hit on a random or non-random basis.

Somebody get to work on this right away!

*Good Fortune!*

## Larry Williams: Where will he go next?



*Larry Williams—author, trader, technical systems designer—is a man of many interests. He began following the stock market in 1965, soon started trading and by 1967 was a registered investment adviser. He switched to commodities and is probably best known for the \$1 million he made and wrote about in the 1973 bull market.*

*At age 45, he has, among other things, run for the United States Senate in his home state of Montana and narrowly lost, carried on a busy lecture/seminar circuit while managing his trading from airport telephones, written trading books, developed a number of computer trading systems and refined the %R oscillator into a tool that is now a standard for many traders.*

*The one consistent theme in his varied life—trading—is once again dominating his activities. He is limiting his public exposure and ended the publication of Commodity Timing newsletter in January. Stocks & Commodities talked with Larry at his California office where he is intent on the markets and on refining his systems.*

### ***How did all this start, Larry?***

It started as a byproduct of my first newsletter which was called Williams Reports and that was a stock market letter. I started publishing and, by 1970, someone had turned me on to commodities. It was a natural evolution: you start walking and then you run. If stocks are walking, and you're really good, then you're going to get into commodities.

### ***What about the differences in trading techniques for stocks and commodities? How did you switch gears so fast?***

I used my stocks tool—they became my commodity tools. There wasn't very much difference at all. Then I started *Commodity Timing* in 1970 and, because of my history in stocks, I was able to get a bit of a following in commodities. Then, 1971 and 1972 were spent pretty much tracking around the country giving seminars on commodity forecasting in a bull market.

### ***Do you see Commodity Timing as an advisory service or a newsletter?***

It's been the vehicle for my heretofore public activities most of which have now been suspended.

***So what are you doing now? CTA work? CPO's? What?***

I'm a CTA with several hundred managed accounts and, personally, I do mostly daytrading.

***Gossip has it that you feel you're trading better than you've ever traded in your life. It's too much for me to pass up to avoid asking if that's true.***

Yeah. I can give you some data on that. I'm trading in the world trading cup championship right now through Robbins Trading Company and we started out with \$10,000 in January and right now we're trading in the \$600,000 area. (*Ed. Note: The account on May 4 stood at \$872,000.*)

***What markets are you mainly in?***

S&P's and bonds. That's all I look at. It's really interesting because it used to be, in the old days, all I looked at was soybeans and pork bellies. I'd dabble around with other markets but those were the markets of that generation. The next generation, the hot markets were the metals, and the current generation it's the S&P's and the bonds. And I'm a real believer that you've got to go where the liquidity is and where the volatility is. People who are still trading the hard commodities of years ago and the metals of eight years ago haven't caught up! They've fallen in love with one market.

***Some people couldn't take the volatility you work with.***

Could be, but I think volatility is one of the most basic ingredients to have in the markets (when you're trading). When you have volatile markets that's exactly what you're looking for and it takes people a while to get over that. One of my real masters who was a real help to me was a guy named Gil Haller who traded stocks. He'd always go, "You've got to go with the hot markets. That's where you've got to be. They may scare you, but that's where the action is." I'm really grateful to Gil for that.

***Do you consider bonds hot these days? (This was just before the April drop in rate instruments.)***

Well, the volatility has dropped but the liquidity is still there. I suspect they'll pick up again, but at this point I'm questioning whether they've lost their following. You've got to question that.

I monitor the liquidity and the velocity of these markets but I don't watch every market. It's not a complicated formula—it's just kind of an eyeball feel for it.

***What's the difference in behavior between stocks, hard commodities, metals, financials? Do you have a feel for that these days?***

Well, I think the behavior is always the same when you're in the hot group. Standard & Poor's and the bonds trade now pretty much like gold and silver did when they were hot, like bellies and beans did when they were hot.

***I see a lot of difference between the way an individual stock trades and say a metal. Do you?***

Well, that would only be the window right now. But you take a hot stock like, say Bausch and Lomb in 1969-70 or a Tandy or a Teledyne, take those and compare them with a hot commodity now or how the metals traded when they were hot and I don't think you'd find a nickel's worth of difference.

***Are you still using the tools and techniques you started out with?***

No. I'd like to think I've graduated to a higher level of understanding. I refer to some of those tools still, but I don't trade off %R, moving averages, stochastics.

***Tell me a little more about the new things.***

My central thesis of the market is that trend is a function of volatility whereas most people—and I in the past—have focused on finding the trend. So we would try to monitor when the trend is reversing then say "AHAH! It's a buy!" Now we're saying volatility has been down and there's been a substantial change in volatility to the upside. That will identify a trend change. And that trend change will stay in effect until there's an equal and opposite volatility change to the downside.

***So, are you measuring volatility off price action or do you include volume and that sort of thing?***

A combination.

***Are you going for the outright position or using options, spreads, soft stuff?***

No, I'm always going for the simple stuff. You know in law they always say "Deal with the principal not the agent." Trying to trade a hot stock with options—you're asking for it! I'm not smart enough to do that. Maybe some people are. I want to deal with principals and I've got plenty of challenges right there.

***Are you doing anything new with money management?***

I think we've made a breakthrough and basically it gets down to this: If you have a system that works, where the odds are in your favor, then I scale up my commitments and scale them back when they aren't.

***Do you scale in when you open and close?***

Yeah.

***Do you have a target percentage of total capital that you would commit to any one position?***

Yes, I do and it's based on the system I use, the analogy being, say you were playing blackjack and you knew the size and number of your wins and losses and the number of each in a row. You'd factor all that in. The amount will vary by the market but the important considerations are maximum drawdown, number of losses in a row, win loss ratio....

***Do you rely on computer systems or your own feel for the market?***

I'm a real system trader. Once in a while I depart from the system but I develop my own systems and I follow the ones I develop. It's funny because I started out as an art major in college and I had a lot of emotions back then. Nowadays, I don't know what emotions are.

***Now do you do the development or do you have some guys that help you with that?***

I have a full time programmer here, Shawn Quick, and the other fellow Ralph Vince who helps with the programming....

***Do you believe in optimization of these systems or....***

Well, optimization has its advantages but you've got to be real, real careful because every optimization study we've done here shows that the best set of numbers for the last six months, or year or whatever will not be the best set of numbers for the next six months. So I'm not a great proponent of optimization. You've got to be real, real careful when someone shows you a system that's been optimized.

***How do you get around it?***

Well, you move your money in the market. There was a great study by Merrill Lynch that was supposed

to show the best moving averages to use. We tested those averages after the study and every one of them lost money!

***So do you have to adjust your parameters as you go along.***

Yeah. Well, no. You have to have something that is stronger, that has more validity than just optimized numbers.

***Tell us what that is!! Give us all you secrets here!***

I...I already have. Well, there are two comments I'd like to make. First of all, if you're going to use a moving average or an oscillator—say a 7-day oscillator—you're going to catch moves about five days long. If you use a 100-day oscillator you're going to catch the longer moves. You're really establishing a time horizon which relates to cycles and there's no magic number. But there are ratios which don't need to be optimized and I prefer that approach. Instead of having an optimum number, I want a formula that doesn't have an optimization to it or very little.

***By ratios you're referring to volatility factors and other measures of the behavior of the market?***

Yeah, sure....Take the ratio of the expansion of volume in an upward move or, a real interesting one is the ratio of the decline of the market vs. the ratio of the decrease in volume. For instance, every author I've ever read would expect the first to go with the second but you have to look at these things within a specific range of experience.

And another thing we've done a lot of work here is pattern analysis....

***You mean chart patterns?***

No. Things like if you had three consecutive closes down what can you expect next? If you had a minus, plus, minus and that minus falls below the first minus, that's a pattern. If you do have a pattern you do have forecasting capability.

***I'm glad to hear that! Cliff Sherry's been publishing articles on this and nobody thinks they're worth anything!***

Well, pattern analysis, I certainly haven't cracked it, but it will give you an advantage in the game.

***Is this short term, for day trading? Or is this something people could use interday?***

Well, I'm real short-term oriented. A day and a half is forever in my world. So I know about the patterns on a short-term basis that are very, very accurate and I don't know about the patterns on a long-term basis. Of course, in the long term, we're all dead.

***We can have some fun this week though!***

Oh, boy, can we ever!

***What about cycles? Do you have any use for that?***

Well, I think all these things add up. The advantage of cycles is that they give you a time consideration. The disadvantage is that they can't give you amplitude and they aren't precise. You can sit around waiting for a 400-day low and it may stay there for a long time or it might fall out of bed.

***You've had several original ideas. Are there other people who you think of as being original?***

Oh, lots. Jake Bernstein, Pete Steidlma yer, Welles Wilder—I could go on forever...and there are lots of people who've taken the work I've done or others have done and improved on it, so the techniques are getting better.

***Is that why you're doing so well? Nave you put it all together or reached a level of maturity? Or is it just a bull market?***

Never confuse intelligence with a bull market! I'd like to think it's the culmination of 20-some years of trading, that I've mastered a little bit of my craft. I don't think it's an emotional peak because I'm a system trader. Occasionally I may buck the system but that's a real rarity. It may be a natural evolution— you hang around anything this long, you're bound to learn a little bit about how it operates.

One of the important things for me is the realization in the last 10 months that you can never be right trading commodities.

I've always wanted to be right and you're never going to be right. You're not going to get the high. You're not going to get the low...once I realized that, I felt much more relaxed.

***So if you're managing money are you limiting it?***

Yes, to just a few accounts. As a CTA you have to have attorneys, broker relationships, filings, accounting, the NFA comes in...it just goes against the grain of a trader. I'm not a good working-relationship type of person and you need a strong back office. I just like to trade. I love to trade.

***You used to sell a fair number of trading systems? Do you still sell those?***

No.

***Given up on system sales, huh?***

What I've given up on is the futility of system sales. We sold a very, very good system last year for \$10,000 that made people a lot of money. Well, if you shop around right now you can buy that system for \$200. I just can't beat the purveyors and plagiarists. At this point, it just isn't worth the hassle to sell systems. I've always limited what I've sold to about 75 people. I thought the market could handle that and I no longer think it can because of the plagiarists...my secrets will stay with me and my family. If you're going to sell systems you should only sell them to people you know. On an overall, mass basis there are too many cheats out there.

It's unfortunate the poor purchaser—the guy who paid hard-earned money for the system—gets beat by one of their own. Somebody gives it to their Uncle Charley who gives it to their broker who advertises it!

***That bad!? Advertising?***

Oh, yeah. I've had that happen. George Arndt did. George Arndt used our track record!

***That's balls!***

We got a judgement against him for \$300,000. But I don't have time to sue everybody. I just want to trade.

***Don't we all?***

Yeah, and I should set the story straight about the \$1 million I made in 1973. I got hurt in early '74, but not nearly like rumor has it... I've never lost what detractors say and I haven't made what my supporters tell you either. I made my goal of \$1 million in a month, then in a week in 1987 and next, I'll do it in a day.

# LETTERS TO S&C

## **On The Balance**

Editor,

Hope I qualify as a new subscriber, although I am not a "brand-new" subscriber.

For the sake of balance, you might try countering those Ph.D. articles with an occasional piece by a high school dropout.

WAYNE H. ROBERTS

*Atlanta, GA*

*Good idea! However, the Ph.D's seem to be more prolific.*

## **Congrats S&C**

Editor,

Congratulations on a magazine that keeps getting better and better!

BOB PRECHTER

The Elliott Wave Theorist

*Gainesville, GA*

## **Pleasing Everyone**

Editor,

I was surprised to see my name in the April issue of STOCKS & COMMODITIES. I am sorry my few words came across as a kind of put down of your editorial policy. I truly like and look forward to receiving your publication which, in my opinion, is first class. You provide a valuable service and you do it well.

I put in my two cents because at times it does seem that one can discern a "trying to please all factions" approach. There is nothing wrong with that, but I did feel that in the issue with the Schwager interview you put yourself in a no win position.

It's my personal opinion that someone like Jack Schwager should do his company a favor by considering another occupation. He has an important job. He's written a book covering all aspects of commodity trading. He then makes the statement that he has a block on trading: for him nothing works. This is a flat out contradiction. He should refuse to accept royalties from the sale of his book: fat chance.

His interview read like an argument against becoming involved in the business of trading commodities and an argument for buying a farm and a cow, which, incidentally, is not bad advice: it takes a special talent to succeed at anything.

Not many are going to make it big in commodities, or in anything else, but a good second or third is nothing to be ashamed of and is something worth shooting for. Keeping from going broke isn't a bad goal either. Wherever a person starts or finishes, money is what commodity trading is all about. Wyckoff, Gann, Elliott, Wilder, et al., worked out their theories for self satisfaction, of course, but essentially they did it to make money. No money, no satisfaction. And it is in this area (making money) that I feel STOCKS & COMMODITIES could pitch in a little more.

I enjoyed the interview with Robert Prechter. It's nice to read about guys who know how to get it on. I can't say the same for Bruce Babcock. He does a few good things in the business, but he's hardly a talent and he is an exploitation artist.

I find that some issues of STOCKS & COMMODITIES read like something for the classroom—too academic. Like 20,000 computer runs using 15 different parameters and looking at the results. "Gee...too bad we picked the wrong one, we could'a made a million." These things have interest, no doubt. But sometimes the entire issue has that flavor.

I would like to see, on the part of some of the contributors, a six month or year's analysis of how their theory did in an actual trading situation using real money. A thought just occurred to me: most of your articles are signed by people for whom commodity trading is an avocation; they are engineers or psychologists, or whatever. They don't make their living in the stock or commodity markets. It would be nice to read about people who do this full-time. They don't have to be far out in their approach. It's interesting how simple the Wyckoff method seems now. Many people say they still use it.

I have gone on long enough. I think you have a great magazine. Apparently it's successful. You must be doing something right. There will always be criticism; you can't please everyone. Why try?

I do enjoy what John Sweeney writes. And not only is the magazine great, the same goes for the people who run it: it comes through off the page.

SHELDON SMITH

*San Francisco, CA*

### **Psych Books**

Editor,

In the April issue of *S&C* you had a most interesting interview with Van K. Tharp, a psychologist who practices Neuro Linguistic Programming. Your readers may want to know about a few books on the subject:

*Using Your Brain For A Change* by Richard Bandler. An enjoyable and easy-to-read book by one of the developers of NLP. For years I have given my friends an unconditional money back guarantee on this book. (I don't sell it.)

*The Emotional Hostage* by Leslie Cameron Bandler. Helps you understand your emotions and change them so that you have emotional patterns that support you.

*The Emprint Method* by Leslie Cameron Bandler. Using NLP, how to reproduce behavioral patterns that you notice in others that you would like to have in yourself.

*Unlimited Power* by Anthony Robbins. Gives an overview of NLP by a man who gives seminars at the end of which the participants walk on hot coals.

These books and the NLP approach are nothing like other books on the subject of psychology. It is a practical approach for which the user needs no prior training. Several years ago I gave up being a therapist because the standard techniques, such as Gestalt and Transactional Analysis didn't work. The NLP methods are the most powerful that I have ever seen and have enabled me to change myself and others in a matter of minutes.

RON JAENISCH

*Sunnyvale, CA*

# Maximizing profits with stop orders

## *The Wyckoff method of trading stocks part 11*

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*by Jack K. Hutson*

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No matter what technical system you use, the first rule of successful trading and investing is: Cut your losses short. No one believed more firmly in this sage advice than Richard D. Wyckoff.

"No one can trade or invest without losses," he said. "Danger is present in every trade, whether it be for investment or speculation. In the stock market you must be constantly on your guard: Always be expecting something to happen."

Stop orders, in Wyckoff's view, are the mark of a professional attitude that acknowledges the ability to falter and the wisdom of money management. Stop orders also are an aid to judgment, allowing the trader and the investor to operate with less concern and more mental poise.

As an essential part of his method, Wyckoff insisted that traders and investors make a commitment only if the probable profit exceeds the potential risk by 3 to 1, that stop orders be used on every single transaction, whether long or short, and that the stop order price be determined before a commitment is made.

### **Stop order basics**

Stop orders are insurance that little losses will not run into big ones, that your working capital won't be tied up in losers.

There's nothing mysterious about a stop order. It's simply an instruction to a broker to sell long or buy short 100 shares of a stock when the price reaches a price you stipulate.

If you buy stock long at \$50 per share and want to limit the loss to two points, the stop order is to sell 100 shares at 47-7/8 stop. If the price touches 47-7/8, the broker sells the shares at the market price as close as possible to 47-7/8.

Likewise, if you're buying short at 50 and want to limit the risk to two points, the order is to buy 100 at 52-1/8 stop. If the price rises to 52-1/8, the broker covers, or buys back, the shares at the best price after the stock hits 52-1/8.

Whether you are trading odd lots (less than 100 shares) or round lots (100 shares) the stop will be executed based on round lot price.

Stop orders also are generally considered good till canceled, or GTC. You may prefer to specify that your stop orders are good this week (GTW) or good this month (GTM). This way, you needn't remember to cancel a GTC order after you've changed your positions, but you must remember to renew a GTW or GTM order on time.

Like any other aspect of dealing in the stock market, a sophisticated use of stop orders requires study. Moving stop orders while a trade is in motion can further reduce risk and maximize profit. The price at

which stop orders are placed can influence the frequency with which they're caught. Determining the exact stop order price involves trained chart analysis.

Wyckoff advises that stop orders be placed at fractional prices because there usually is an accumulation of orders at even figures such as 90, 83, or 55. Market manipulators will try to get a stock up or down to even figures if it is to their advantage to see stop orders fulfilled and the traders taken out of the market.

Next to full figures, the half points are most often stated in stop orders. Quarter points are next in popularity and least of all the  $\frac{3}{8}$ ,  $\frac{5}{8}$  fractions. Therefore, it can be advantageous to place stops on long trades at the odd fractions below the even figure, and on short trades at the odd fractions above the even figure.

Stops, in Wyckoff's view, are not arbitrarily placed two or three points from every transaction price. Instead, the stop order should correspond to a logical "danger point." That danger point may be one to five points under a support level or one to five points above a resistance level as determined by chart analysis. It may be the same number of points above or below a 50% reaction or rally mark. It can be the same number of points under a clearly defined support or supply line. The choice depends on the situation and past price swings.

As a rule of thumb, the transaction price determines the number of points the stop price is placed from the danger point. Stops on very high-priced stocks would be in the 3-to-5-point range, 2-3 points on moderately priced stocks, and 12 points on low-priced stocks selling under \$50.

The type of trading also governs the number of points at risk with a stop order. In short swing trading, where the goal is to profit from 3-to-5-point moves, the initial stop must be placed closer to the danger point and moved more quickly to reduce risk than if the goal is to catch intermediate price swings of 10 to 20 points where you don't want to be kicked out of your position on minor reversals of a larger trend.

### **Moving stop orders**

Another rule of thumb is to move a stop  $\frac{1}{2}$  to  $\frac{3}{4}$  point from the transaction price as soon it can be done without additional risk in order to cover brokerage commissions. The stop would be moved above the transaction price on a long trade and below the transaction price on a short sale.

After a stock has moved well away from the point at which you took your initial position, whether long or short, you must remember that it is coming closer to a reaction or rally or a turning point for a swing in the opposite direction. The more the stock moves in your favor, the closer your stop order should be moved to the market price.

Wyckoff advocates crowding the stop order right behind the market price if the stock is 3-5 points from the completion of its indicated move. "Don't hold out for the last point," he admonished his followers. He advised that the more a stock hesitates and seems ready to reverse, the closer the stop should be to the current market price.

In these instances, a stop moved to within one point of market price assures most of the paper profit already accrued, yet the way is still open for more profit. If stops were not employed and the trade simply closed out for fear of a reversal, the possibility of further profits is closed.

Stops, however, are not short-cut substitutes for good judgment. Good judgment closes out long trades on an upwave and short trades on the downswing. Stops take you out in a weaker position. From a practical

point of view, however, the profit differential between closing out yourself and being closed out by a stop is not so much a loss as it is an operating expense—the cost of experience or the insurance premium to guard against larger losses.

A variation of the stop order are the "office stop" and "buy stop." Basically, you are asking the broker to begin your long or short transaction when the market price reaches a certain level. This is advisable only for those with a great deal of experience who know exactly what they intend to accomplish and fully comprehend the dangers. This type of order is most useful when an important move without a material reversal is in the offing and must be caught as soon as it appears. Usually this is when a stock is ready to step on the springboard or is on a hinge.

The disadvantage is that the risk begins as soon as the trade is made for you and you must place a conventional stop order immediately to protect the purchase. This normally means a wider unprotected range between transaction price and secondary stop order—greater risk should the market misbehave.

## **Wyckoff is adamant that stop orders be used with every transaction, whether for trade or investment.**

### **Frequently caught stops**

Wyckoff is adamant that stop orders be used with every transaction, whether for trade or investment. Investors, especially, he admonishes against carrying stock through losing periods, since a 10-point profit ensured by a stop order is more than could be taken out of most stocks by holding them for a full year's dividends.

If stops are caught too frequently, there are three probable reasons: 1) starting trades too soon (either through impatience to wait for reasonably conclusive indications or failure to decide in advance where the danger point exists and whether the profit potential outweighs the risk), 2) bucking the market trend, or 3) improperly placing and moving the stops.

If this happens to you, review your judgments about potential market movements, and about danger points. Do not, in any case, abandon the use of stops. If your stops continue to be caught too frequently, close out all your commitments, get out of the market and stay out until you've located the source of your difficulty.

Rather than becoming irritated at such a situation, be thankful. The stop orders are sending a clear message that something in your technique is out of kilter. Persisting to defy the market would only damage your bank account, your confidence, and your ultimate success.

### **Glossary**

**Stop order**—an instruction to a broker to sell long or buy short 100 shares of a stock when the price reaches a stipulated price.

**Odd lot**—less than 100 shares of a particular stock.

**Round lot**—100 shares of a particular stock.

**GTC**—good till canceled, the usual status of a stop order.

**Danger point**—a price one to five points under a support level, above a resistance level, above or below a 50% reaction or rally mark, or under a clearly defined support or supply line.

**Office stop and buy stop**—instructions to a broker to begin a long or short transaction when a stock's market price reaches a certain level.

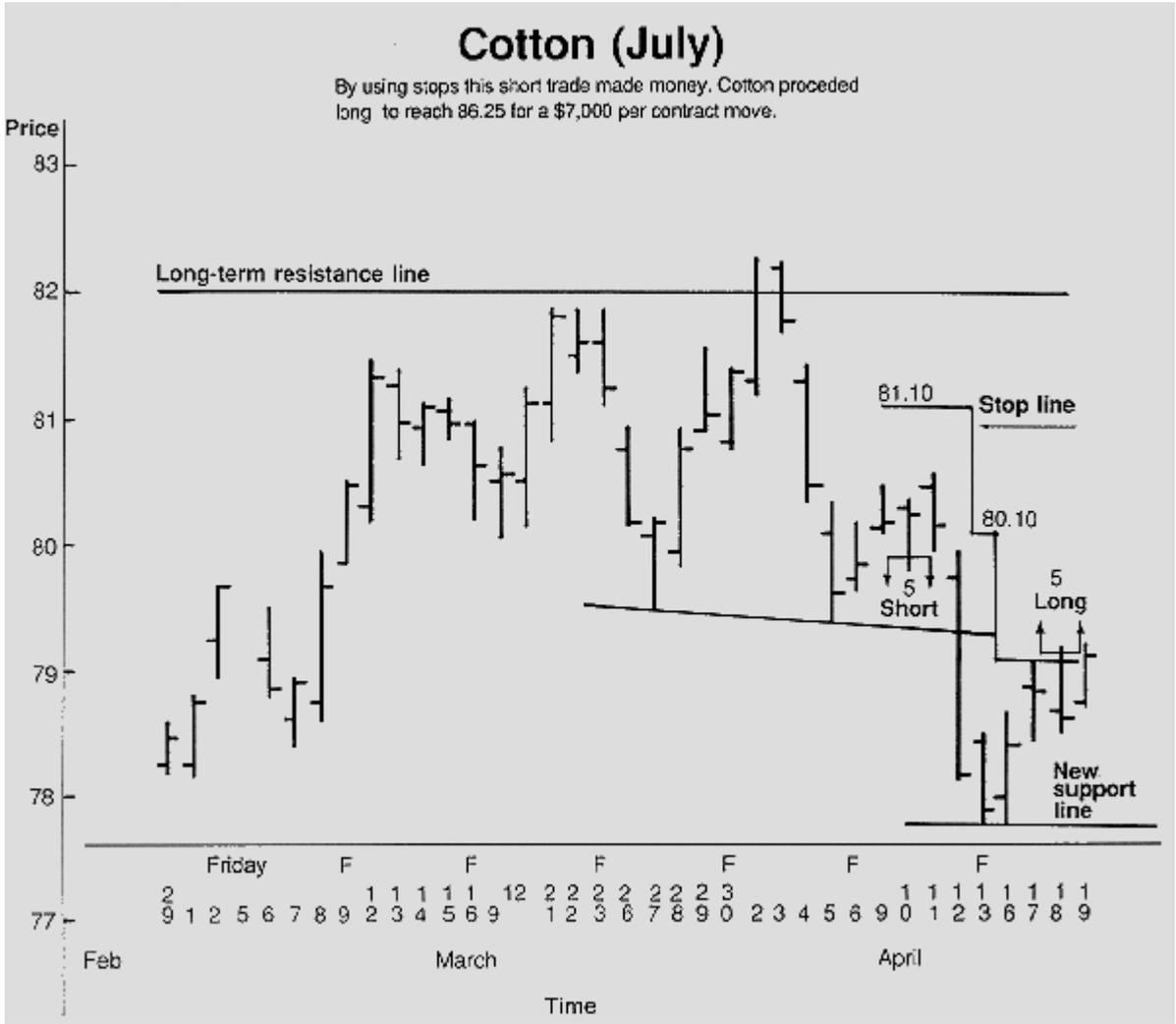


FIGURE 1:

# Modern portfolio theory A powerful tool for futures investing

## Part 1

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by Gary S. Antonacci

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In an effort to improve on the traditional risk and return characteristics available from investment opportunities, academic researchers developed Modern Portfolio Theory. Modern Portfolio Theory shifts the focus of attention from individual investments to portfolios of investments. In fact, the basic premise of Modern Portfolio Theory is that investors should only be concerned with the expected returns and risks of their entire investment portfolio. Returns and risks on individual investments matter only in how they effect overall portfolio returns and risks.

An important assumption of Modern Portfolio Theory is that all investors are risk-averse. In other words, investors want high returns while limiting variability of returns. The theory shows how risk-averse investors should combine individual investments in their portfolios to give the least risk possible, consistent with the returns they seek. To quote Burton Malkiel in *Random Walk Down Wall Street*, "The theory gives a rigorous mathematical justification to the age-old investment maxim that diversification is a sensible strategy for investors wanting to reduce risk."

### Portfolio balancing

An example will help illustrate the basics of Modern Portfolio Theory. Suppose you have \$10,000 to invest and are considering two investments, A and B. The total returns of A and B over the last four years are shown in [Figure 1](#).

If you invest the entire \$10,000 in either A or B, and returns vary in the future as they have in the past, then your expected return per year would be \$800 or 8%. However, your actual return could be negative due to the risks of either investment. If you put half the money in each investment, the expected return will still be \$800 per year or 8%, but this return will be much less risky. The same results are graphed in [Figure 1](#), where we can clearly see that the portfolio's returns are not nearly so volatile as are those of the individual investments.

Why was the portfolio's return in the previous example less risky than either of the individual investments? The reason is that the returns on investments A and B did not move in the same direction at the same time. If the returns on investments A and B always moved in the same direction and by the same amount, then diversification across the investments would not reduce risk. Thus, a crucial factor for constructing portfolios is the degree of correlation, or co-movement, between investment returns. Diversification provides substantial risk reduction if the components of a portfolio are uncorrelated. In fact, if enough investment opportunities having non-correlated returns are combined together, the overall risk of the portfolio will be almost zero! This is why insurance companies attempt to write many individual policies and spread their coverage to minimize overall risk.

(The formula for determining the amount of risk reduction gained from diversifying across uncorrelated securities is:

$$S_p = S_i \div \sqrt{N}$$

where  $S_p$  is the portfolio standard deviation,  $S_i$  is the standard deviation of the individual securities comprising the portfolio, and  $\sqrt{N}$  is the square root of the number of securities held in the portfolio.)

[Figure 2](#) shows the relationship between the number of uncorrelated investment opportunities and the risk of the corresponding portfolio.

### **Efficient portfolio diversification**

It should now be clear that diversified portfolios are likely to offer improved risk-return tradeoffs. The example of Investments A and B presented in [Figure 1](#) was a good illustration of basic portfolio diversification. However, the 50-50 proportion of the two investments was selected arbitrarily. Modern Portfolio Theory suggests that a better procedure is to form portfolios that are "efficiently" diversified. An efficient portfolio is a feasible portfolio that possesses the following two properties:

- a) no other feasible portfolio has a lower risk for the same expected return
- b) no other feasible portfolio has a higher expected return for the same risk level.

All feasible portfolios that do not possess these two properties are said to be inefficient. From the perspective of the risk-averse investor, efficient portfolios "dominate" inefficient portfolios. An example will help demonstrate why this is true.

The umbrella-shaped area in [Figure 3](#) represents all the feasible portfolios that can be formed with a hypothetical set of five investments. Points C, D, E, F and G are the return-risk combinations of the five

individual investments. The most desirable area in [Figure 3](#) for a risk-averse investor is the upper-left hand corner, where expected return is the highest and proportionate to risk. Conversely, the least desirable area in [Figure 3](#) is the lower-right corner, where expected return is the lowest and risk is the highest possible.

The set of portfolios along the line segment ABC have the most desirable return-risk combinations of all feasible portfolios. This is called the "efficient frontier" and portfolios lying along the efficient frontier actually dominate all other points inside the feasible region (umbrella-shaped area).

Consider portfolio H, which does not lie on the efficient frontier even though it is a feasible portfolio. No investor wanting to obtain the maximum expected return for a given amount of risk would hold portfolio H, since portfolios A and B on the efficient frontier are clearly superior. Efficient portfolio B has the same risk level as portfolio H, but a substantially higher expected return. Efficient portfolio A has the same expected return as portfolio H, but a lower risk level.

Two more observations need to be made about the efficient frontier in [Figure 3](#). First, portfolio A has the minimum possible risk of all portfolios in the efficient set and the feasible region. If investors simply wanted to minimize risk and were not concerned about expected return they would hold portfolio A. Second, portfolio C has the maximum possible expected return of all portfolios in the efficient set and the feasible region. If investors were not concerned about risk and simply wanted to maximize expected return they would hold portfolio C.

We can now state a precise definition of the efficient frontier:

The efficient frontier is the set of portfolios that offer the highest return for each and every level of risk, or the lowest risk for each and every level of return.

### **Determining the efficient frontier**

The question then arises as to how to come up with the efficient frontier among all feasible portfolios. This is a rather sophisticated optimization problem that can be solved with the help of computers to evaluate each investment's expected rate of return and volatility, as well as the degree of correlation among all of the investments.

In the academic literature pertaining to efficient portfolios, expected rates of return are usually represented by historical rates of return, which approach encompasses the rather heroic assumption that past results adequately reflect future expectations.

**Compound rates of return are almost always lower than average rates of return and thus give a more conservative estimate of future expected results.**

I have found, however, through years of investment experience, that future performance rarely measures up fully to past results. While volatility and correlations tend to remain fairly stationary over time, rates of return are often less predictable.

For this reason, I use compound (time-weighted) rates of return rather than average rates of return as input for determining efficient portfolios. Compound rates of return are almost always lower than average

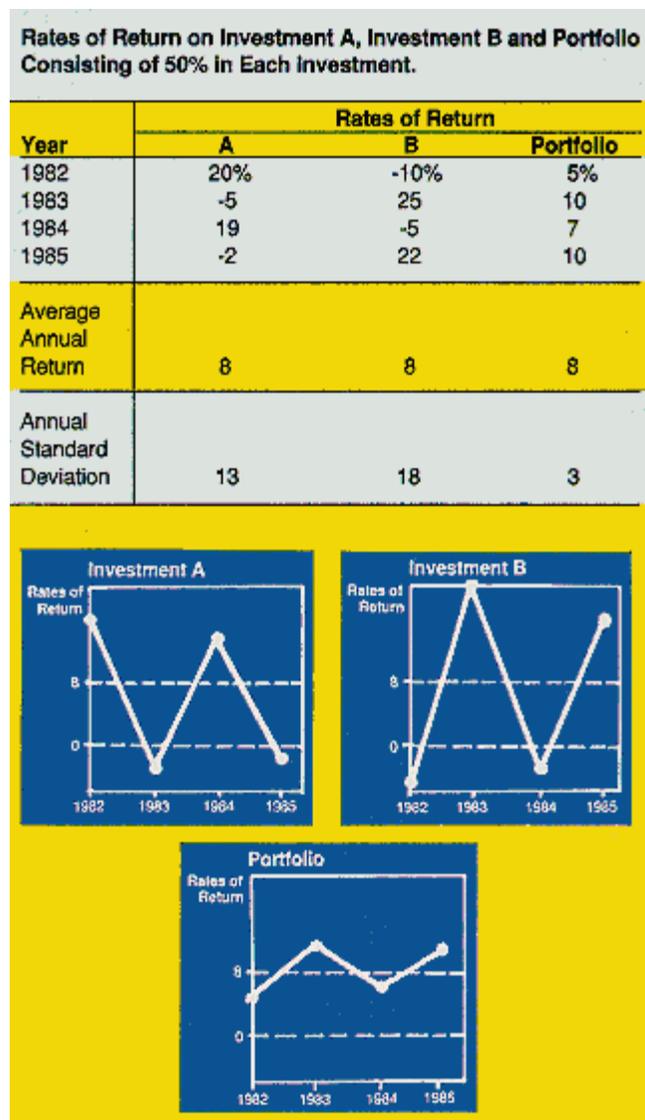
rates of return and thus give a more conservative estimate of future expected results. Their use also tends to bring the returns from different investment opportunities closer in line with one another, which leads to broader diversification and a more even distribution of investment capital than would be obtained from using average rates of return.

To show the practical impact of this analysis, [Figure 4](#) charts the performance of a commodity pool using these techniques. (Space does not permit printing the detailed printouts of correlation, efficient frontier and composite performance.) This pool's individual investments have drawdowns *starting* at 16%, yet the composite portfolio has only a 13% *maximum* drawdown.

*Gary Antonacci holds an MBA degree from Harvard Business School and is a five-year veteran of evaluating, monitoring and combining commodity trading programs. Mr. Antonacci is the founder of Portfolio Management Associates, 1501 Poplar Ave., Richmond, CA 94805, (415) 233-6161, consulting for advisers and professional investors in the futures markets, brokerages and pool operators*

#### *Reference*

*Random Walk Down Wall Street*, Burton Malkiel, WW Norton & Co., New York, 1985.



**FIGURE 1**

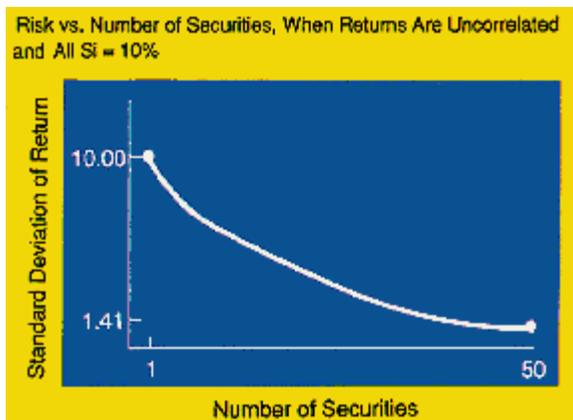


FIGURE 2

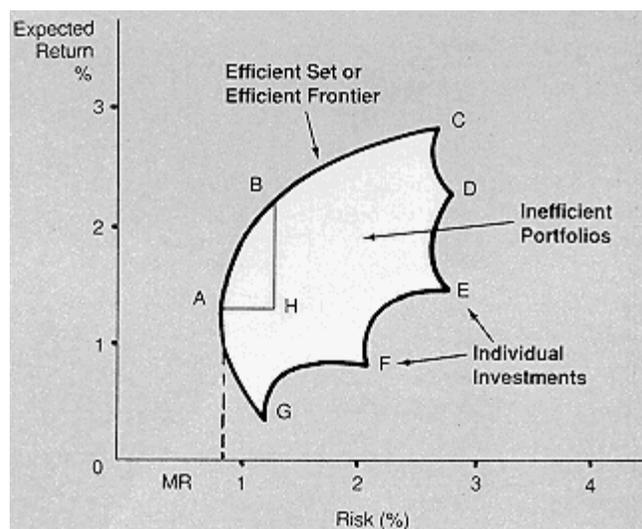


FIGURE 3

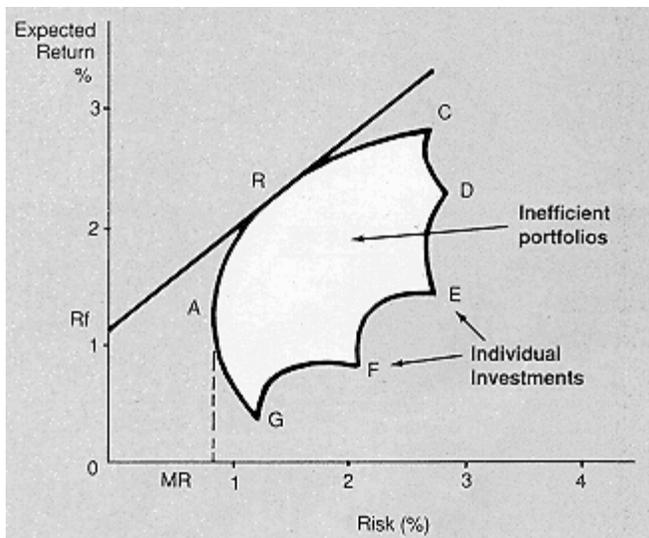


FIGURE 4

# Quick Scans

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by John Sweeney

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## *FINANCIAL FUTURES TRADING SYSTEM*

### **Essex Eurotrader**

Essex Trading Company

300 West Adams, #319

Chicago, IL 60606

**Price:** \$995, with 5-day money back guarantee

**Computer:** IBM

It's unfortunate that trading systems take so long to check out. You need at least a full year to see how they do after publication, and preferably more! Nevertheless, some inspire more confidence than others on arrival and Essex Eurotrader is one such.

You'll get in the mail a well-produced notebook with a data disk and a program disk. The program is installable on your hard disk and it is copy-protected. Off our experience, no difficulties will be found installing it on your IBM PC/XT/AT or compatible. Instructions are very clearly written and, thank the Lord, they include how to *uninstall* the program, a courtesy some developers omit these days.

Eurotrader trades a portfolio of seven futures contracts: the British pound, Japanese yen, Swiss franc, Dmark, Eurodollar, T-bonds, and the S&P 500. The system is meant to be traded as a portfolio to reduce volatility in your equity account. This is an important design feature that works. Do not ignore!

The system itself is described and discussed, but the precise implementation (i.e. formulae) is not disclosed. It is a trend-following system which, due to reversing stops, is nearly always in the market. It employs filters on the trend trades and adjusts these for the volatility of the market. To overcome uneasiness, results on 10 years of previous data is included. So is all the data for the 10 years! The program can—and does—replicate the published results. The raw price data, however, has been translated into an exclusive (but readable) value which is difficult to compare to published quotes. Data input, by the way, is by hand or by CSI—take your pick.

Also included in the software are routines for easily and quickly changing the single parameter: the number of days to use in calculating its proprietary indicators and then rerunning the historical tests. This may allow one to find better values than those issued as standard with the program.

We sampled the historical trades on the charts to assure that they could have been made, sampled the data to assure it could have been calculated from real prices, and tried to "black box" the algorithm. Our guess is the price data is real, the trades would have been possible, the algorithm is safe from us, and you'd better trade this as a portfolio because, on any one contract, you can get deeply into a hole while the total portfolio is thriving.

Off the quality of the presentation, the fact that everything is working right out of the box, back-checking the trades on charts and monitoring its present performance for a couple of weeks, we plan to do an

extensive review of Eurotrader. Systems traders may find this one worth a checkout.

***ONE COMMODITY, EVERY TRADING ANGLE***

**Analytical Methods for Successful Speculation**

Author: James E. Schildgen

Capital Futures Associates, Ltd.

P.O. Box 2618-Dept. M

Chicago, IL 60690

(312) 274-9254

**Price:** \$49.95

This is a book for: a) gold bugs or b) traders interested in every possible technical method in existence.

*Analytical Methods* studies just one commodity from every conceivable angle: fundamentals, correlation to other economic variables and technical approaches. The latter range from lunar analysis to "four dimensional" charts with 34 other techniques in between, including Harahus Pentagon Analysis.

Like the cattle study put out by the Chicago Mercantile Exchange (*Trading Tactics* edited by Todd Lofton), the value in this publication is seeing the same issue from so many different focuses. You get an in-depth education in gold and a quick look through many, many windows you might not otherwise run across.

The book is pitched as focusing on the methods of successful speculation. Despite the explanations of the various techniques being unusually clear and succinct, it cannot be said that reading four paragraphs on parallel line analysis will allow successful speculation in gold.

You may find something that attracts you for further study, but there aren't any secrets here. All the techniques and data have been available publicly for some time. You will need to go to this material to turn these ideas into trades. To assist, the author has diligently assembled good bibliographies for each area. This assist is a godsend!

Buy this one if you suspect there are techniques out there you haven't discovered. If so, it's probably in here!

# Complete computer trading program

```
10 REM COMPLETE TECHNICAL ANALYSIS
BY JOHN F. EHLERS
MODIFIED BY JACK K. HUTSON
(C) 1987 TECHNICAL ANALYSIS, INC.
1070 IF PL = 195 THEN
LET P$ = "Database Length <" + STR$(DC) + ">:" :
GOSUB 6000:
LET DC = N:
LET S$ = "CCI":
LET ST = DC + 1:
GOSUB 2500:
GOSUB 5500:
REM (C) OMMODITY CHANNEL INDEX
1080 IF PL = 196 THEN
LET P$ = "Cycle Length < " +
STR$(QC) + " > : " :
GOSUB 6000:
LET QC = N:
LET S$ = "DTI":
LET ST = DC + 1:
GOSUB 3000:
GOSUB 5500:
REM (D)IRECTIONAL TREND INDICATOR
1090 IF PL = 210 THEN
LET P$ = "Number of Days <" +
STR$(QC) + " > : " :
GOSUB 6000:
LET QC = N:
LET S$ = "RSI":
LET ST = 2 * QC + 2:
GOSUB 3500:
GOSUB 5500:
REM (R)ELATIVE STRENGTH INDEX
2500 REM *** CCI ***
2510 FOR I = 1 TO 50:
LET Y(0,I) = (X(2,I) + X(3,I) + X(4,I)) / 3:
NEXT I
2520 LET Y(1,DC) = 0:
FOR I = 1 TO DC:
```

```

LET Y(1,DC) = Y(1,DC) + Y(0,1):
NEXT I:
LET Y(1,DC) = Y(1,DC) / DC:
FOR I = DC + 1 TO 50:
LET Y(1,I) = Y(1,I- 1) + (Y(0,1) + (Y(0,I) -Y(0,I- DC))) / DC:
NEXT I
2530 FOR I = DC TO 50:
LET Y(2,I) = 0:
FOR J = 0 TO DC - 1:
LET Y(2,I) = Y(2,I) + ABS (Y(0,I - J) - Y(1,I - J)) / DC:
NEXT J:
NEXT I
2540 FOR I = DC TO 50:
LET X(7,I) = 165 + 12.5 * (Y(0,1) - Y(1,I)) / Y(2,I):
IF X(7,I) < 140 THEN
LET X(7,I) = 140
2550 IF X(7,I) > 190 THEN
LET X(7,I) = 190
2560 NEXT I
3000 REM *** DTI ***
3010 FOR I =1 TO 50:
FOR J = 0 TO 2:
LET Y(J,1) = 0:
NEXT J:
NEXT I:
FOR I = 2 TO 50:
IF X(2,I - 1) - X(2,I) > X(3,I) - X(3,I - 1) THEN
LET Y(0,I) = X(2,I - 1)-X(2,I)
3020 IF X(3,I) - X(3,I - 1) > X(2,I- 1) - X(2,I) THEN
LET Y(1,1) = X(3,I) - X(3,I-1)
3030 IF X(2,I-1)<X(2,I) AND X(3,I- 1) > X(3,I) THEN
LET Y(0,I) = 0:
LET Y(1,I) = 0
3040 NEXT I:
FOR I = QC TO 50:
LET DP = 0:
LET DM = 0:
FOR J = 0 TO QC-1:
LET DP=DP+Y(0,I-J):
LET DM= DM+Y(1,I-J):
NEXT J:
IF DP = 0 AND DM = 0 THEN

```

```

LET Y(2,I) = 165:
GOTO 3060
3050 LET Y(2,I)=165 - 25 * (DP- DM) / (DP + DM)
3060 NEXT I:
LET X(7,2 * QC - 1) = 0:
FOR I = QC TO 2 * QC - 1:
LET X(7,2 * QC - 1) = X(7,2 * QC - 1) + Y(2,I):
NEXT I:
LET X(7,2 * QC - 1) = X(7,2 * QC-1) / QC
3070 FOR I = 2 * QC TO 50:
LET X(7,I) = X(7,I - 1) + (Y(2,I) - Y(2,I - QC)) / QC:
NEXT I:
RETURN
3500 REM *** RSI ***
3510 FOR I = 1 TO 50:
FOR J = 0 TO 2:
LET Y(J,I) = 0:
NEXT J:
NEXT I:
FOR I = 2 TO 50:
LET Y(0,I) = X(4,I - 1) - X(4,I):
NEXT I:
FOR I = QC TO 50:
FOR J = 0 TO QC - 1
3520 IF Y(0,I-J) > 0 THEN
LET Y(1,I) = Y(1,I) + Y(0,I - J) / QC
3530 IF Y(0,I - J) < 0 THEN
LET Y (2,I) = Y(2,I) - Y(0,I - J) / QC
3540 NEXT J:
NEXT I:
FOR I = QC TO 50:
IF Y(1,I) = 0 AND Y( 2,1) = 0 THEN
LET Y(0,I) = .5:
GOTO 3560
3550 LET Y(0,I) = Y(1,I) / (Y(1,I)+Y (2,I))
3560 NEXT I:
LET Y(1,2 * QC - 1) = 0:
FOR I = QC TO 2 * QC - 1:
LET Y(1,2 * QC - 1) = Y(1,2 * QC-1) + Y(0,I):
NEXT I:

```

```

LET Y(1,2 * QC - 1) = Y(1,2 * QC -1) / QC
3570 FOR I = 2 * QC TO 50:
LET Y(1,I) = Y(1,I - 1) + (Y(0,I) - Y(0,I-QC)) / QC:
NEXT I:
FOR I = 2 * QC TO 50:
LET X(7,1) = 190 - 50 * Y(1,1)
NEXT 1:
RETURN
5500 GOSUB 5000:
HPLOT 70,140 TO 70,190:
HPLOT 270,140 TO 270,190:
HPLOT 70,150 TO 270,150:
HPLOT 70, 180 TO 270, 180:
VTAB 21:
HTAB 12:
PRINT S$
5510 FOR I = ST TO 50:
LET X = 70 + 4 * I:
HPLOT X - 4,X(7,I - 1) TO X,X(7,I)
5520 IF X(7,I - 1) < 150 AND X(7,I) > X(7,I - 1) AND X(7,I - 1) < =
X(7,I - 2) THEN
FOR K = 0 TO 3:
HPLOT 70 + 4 * I - K,1
40 - K TO 70 + 4 * I - K,144 - K:
HPLOT 70 + 4 * I + K,1
40 - K TO 70 + 4 * I + K,144 - K:
NEXT K
5530 IF X(7,I - 1) > 180 AND X(7,I) < X(7,I - 1) AND X(7,I - 1) > =
X(7,I - 2)
THEN FOR K = 0 TO 3:
HPLOT 70 + 4 * I - K,1 37 + K TO 70 + 4 * I - K,141 + K:
HPLOT 70 + 4 * I K,1 37 + K TO 70 + 4 * I + K,141 + K:
NEXT K
5540 NEXT 1:
RETURN :
REM PLOT CCI DTI RSI
PROGRAM LENGTH: 32 LINES / 2236 BYTES

```

# Telescan Stock Evaluation Service

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by John Sweeney

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## **Telescan**

2900 Wilcrest, Suite 400

Houston, TX 77042

(713) 952-1060

**Service:** Charting and technical analysis software (together with news and fundamental data) using a proprietary stock/mutual fund database.

**Price:** \$49.95 plus connect time at \$.60/minute in prime time and \$.30/minute in non-prime time at 1200 baud.

**Equipment:** IBM PC/XT/AT or 100% compatible with 256K of memory, hard disk or double-sided disk drive, MS-DOS 2.1 or higher, Hayes or Hayes-compatible modem (1200 or 2400 baud), IBM color graphic adaptor or EGA or Hercules monochrome adapter board, about 256K of storage, not copy protected.

## **Ratings:**

Level of analysis: Intermediate

Ease of use: A

Customer: A

Documentation: C

Reliability: B

Error Handling: B

**T**elescan is primarily a data vendor selling software which accesses its vast store of numbers. The weaknesses and strengths of this package stem from this relationship. From the technical analyst's viewpoint, Telescan has a strong database and an excellent selection of technical tools not commonly found in stock packages, but lacks some of the niceties (portfolio management, access to databases other than investment information, screening large stock portfolios) scattered around in other vendors' packages.

Its uniqueness is that it provides a fantastic blend of fundamental and technical information in what can only be described as a "stimulating" environment—i.e., one that stimulates you to use it more and more,

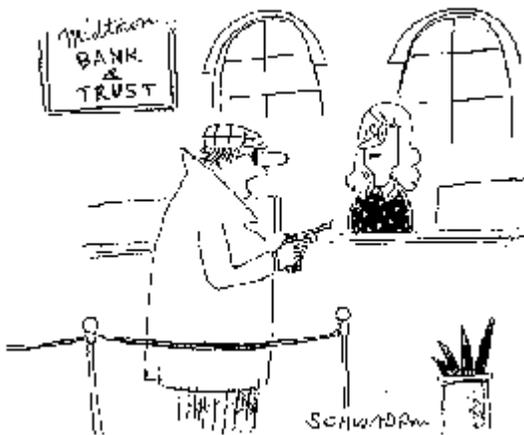
perhaps to your wallet's detriment! You can access quotes and historical information for stocks, indices and mutual funds; get current news; tie into corporate presentations, and, most importantly, conduct intermediate level, chart-based technical analysis.

Working with *Tele scan* is a curious mix of on-line and off-line time. You connect with the built-in, automatic communications software which works easily. Then you have choices: (1) download your portfolio of graphs, (2) work with the graphics on-line or (3) work with an extensive news/fundamental data facility in videotext. The obvious tradeoff is connect time vs. cheaper off-line processing.

The answer, from my point of view, is to take it off-line and then use the fairly complete library of technical indicators found in the Off-Line Main Menu ([Figure 1](#)) to analyze the data. The only thing you lose is inflation-adjusted prices, fundamental indicators and news. This route is best even though the system is seductively easy to use while on-line. There's some delay as the mainframe preps data but, aside from that, you have the illusion you are working with your own machine just as you would with any other micro-based program.

Let me take just a minute to tout the on-line features. Technical analysts might never get too excited about fundamentals, but some of them may have information content. For instance, the insider trading statistics which you can easily bring up on the screen ([Figure 2](#)), can easily suggest a stock in which you had better be prepared to play with some very big boys (i.e., Teledyne). Simply being able to pull up recent stories can suggest stocks in play somewhat quicker than *Stocks & Commodities'* monthly statistical analysis! Finally, I found the fundamental data screen (not shown) can quickly give virtually every vital statistic on the stock in question.

Installing this package went smoothly and the communications links worked the second time (the first time, *Tele scan's* computer was down). The comm links may be a weak spot. Several times I would need two or three attempts to get on. Once I was booted off when a program error occurred in leaving a submenu.



*"Credit it to my account"*

Working with *Tele scan* can be complex because of the huge variety of choices, but you are given an active assistant: "intelligent" menus. Since these constantly change as your selections alter the possibilities open to you, menu familiarity may be slow in coming at first. Incidentally, I found that you can always get out of the menus, a feature missing in some programs.

Telescan is chart based. I couldn't figure out how you would ever get the actual numbers shown on the charts. (It turns out you can see individual prices using the marker or wand.) You never have to fool with that though, because the data is all maintained on Telescan's machine. You can get up to 14 years of data, but you can't specify the beginning and ending dates of the data. Everything is presented from today back.

Once on-line, you can expand or contract the chart scale to show everything from 14 years to one month. The compression is handled by Telescan. Figure 3 is a typical screen with its associated menus. You can see the technical options from this point.

Figure 4 shows the cycle submenu. This implementation is the best I've seen in an application that wasn't real time. You have complete flexibility on the horizontal location, amplitude and frequency.

It's especially nice to see indicators from the futures world fully implemented for stocks. In some competitors, only one or two are available and then, sometimes, only as tabular data, not graphically. Contrarily, here you cannot get at the numerical values of the indicators you create. If you're creating your own indicators or need to see precise values of the indicators you've selected, this is not the place for it.

As an example, when looking at the Dow's recent rise, I was curious about what my favorite oscillator (the Relative Strength Indicator or RSI) had to say about a possible turning point. Figure 5 shows what we were looking at on April 3. After pulling up the basic chart, I flipped to the RSI submenu and specified a 21-day RSI for the Dow. That immediately replaced the volume bars on the bottom. Then I switched to the Marker menu and drew a trendline along the bottom of the RSI chart to where RSI broke below the trendline. Using Telescan's marker facility, I then drew a vertical line to pinpoint the position in the price structure where being short or taking profits started to make sense. This took four or five minutes.

The graphically oriented analyst will find good grist here in the ability of the program to chart fundamental indicators on or below the bar charts. Figure 6 shows the fundamental menus and, as an example, a sales/price ratio Telescan uses to indicate over- and under-valued situations. This menu can display earnings, book value, dividends, cash flow, capital spending, sales and Telescan's own proprietary combination indicator (Figure 7) which is a combination of the above.

In market watching, momentum indicators are crucial. Here, the Group Utilities section shows you how stocks are behaving in relation to a host of public and proprietary indices that Telescan maintains. This can quickly give you a feel for the market's underlying power, offering the advance-decline line, an overbought/oversold index, the diffusion index, the absolute breadth index and the high-low index.

Unfortunately, these nifty indicators seem to work sporadically with the major indices. I got them to work with Telescan's proprietary industry indices, the AMEX market value index, NASDAQ Composite and NYSE Composite, but not with the S&P 500 or Dow Jones Industrials. These are some of the broad market indicators for which these indicators are most useful!

My impression is that this package is just the basis for more to come. The developer clearly was an eclectic investor and seems to be the sort of soul who will be adding more and more tools from a wide variety of sources. The documentation is slightly behind all the extras being added.

From my experience, it is the most innovative package I've seen for stocks and mutual funds. It can't compete in bonds or futures because it hasn't the data, but what's being built here has exciting potential. The intriguing mix of news, fundamental and price data, chart and technical analysis capability and unique, custom features (adjusting for inflation and insider trading are dynamite items) all tied to a

proprietary database are going to become standards for vendors. Bonus points should be awarded for the well-implemented presence of proven technical indicators from the futures world.

On a day-to-day basis, the program is perfectly usable and convenient but not unbombable or without a glitch here or there. Some of that may be from the network (Telenet) which, in my area, can be tricky to work with. Some can be corrected by *Telescan*. For the price and a glitch or two you get complete freedom from data maintenance and a powerful set of fundamental and technical data for a very large universe of tradables. You wouldn't want to change if you're manipulating data yourself—you can't get at the data in *Telescan* and there's no formula generator. However, if you're transitioning from the fundamental world to the technical and want a smooth ride, this may be the choice. The price of a tryout is very reasonable, even cheap, as data vendor pricing goes, so you could hardly go wrong and you may find a package that would last you a long, long time.

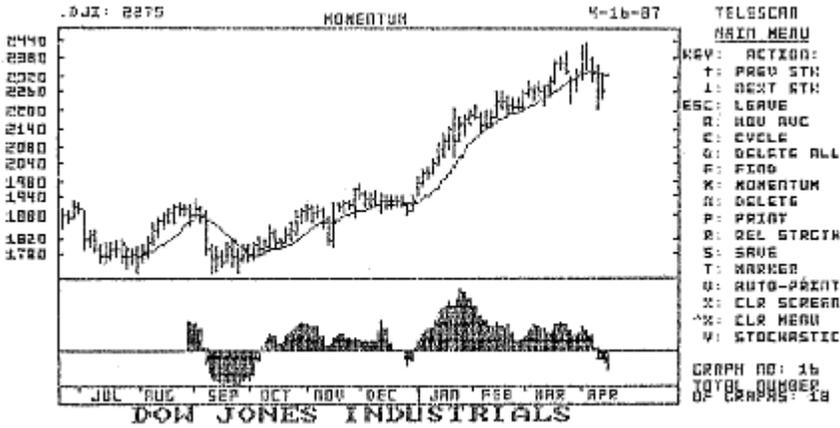


FIGURE 1:

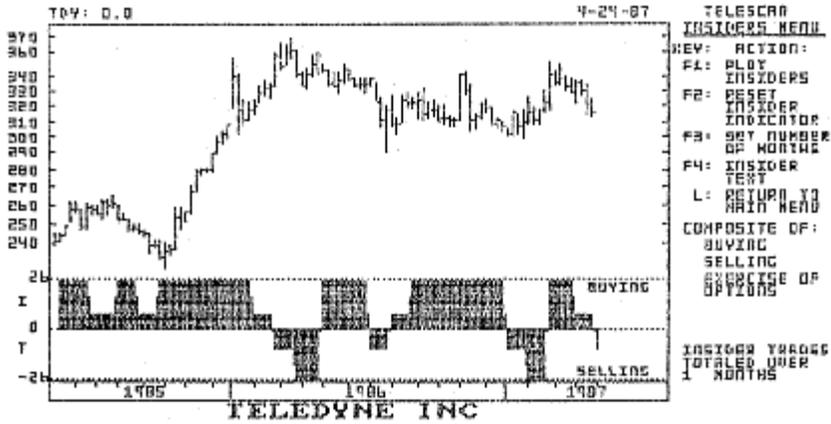


FIGURE 2:

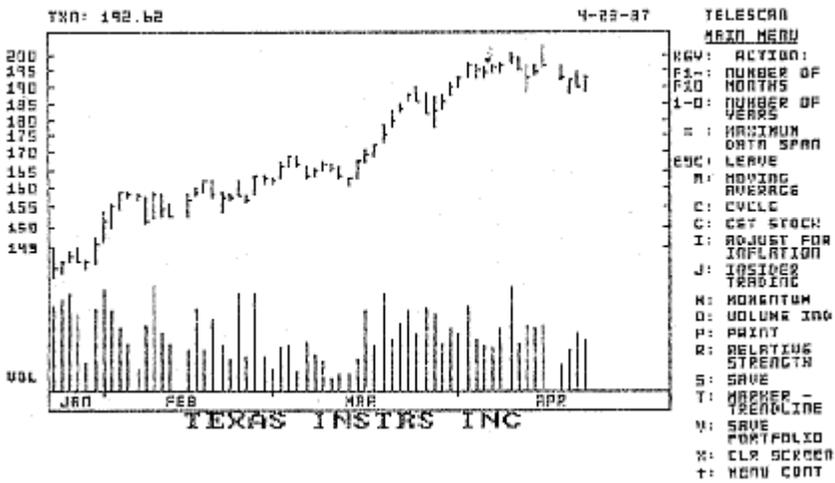


FIGURE 3:

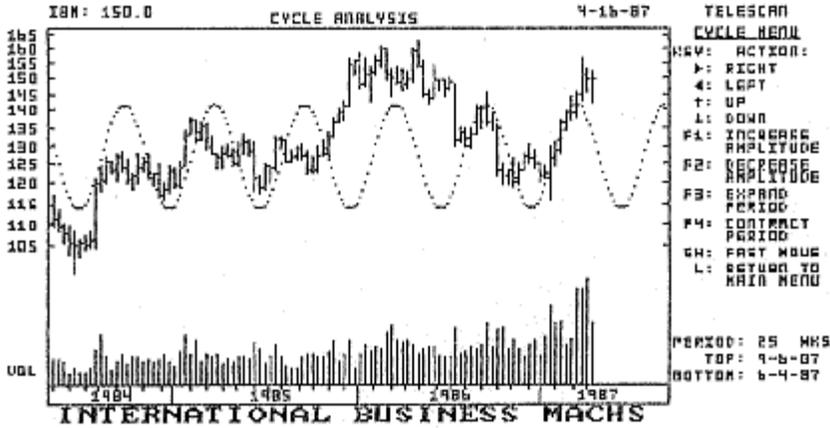


FIGURE 4:

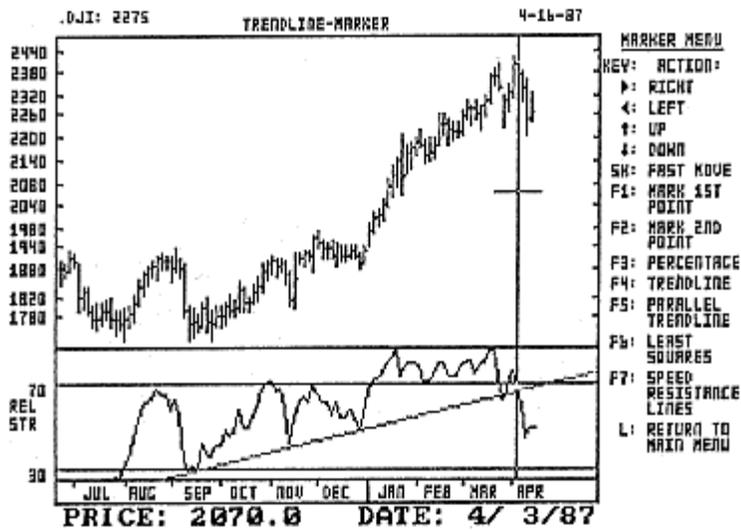


FIGURE 5:

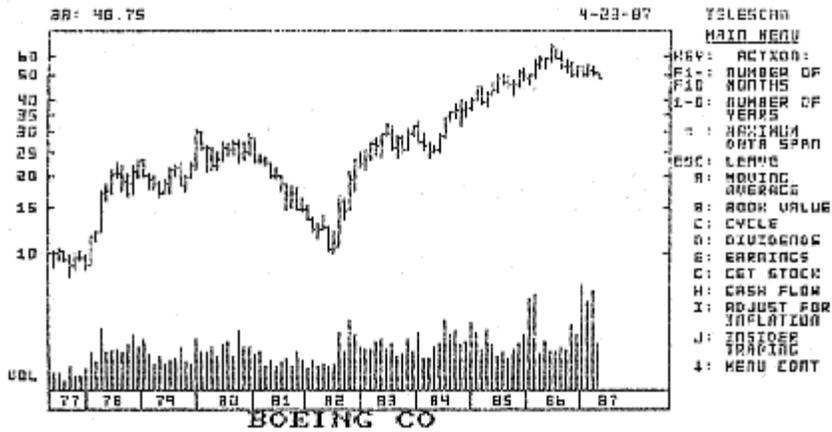


FIGURE 6:

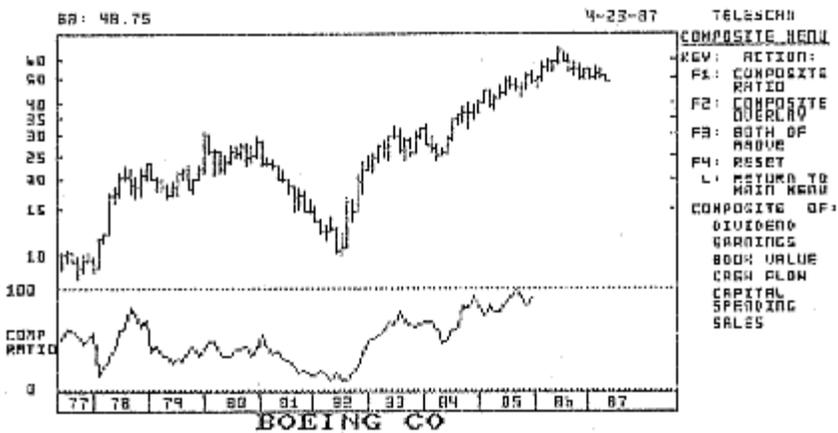
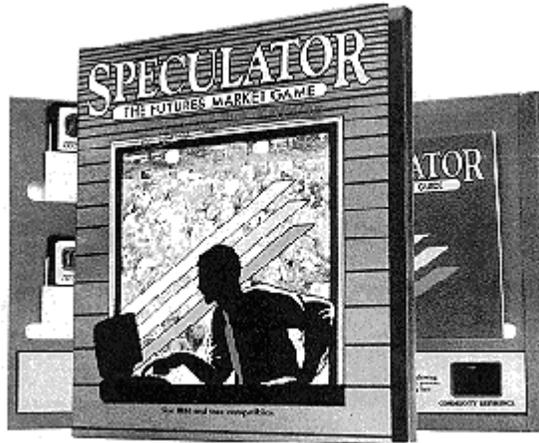


FIGURE 7:

## *The futures market game*

# Speculator



**OCO Software, Inc.**

**P.O Box 1067 Belvedere, CA 94920**

**(800)446-3400**

**Computer: IBM PC, 128K**

**memory, 1 or 2 DD, Graphics,**

**Color, DOS 1.1+, BASICA**

**I**s there a way of learning to speculate without throwing a ton of money away? Pilots, submarine commanders, and nuclear plant operators use simulators intensively in their training. Why not traders?

"No reason at all," thought Ralph Lachman, a professional commodities trader and vendor of technical analysis programs. His simulator turned out to be Speculator, focusing on the fast action in the commodities pits.

For a mere \$69.95, Speculator will take you through as wild a ride as you're likely to experience in trading—15 days compressed into 15 hours. I don't know what 15 days were chosen, but there's *lots* of movement here.

To be brief, the game throws some price action at you, whereupon you take your stake and throw it at the market. Three levels of sophistication are allowed (novice, speculator, floor trader) and they control the sophistication of the order entry process and number of competitors. At the upper levels, just about any order you want to give can be entered. To enter orders, you have to sit through some pictures of your broker answering the phone as well as floor runners doing their sprint. Executions, though, are as slippery as always.

You just keep doing this—eyeing the tape and trading—until you lose your stake or the pit brokers lose theirs.

Technically, Speculator runs well once installed. I had some difficulty getting it installed on my XT and finally just ran it from disks, which involves flopping disks in and out when you want to see the 30-day chart. Directions, for me at least, were a little confusing. These days, high quality software comes with the following directions: "Insert disk in machine. Type 'INSTALL.' Remove disk. Play game." Speculator isn't in this league yet but is smooth as a clock once in memory.

This is basically a game for day-traders. Position traders, especially those accustomed to using a host of technical indicators to guide their trading, will have a tough time. In this game, there's only the 'tape' of commodity price movements, a chart of the day's action and a 30-day chart to provide guidance. The action moves too quickly to create your own indicators.

I found it tough to pick up the rhythm and pace of the market from the above. I ended up selling or buying on gut feel while throwing out losers as fast as possible and riding winners. (At least in Millionaire, you know where you are in the business cycle and have group indicators to tell you where the market as a whole and its sectors are going.) Maybe this would be a good way to trade real money, but I've never been able to implement it. The results on the game weren't good either—a good session was breaking even or going up 5-10 percent. Lots of sessions were dead losses. I got hammered consistently, so you know my bias!

Is this an educational game for the novice? Again, the lack of market feel may be a hindrance. If he's going to dive in by day-trading a screen, this game may scare him off! Also, a novice has enough emotional trials to endure without getting hyped up over a game, particularly since there are no objective trading indicators to use and he's trading from gut feel. After 10 or 15 years, you may trade from your guts, but you don't start out that way. It's like asking a trainee pilot to go one on one with a MiG-23 over Moscow. Anything's possible, but the outcome is fairly certain.

I'm going to put Speculator solidly in the entertainment category. It would be a great substitute for the Friday night poker game or wowing your kids with the difficulties of trading (but what if they beat you?). Just keep it to nickels and dimes and have some fun.

# Winning under stress: the fight-flight reaction

by Van K. Tharp, PhD.



In primitive times, basic survival was man's most potent source of stress. Life or death, quite literally, hung in the balance of everyday decisions and one way early man learned to cope was by developing the "fight-flight" reaction. It was a primitive, biological response to decision making under stress—either battle the apparent threat or run away from it.

This behavioral legacy is one that traders still must deal with today—even though we live in an entirely different world with entirely different stresses. But unlike our Ice Age counterparts, we have the choice of winning our survival—our financial survival—in different, and more effective ways. It starts by understanding how mind and body work together when confronted with the biological component of stress.

In our modern times, just the basic demands of life can reach a point at which they affect a trader's performance. Simply being in less-than-excellent health or feeling just a little "out of sorts" may be enough to knock some speculators' performances off profitable tracks. On top of that, speculators heap on the inherently complex demands of investing and trading, which can be sufficiently stressful by themselves to affect performance and cause losses.

Where is the speculator who can't recall at least one nerve-racking experience in trading? Perhaps it felt like a bomb had dropped in your lap or a subtle irritation that continuously nagged at your mind. Stress in trading comes in as many forms as there are ways to trade.

Large, rapid speculative losses are among the most potent investment-related stressors. Many people find losses unacceptable, so they avoid closing out a position in hopes of averting a loss. As a result, the loss continues to grow until it is forced on the investor. The impact of forcing a large loss on the average investor who cannot accept even a small loss can be devastating.

Investors with a fear of success often perceive the rewards of investing as stressful. Some people might find a \$1,000 profit pleasant, while a \$1 million profit would be most uncomfortable.

Most investors experience the constant pressure of trading as being discomforting. For example, floor trading on any exchange is a nerve-racking experience. Traders must continually absorb new information, so the pressure is constant. The environment is crowded and filled with noise (both of which are proven

stressors). In addition, the constant uncertainty of knowing one can make or lose large sums of money instantly is a drain on the trader's energy.

Staying out of the market while "knowing" you could be making money if you were in it can be stressful. The investor might sell out at a profit only to watch his old investment double overnight. Similarly, an inactive investor (and some active ones) may just sit on a losing investment while it constantly goes down in value. Doing nothing can be a stressful experience.

All these situations—produce fear and anxiety in many investors. The emotional response often results in investment losses—often catastrophic losses.

### **Stress and investment performance**

Suppose you are in the back seat of a two-door car which suddenly plunges over a bridge into a lake. The car is sinking rapidly and you are in a hurry to escape. You push against the front seat and pull on the seat release latch, but nothing happens—the seat will not move. Your front seat latch will not release when pressure is applied at the same time to the front seat .

The water is now up to your neck and the seat latch still will not move. What do you do? Do you calmly consider all the information available—all the possible alternatives? You could kick out the back window. You could stop pushing against the front seat so the seat latch would work.

## **Stress narrows the number of alternatives that a person can consider.**

Do you consider any of these logical alternatives? No, because under the stress of the situation these alternatives do not even occur to you.

Stress narrows the number of alternatives that a person can consider. Instead of reviewing every possible option, stressed individuals tend to narrow their focus. They commonly revert to earlier decision models or to primitive, well-practiced modes of behavior. Soldiers in the heat of battle, for example, forget to fire their weapons or fire blindly without aiming. After the Battle of Gettysburg, more than 200 muzzle-loading rifles were found loaded five or more times without having been fired. One weapon had been loaded 21 times without being fired. The young men to whom the rifles belonged had probably had extensive practice in rapidly loading their rifles, but had never killed before.

Reverting to primitive decision-making models or well-practiced modes of behavior is certainly inadequate for investment decision making. For example, a common decision that people make under stress is *not* to decide. Instead, you do what you did when you were a beginning investor. You do what your adviser or broker suggests. You do anything simple—and simple solutions are successful only if they are part of the signals generated by a competent trading system; otherwise simple solutions tend to be losing solutions.

When people are stressed, they also tend to be crowd followers. If you were in the sinking car with another person you probably would follow that person's example. The behavior of others provides a simple example to follow. There is comfort in numbers—do what everyone else is doing. Decision making is almost unnecessary for crowd followers. And crowd following is a sure way to end up losing money in the markets. In fact, indices of what the crowd is doing are important contrarian measures for

making investment decisions. When the crowd behavior reaches an extreme you want to be doing the opposite of what everyone else is doing.

The second way the fight-flight response affects behavior is by producing energy. People, when faced with stressful events, give more effort to the *few* alternatives they do consider. *They keep on doing what they were doing, only they do it harder.*

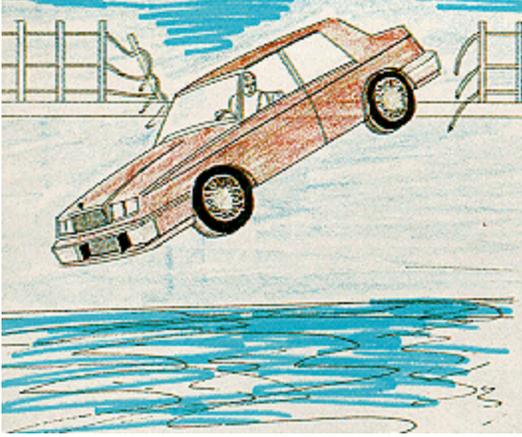
In the hypothetical car situation, you find yourself under water. You know you cannot hold your breath much longer. As a result, you push on the front seat with as much force as you can manage. The front seat still does not move, but by using force you use up your oxygen much faster. Suddenly, you must breathe, your lungs fill with water and you lose consciousness.

Likewise, putting more energy into investment decisions *does not* help people make more money. Instead, the investor makes a quick, irrational choice which uses up some of that excess energy. He puts more energy into a losing position and actively resists closing it out. The result is usually a major investment loss. Thus, the fight-flight reaction causes investors to narrow their focus and put more energy into the remaining alternatives.

I used to think extreme stress was a sure indicator of a losing speculator. My assumption is correct in most cases, but I have recently come across several individuals who were making money in volatile investments while under a lot of stress. Eventually, these investors would suffer burnout and be forced out of the market. Nevertheless, these people were speculating successfully under highly stressful conditions. How?

In any investment activity, a certain level of performance brings break-even results ([Figure 1](#)). Any performance above the break-even level results in profits and any performance below that level results in losses. Assume that a simple physical stressor, such as a common cold, results in a 10% reduction in performance efficiency. If your normal level of performance is substantially above the break-even line, then you can afford a 10% reduction in performance and still remain profitable. In contrast, if your normal performance is borderline ([Figure 2](#)), then a 10% reduction in performance is likely to result in numerous losses.

Most speculative investors, those who invest in options or commodities, are seldom far above the line with respect to profitability. As a result, any performance impairment due to stress will result in overall losses. Can you remember days when you felt a little below average? Chances are that feeling transferred to most of your activities that day. Your racquetball, golf or tennis performance was dismal. If you made any investment decisions that day, you probably lost money. Similarly, you probably can remember days when you felt really good. On those special days your performance was probably excellent. Why? Because even a light change in your performance level can have a major impact on whether or not you win or lose.



### **How to deal with stress**

If you have stress-related losses, then a number of options are open to you.

First, you can ignore the problem and hope it goes away. This is equivalent to sitting in a fire with paper money, hoping that neither you nor your money will burn. Most investors choose this option and find they continue to lose in the markets.

Second, you can take steps to minimize the effect that your current stress has on your investment performance. In other words, if you must stay in the fire, wear asbestos clothing.

*Fine-tune your body* so it can take large amounts of discomfort without showing noticeable effects. Stick to a prescribed regime of diet and exercise. Investors who exercise regularly, according to my research, are much more likely to be winners than are sedentary investors.

*Participate in enjoyable activities to refresh yourself.* Listen to a relaxation tape prior to going to work or just before the markets open. If you feel stressed during the day, take 20 minutes of your time to meditate or to nap. At the end of the day, do something you enjoy. Go out to dinner. Spend time with people you like. Take in a movie, a play or a concert. Do something fun to unwind. If you have let your stress build up to a high level, then take a fun vacation. Close out all of your positions and do not even think about the markets while you are gone.

*Learn to perform at your best when you are not under stress*, so you can avoid stressful conditions. Play market-simulation games, paper trade and mentally practice performing in every possible adverse condition. Develop automatic responses for each trading situation so that you will not have to think about them when you must perform under stress. Develop a normal level of performance that is far enough above the break-even line that a 10% reduction will not cause losses.

### **Most events are stressful because of the way they are perceived.**

Stress protection procedures, however, are often stop-gap measures. They are a little like taking aspirin for a fever. The aspirin will reduce the fever even though it does not affect the actual cause of the fever. Nevertheless, the aspirin is important because it keeps the fever down until your body can fight off the disease. You might die without the aspirin, just as you might absorb tremendous losses without stress protection.

Your third choice in dealing with stress is to *change your beliefs and attitudes about the stressful event* so it no longer is a problem for you. This is equivalent to puffing out the fire around you—a very effective remedy.

Most events are stressful because of the way they are perceived. Change those perceptions and you change the event itself. For example, winners typically differ from losers in their attitudes about losses. Most people become anxious over losses, yet successful speculators have learned that an essential secret of winning is to *make it O.K. to lose!* Since people in our culture are taught that only winning is acceptable, most investors must change their beliefs about losses in order to become successful.



Changing one's belief and attitudes is the most effective remedy for stress, but it is also the most difficult remedy to take. People tend to resist change, especially changing their beliefs. Often, investors find that sitting in the fire watching their money burn is easier than changing their beliefs about the nature of the fire.

The fourth and most obvious choice for dealing with stress is *to avoid situations which tend to be stressful for you*. If you are sitting in the fire, try moving out of it. If your job is stressful, then do something else. If you trade on the floor of an exchange and you find the lifestyle distressing, then get another job. Unfortunately, people find a number of excuses for not getting out of the fire. Again, some investors would rather lose than change.

Your last choice also is simple—*reduce your risk exposure*. If you are in the fire and cannot get out of it for some reason, then avoid playing with paper money. Lower your risk substantially until the stressful situation you are experiencing is no longer a problem for you.

You can lower your risk by putting a larger portion of your portfolio into cash or T-bills, by putting your funds into independent investments (i.e., diversification), by keeping a cash reserve for special trades that come along or even for routine trades during entirely different market conditions, and by reducing the activity in your account and only making trades with a high probability of success.

If you are an investor under stress, don't wait until you are in the fire to make decisions. Learn to cope under stress, change your beliefs about certain stressful events such as losses, reduce your exposure to stress and reduce the risk to which you are exposed. These are the choices that will help you become a winner.

*Van K. Tharp is a research psychologist and the founder of Investment Psychology Consulting, 1410 E. Clenoaks Blvd., Glendale, CA 91206, (818) 241-8165. He has evaluated psychological profiles on thousands of investors and advised hundreds of investors on how to become more successful. This article is condensed from How to Control Stress to Become a More Successful Investor, the second volume in Dr. Tharp's five-volume course on the psychology of successful investing.*

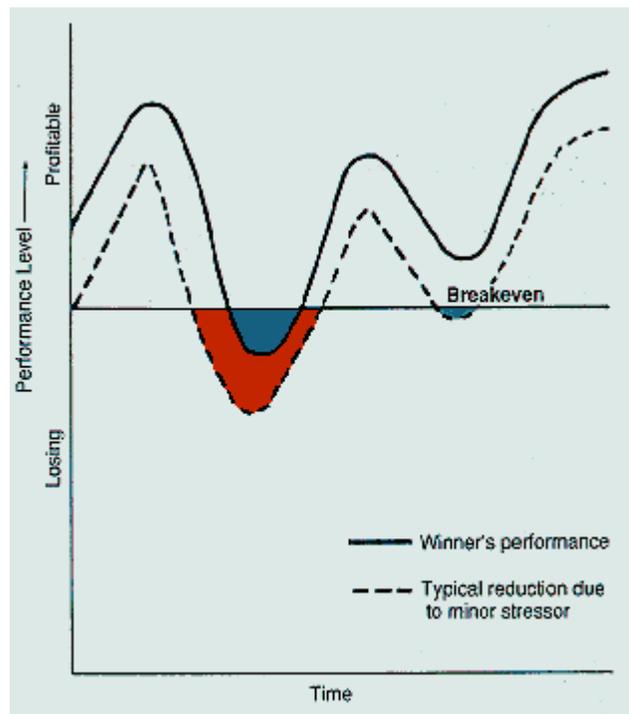
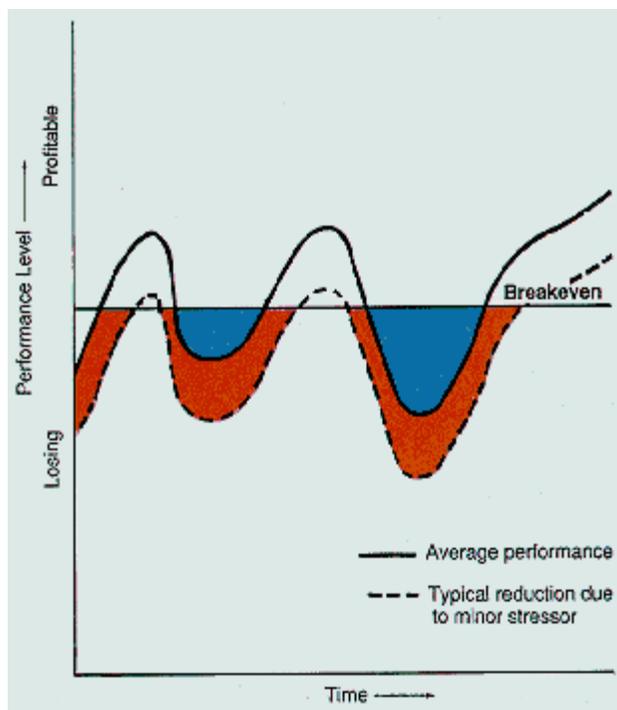


FIGURE 1



**FIGURE 2**

# The algebra of inequalities

by Donald D. Bump, Ph.D.



**M**any technical systems, simple and complex, come down to a decision based on inequality. For example, "If the 10-day moving average for today is greater than that of yesterday, go (or remain) long." The criteria for the decision can be expressed as the inequality:

**If  $10MA1 > 10MA2$  buy (hold) long**

Consider another simple system: "If the 4-day moving average penetrates the 8-day moving average in the upwards direction, go long." A decision here is indicated by:

**If  $4MA1 > 8MA1$  then buy (hold) long**

Three basic principles govern the algebra of inequalities: Principle 1- Add (or subtract) the same number to both sides of a true inequality and the resulting expression is a true inequality:

$$4 < 7 \quad x+4 > 2$$

$$4+2 < 7+2 \quad \text{or} \quad x+4-4 > 2-4$$

$$6 < 9 \quad x > -2$$

Principle 2- Multiply (or divide) both sides of a true inequality by the same positive number and the resulting expression is true inequality:

$$4 < 7 \quad 3x > -12$$

$$4(2) < 7(2) \quad \text{or} \quad 3x(-1/3) < -12(-1/3)$$

$$8 < 14 \quad x < -4$$

Principle 3- Multiply (or divide) both sides of a true inequality by the same *negative* number *and reverse the inequality sign* then a true inequality results:

$$4 > 7 \quad -3x > -12$$

$$4(-2) > 7(-2) \quad \text{or} \quad -3x(-1/3) < -12(-1/3)$$

$$-8 > -14 \quad x < 4$$

Of course, we must be certain the operation does not reduce to division by zero. In applying these principles to the first system, "If the 10-day moving average for today is greater than the 10-day moving

average for yesterday you should be long," we start with its inequality:

**If  $10MA1 > 10MA2$  then buy**

The 10-day moving average is defined as the sum of the closing prices,  $c$ , for the past 10 days, divided by 10:

$$10MA1 = (c1+c2+.....+c10)/10$$

also

$$10MA2 = (c2+.....+c10+c11)/10$$

Substitute these two definitions into the inequality and resulting expression is:

$$(c1+c2+.....+c10)/10 > (c2+.....+c11+c12)/10$$

Now multiply both sides of the inequality by 10, and according to Principle 2, get another true inequality:

$$c1+c2+ ..... c10 > c2+.....+c10+c11$$

Both sides of this inequality contain nine common terms, namely  $c2$  through  $c10$ , and they can be eliminated by subtracting them from both sides of inequality per Principle 1. This simplifies the inequality to:

**If  $c1 > c11$  then buy (hold)**

What does this simplified inequality mean? "If the closing price today is higher than the closing price 11 days ago, then go (stay) long" and it is equivalent to the original inequality. Therefore, calculation of moving averages, simple though it may be, is an unnecessary step for applying the criteria embodied in the original inequality. We need only look at today's closing price and compare it with that of 11 days ago. Any undulations and fluctuations in price during the intervening 9 days have nothing to do with the final decision.

Now, let us examine the second system that says, "If the 4-day moving average penetrates the 8-day moving average in an upward direction, then buy." The inequality is:

**If  $4MA1 > 8MA1$  then go long**

Replacing the 4-day and the 8-day moving averages with their definitions gives us:

$$(c1+.....+c4)/4 > (c1+....+c4+c5+.....+c8)/8$$

Multiply both sides of the inequality by 8, following Principle 2 to get:

$$2(c1+....+c4) > c1+....+c4+c5+.....+c8$$

Then, using Principle 1, add the expression  $(-c1-c2-c3-c4)$  to both sides and we have:

$$c1+....+c4 > c5+.....+c8$$

Each side of this inequality contains the sum of the closing prices for four consecutive days . If we use Principle 2 to divide both sides of this inequality by 4, we end up with:

**If  $4MA1 > 4MA5$  then go long**

Again we see a great simplification. Only one moving average is needed to use the criteria of inequality. We need only compare the 4-day moving average from 5 days ago with that of today. If today's moving average is larger, then the criteria of inequality is satisfied.

As a last example, let us apply these principles to a more complicated system, The Wilder Directional

Movement System as discussed by Drinka and Kille in *Stocks & Commodities*, November 1985. In this system, a decision is based on two functions, +DI14 and -DI14 (the algebraic positive and negative signs are part of the variable names), defined as:

**If +DI14 > -DI14 then buy**

Now, +DI14 is defined in terms of two other functions,

$$+DI14 = +DM14/TR14$$

The function +DM14 is defined as the 14-day sum of the high price for a given day, H, less the high price for the preceding day, H+1, so that:

$$+DM14 = (H1-H2)+(H2-H3)+....+(H14-H15) =H1-H15$$

The competing function, -DI14, is similarly defined as:

$$-DI14 =-DM14/TR14$$

where -DM14 is the 14-day sum of the low price, L, less the low price for the preceding day, L+1. Simplifying as before, we get:

$$-DM14 = L1 - L15$$

If we plug these +/-DM equations into the original inequality, we have:

$$(H1-H15)/TR14 > (L1-L15)/TR14$$

The function TR14 appears in the denominator of both sides of the inequality. TR14 refers to the 14-day sum of the true price range, the high price, H, minus the low price, L, with certain corrections for gaps. The value of this function can never be negative (low price higher than the high price), therefore, we may use Principle 2 to multiply both sides of this inequality by TR14 and obtain:

$$H1-H15>L1-L15$$

This is a greatly simplified equivalent of inequality but we can go further in understanding what it means by using Principle 1 to add (H15-L1) to both sides. When we do, the inequality becomes:

**If H1-L1 > H15-L15 then buy**

I do not know how others feel, but personally, I would be somewhat skeptical of a system that said that I should go long if the range in prices today (high price less the low price) is greater than that of 15 days ago.

*Dr. Bump is a Ph.D. in chemistry and mathematics. He teaches at Miami-Dade Community college*

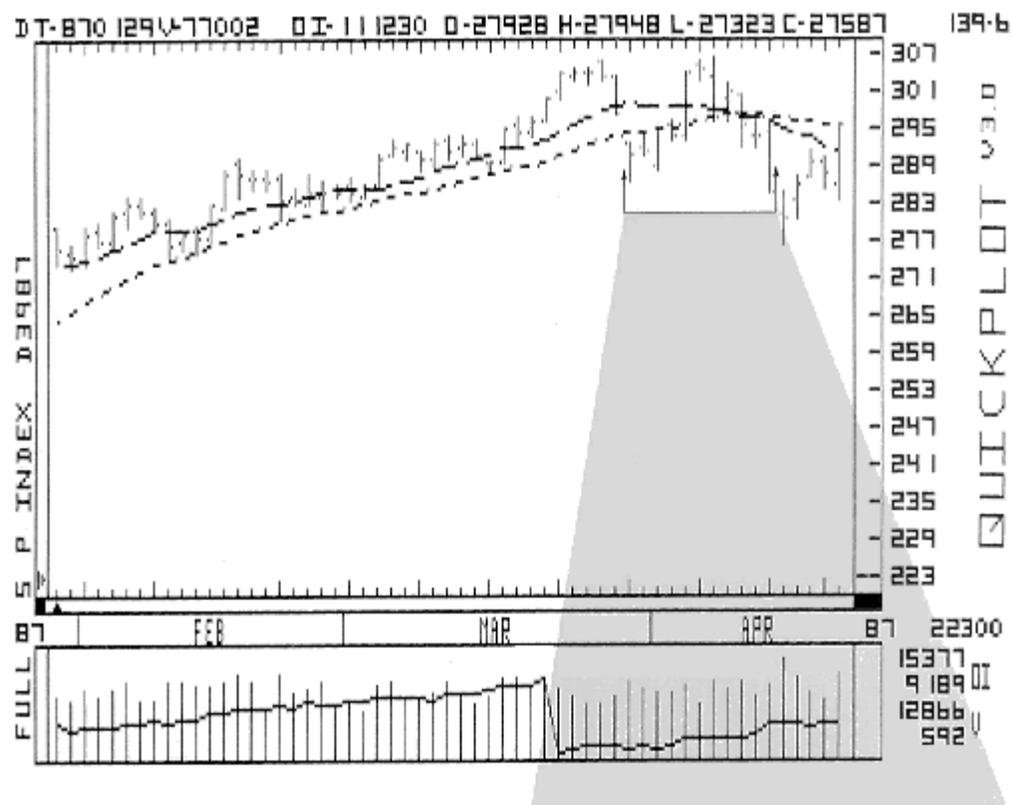


FIGURE 1

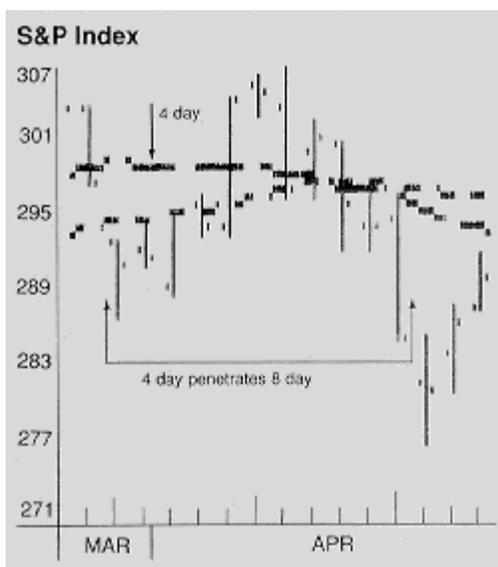


FIGURE 2

# Forecasting the market with the overbought/oversold indicator

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by Steven B. Achelis

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The terms "overbought" and "oversold" are often used to discuss market conditions. However, as anyone who has placed a short trade simply on the basis that the market is overbought knows, the market can remain overbought for long periods of time.

There are a number of indicators which can be used to quantify overbought/oversold (OB/OS) conditions. Most methods deal with internal momentum as measured by changes in *price*. Popular price OB/OS indicators include the rate-of-change of prices (expressed in either points or percentages) and the difference between two moving averages (often referred to as MACD).

OB/OS conditions in individual commodities and securities are measured using changes in prices because prices are the only data readily available. However, the OB/OS condition of the entire stock market also can be quantified using the number of daily advancing and declining issues.

The number of advancing and declining issues on the New York Stock Exchange can be found under the "Diaries" heading in the back of *The Wall Street Journal*. This information is used to create many popular indicators including the Absolute Breadth Index, Advance/Decline Line, Advance/Decline Ratio, Breadth Thrust, McClellan Summation Index, TRIN and the subject of this article, the OB/OS indicator.

## The OB/OS indicator

The OB/OS indicator is defined as the 10-day exponential moving average of advancing minus declining issues. The OB/OS indicator is relatively easy to calculate by hand using a five-column table ([Figure 1](#)).

In manual calculations, columns 1 through 3 of [Figure 1](#) contain the date and the number of advancing and declining issues on the New York Stock Exchange. Column 4 contains the number of advancing issues minus the number of declining issues. This number will be negative if the number of declining issues is greater than the number of advancing issues. Column 5 is a 10-day exponential moving average of column 4. It is calculated by multiplying the value in column 4 by 0.18 and adding the result to the value of the previous day's column 5 multiplied by 0.82. Because the OB/OS indicator is a 10-day moving average of advancing minus declining issues, you will have to calculate it for a minimum of 10 days before the moving average "comes up to speed."

## Interpretation

The OB/OS, while not flawless, has an outstanding track record at calling the future course of the stock market. The indicator typically oscillates between +/-400. Readings above +200 imply an overbought condition and readings below -200 imply an oversold condition.

[Figure 2](#) displays a chart of the OB/OS indicator during 1986 above a chart of the Dow Jones Industrial Average. "Buy" arrows pointing up were drawn on the chart each time the OB/OS indicator fell below and then rose above the oversold level of -200. Similarly, "sell" arrows pointing down were drawn when

the OB/OS indicator rose above and then fell below the overbought level of +200.

A quick glance at this chart shows that the buy signals occurred at (or very near) every buying opportunity. Likewise, sell signals occurred at all but the one intermediate top in late June. Signals in the OB/OS indicator tend to lead to changes in the market. For example, notice how the four buy signals in July preceded the August rally and the two sell signals in late August preceded the market's decline in September.

In utilizing the OB/OS indicator, I combined its buy/sell rules with a simple stop-loss system to reduce the possibility of unprofitable trades. Short positions were closed anytime the OB/OS indicator rose above the +200 and long positions were closed anytime the OB/OS indicator fell below -200. To keep the figure legible only one of these stop-loss trades is shown in [Figure 2](#).

Using this trading technique during the time period shown in the chart would have yielded a gain of 459 Dow points during a period in which the Dow gained only 130 points. Profits could be substantially improved by trading leveraged instruments such as index options and contracts. A study of the OB/OS indicator and its relationship to the Options Exchange (OEX) during the same time period yielded an average gain of 2.352 points per trade and a cumulative gain of 39.99 points. The OEX, itself, gained only 9.93 points during that time.

Keep in mind that it is extremely risky to place trades simply because the market appears overbought or oversold. Markets that appear overbought (such as mid-January 1987) can continue to make substantial gains. It is for this reason that I suggest waiting for the OB/OS indicator to fall below +200 after entering the overbought zone above +200. This retracement signifies an end to the overbought condition and the beginning of a correction. It is also advisable to wait for the market itself to confirm the anticipated reversal before placing your trade(s).

In addition to the stop-loss method, conservative traders can further reduce their risk by taking only long positions when the major trend (as defined by a 200-day moving average of the market index) is bullish and only taking short positions when the major trend is bearish. When the OB/OS indicator gives signals that are not in sync with the major trend, simply close your open positions.

Fortunately for the marketplace, no system is flawless. The OB/OS indicator does, however, come very close. Even if you choose not to trade the OB/OS itself, an understanding of OB/OS conditions within the market should aid substantially in the overall profitability of your trading.

*Steven B. Achelis is the president and founder of Computer Asset Management, Inc., (801) 974-5115, the software development firm that created MetaStock and The Technician technical analysis programs. His focus in recent years has been to develop easy-to-use software that features both sophisticated investment tools and state-of-the-art programming. An experienced technical analyst and trader, as well as a programmer, Mr. Achelis released a new book in 1986, The Market Indicator Interpretation Guide.*

Manual OB/OS indicator calculation				
Date	Advancing	Declining	Aden-Dcln	OB/OS
2/24/86	803	911	-108	-108.00
2/25/86	806	849	-43	-96.30
2/26/86	838	767	71	-66.19
2/27/86	1271	461	810	91.52
2/28/86	1064	685	379	143.27

$OB/OS = (Current\ Day\ Column\ 4 \times 0.18) + (Previous\ Day\ Column\ 5 \times 0.82)$

FIGURE 1

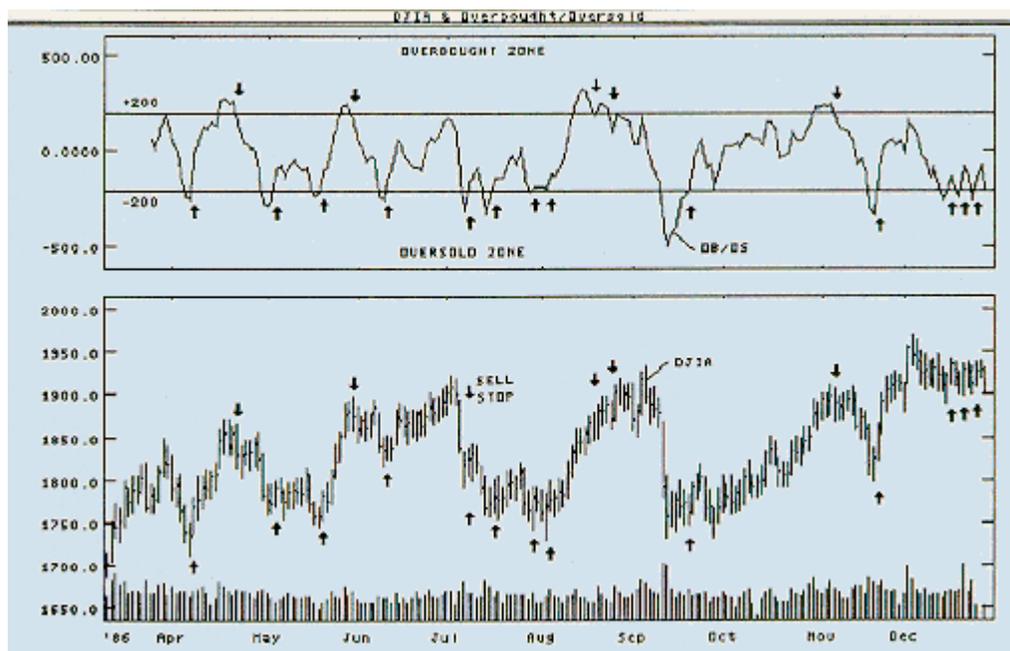


FIGURE 2: While not flawless, OB/OS generally calls the market well. (Data and graphics courtesy of Computer Asset Management.)

## In this issue

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by John Sweeney, Associate Editor

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Respectability is stirring again in the world of technical analysis. I'm writing this on the plane back from the Market Technicians Association meeting in Florida. Held at the extremely comfortable Saddlebrook Resort in mid-May, the conference was among the best run I've attended and certainly the most fun. In my wildest dreams, I never imagined 300 technicians and their spouses working out to my favorite '50s tunes or being so friendly to a scruffy journalist.

Aside from the evening partying, though, serious work was bounced around in the technical sessions . Best idea awards go to (1) Ned Davis (Ned Davis Research) for his demo of optimizing indicator parameters *after* defining alternative states for the environment; (2) Laszlo Birinyi (Salomon Brothers) for computerizing the tape watching of yesteryear to keep track of the movements of today's "large operators;" (3) RTR Systems for its new "zig zag" function which defines retracements consistently, thereby allowing consistent definitions of divergence, volatility and possibly Elliott waves, and (4) DYR Associates for using implied volatility for optionable stocks in identifying stock or option trades.

The technicians are working, too, to broaden their membership base and infuse a greater sense of professionalism. A revised constitution will open the doors to those whose "professional efforts are spent practicing financial technical analysis," among other qualifications. Your average retiree may not yet be welcome, but a greater range of practitioners certainly are. You will have to take a test to qualify, but there were broad hints that if you'd mastered Martin Pring's *Technical Analysis Explained* and John Murphy's *Technical Analysis of the Futures Markets* , you'd be in good shape. I may run a few pop quizzes here to get you up to speed!

Also exciting is the formation of the International Federation of Technical Analysts which held its organizing meetings just prior to the session I attended. Active groups from Japan, San Francisco (I knew it was a world of its own down there!), Mexico, Canada and the U.S. drafted and ratified a constitution and entertained delegates from 11 other developing societies of analysts.

The new entity will be an international educational vehicle and communications channel, rather than a governing body . Its initial projects will be to facilitate speakers and attempting to standardize the language of technical analysis.

Clearly, momentum is gathering. The only possible risk is that increased organization, professional "standards" and procedure will shut out innovation and radically new ideas. I was approached by the astrophysical underground at the convention several times. There are still many ideas that are *verboten* on Wall Street which hopefully will still have an outlet for discussion and growth as MTA goes upscale.

Finally, I was encouraged to see the extent to which technical ideas developed in the futures world were penetrating the world of debt and, to some extent, stocks. Listening to Steve Blitz (Salomon Brothers) or Greg Hyrb (Webster Capital Management) or Jim Kurtz (Sears Investment Management), I felt right at home and these folks weren't necessarily only from the sell-side of their firms.

That means the competition is getting a lot bigger and a lot better at what used to be the exclusive province of individual traders. Great!

My apologies to Norman Wei whose charts in the April issue were mislabeled. Since this article received much favorable comment despite botches in publication, here are the corrections: Figure 4a was "DCV" and Figure 4b was "Price"; Figure 5a was Beatrice DCV and Figure 5b was Beatrice Price; Figure 6a was USG Price and 6b was USG DCV. Similarly Figures 7, 8, 9 and 10 all reversed price and DCV. Thanks to the several readers who took the time to call or write about these errors.

*Good Fortune!*

# Intraday swings with wave charts

## The Wyckoff method of trading stocks part 12

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by Jack K. Hutson

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The serious follower of Wyckoff, a trader who embraces the entire scope and intricate details of this methodology, has not completed his or her analytic arsenal without the Wyckoff Wave, a price vs. time chart that tracks intraday swings much like a doctor taking a patient's pulse.

Whether you trade by the hour or the year, it's the intraday swings, where bears and bulls test each other's strengths and weaknesses minute by minute, that grow and merge into the minor, intermediate and longest-term trends of most profit taking. By revealing this innermost working of the market, the Wave Chart frequently warns its reader of upcoming trend changes several days to a week before they would become apparent in the composite averages. It provides vital information for determining technical position and timing commitments. On a more intuitive level, its use heightens the trader's innate sense of critical market changes and important turning points.

In mastering the Wave Chart, traders seek to substantially increase the accuracy of their judgement and transaction timing by better understanding how the market signals trend changes before they are well under way.

For traders without the time or inclination to study the market as it actually unfolds each trading day, the Wave Chart is a condensed, easily understood record of significant changes in supply and demand that can be studied at leisure. The chart also can be prepared at leisure since its purpose is not to make intraday trading decisions, but to forewarn traders of impending inter-day moves. A number of sources provide intraday price data in various forms- *The Wall Street Journal*, on-line data transmission services, brokerages, the Chicago Mercantile Exchange yearbook and the Stock Market Institute in Phoenix that teaches the Wyckoff Method are just a few.

Graphically, a Wave Chart is a zigzag line representing the cumulative price that five leading stocks reach each time intraday buying and selling waves hit their peaks and valleys. Leading stocks are used since the market seldom moves contrary to the trend of the leaders for a great while, and seldom more than temporarily. In most cases, important market movements start with these stocks—and practically no important move starts without these stocks being affected immediately. The five stocks are selected based on their activity and influence in the most recent months, and the roster is adjusted as often as necessary to keep the chart at the forefront of market trends.

In constructing a Wave Chart ([Figure 1](#)), the cumulative price of the leading stocks, measured in fractions, runs up the vertical scale. Time, measured in minutes, runs along the horizontal axis and marks the duration of each intraday swing. A fully illustrated Wave Chart also displays what Wyckoff calls "activity," or the rate at which orders flow into the market. Activity is an index measuring the size of lot orders— whether the market is moving due to the 100-share lots of public trading or the 1,000-share lots of professional market manipulation. Volume, although not illustrated on the chart, is a vital part of Wave Chart interpretation and is usually contained in a data table alongside the chart.

Building a Wave Chart starts with the total price of the five leading stocks at market opening. As soon as the first wave— either up or down—exhausts itself, the trader marks the time to the nearest five minutes and calculates the total highest or lowest price the indicator stocks reached at that time, including fractions.

**The volume, or amount of stock, that market participants are willing to trade at a certain price is a strong indication of the bullish or bearishness of the immediate future.**

If a stock price does not respond to the prevailing trend, if its price declines on an upwave or advances during a downwave, it's regarded as a delayed transaction rather than contrary movement. The summation, at that point, uses the price the contrary stock reached on the previous wave. When the stock's price comes into line with the prevailing trend, the total is adjusted to reflect the price in accordance with the true trend.

This process continues until the market closes and the day's Wave Chart is completed by marking the five stocks' total closing price for the day, which then becomes the starting point for the next day's charting.

As part of his advisory service, Wyckoff provided his subscribers with Wave Charts and commentary on their movements. He valued the Wave Chart because, as he told his students, "Learn to judge small daily movements, and then you will be able to apply the same reasoning to the 3- to 5-point swings; to the 10-, 20- and 30-point swings, and finally to the great swings that run over a period of years. In time, you will become proficient in all kinds of markets."

You can think of a Wave Chart as an exploded view of each bar on the Vertical Chart, much the same as a state road map enlarges the view of a major city's thoroughfares. In reading intraday waves, Wyckoff suggests that students first learn to interpret price movement and wave duration. Slight increases in distance and time warn the Wyckoff trader to be on the lookout for change.

As a simple example, let's assume the market has just opened and first sustains a 20-minute upwave that lifts the five leading stock prices a total of three points. This is followed by a 15-minute downwave that loses two points. The downwave's effect on price is less than the upwave's and its duration is shorter. Buying power contained in the upwave is obviously stronger than the selling pressure contained in the downwave. Demand is greater than supply.

Suppose the next upswing lasts 45 minutes and carries the total stock price four points higher than its previous upwave. This signals an apparent increase in buying power. The ensuing reaction which lasts 20 minutes and drops prices 1-1/2 points confirms the buying power since this second downwave lasted five minutes longer than the first downwave and produced less price change.

The additional information of intraday volume and Wyckoff's intraday measure of activity gives the trader a better handle on upcoming price movements. The volume, or amount of stock, that market participants are willing to trade at a certain price is a strong indication of the bullish or bearishness of the immediate future. Volume that follows the price trend is usually bullish; volume that runs counter to the price trend is usually bearish. In other words, increased volume with rising prices or decreased volume with declining prices is bullish. Increased volume with declining prices or decreased volume with rising prices is bearish. In either case, a sudden and abnormally large volume can indicate the approach or

culmination of a move.

## **What is vital about the Wave Chart is the cumulative impression it builds about the longer trends, the wider price swings.**

Activity fine-tunes this judgment by telling a trader more about the "quality" of the volume—whether it's made up of many public traders buying or selling small lots of 100 shares or less or whether volume is the result of large traders moving 1,000-share and larger lots. Heavy public trading is considered poor quality volume since the public doesn't have the financial clout to manipulate the market and can only follow what large-scale traders set up. It helps the Wyckoff analyst understand whether manipulators are in the midst of a campaign or winding one up. For example, it's important to know whether low volume means offerings are scarce because they were bullishly sopped up in large lots in a preceding reaction or if it signifies the poor quality of small public lots and further decline. Likewise, is rallying volume the result of short covering or an engineered attempt to unload stocks before a major decline gets under way?

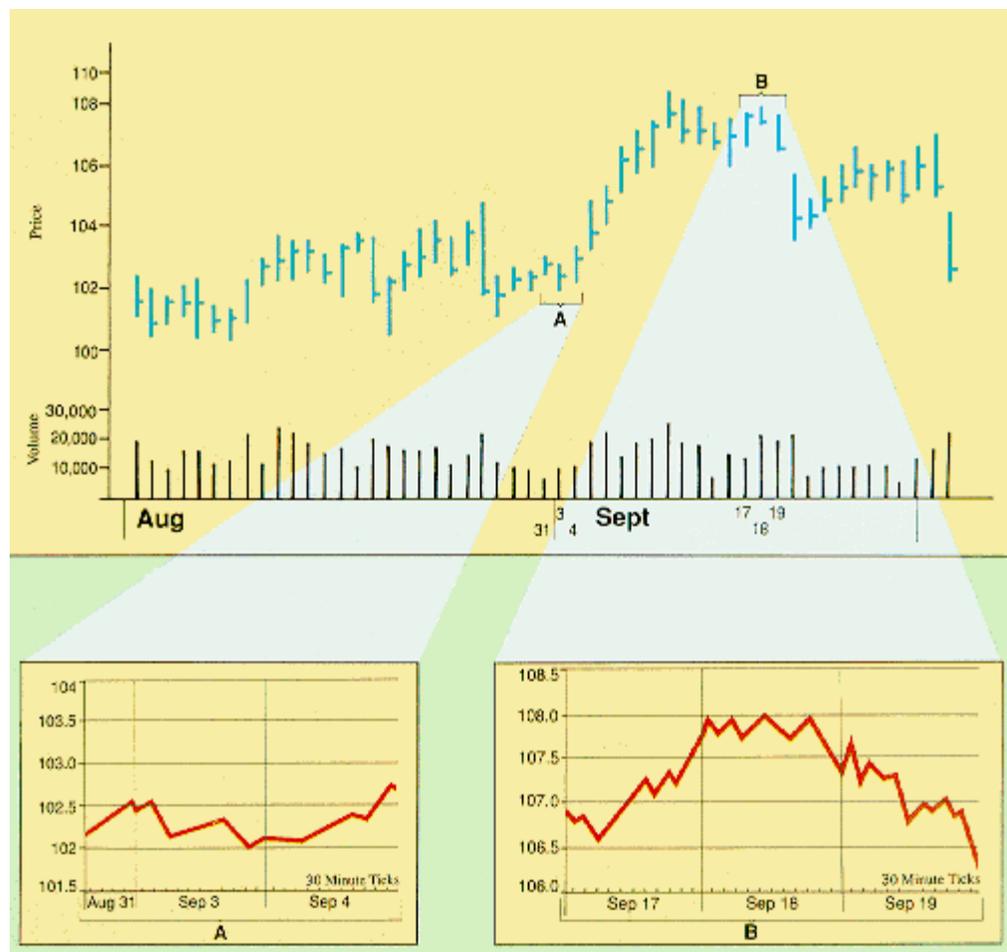
However in analyzing intraday moves, don't expect every daily chart to send a clear, unconfused message. The market's actions for several days may be indecisive. What is vital about the Wave Chart is the cumulative impression it builds about the longer trends, the wider price swings. At important turning points, the intraday swings will convey very vital information about the market's critical condition.

Wyckoff recommends that casual observation, not mathematical comparison, is the way to approach a Wave Chart and that the analyst not waste effort or create confusion by making volume and activity comparisons when the market is not displaying critical behavior.

The relationships of price, duration, volume and activity are especially important when price approaches former levels of support and resistance. Figure Charts created from the Wave Chart—Wyckoff recommends a 1-point, a 3- to 5-point chart for intermediate swings, and a 10-point chart for the largest trends—will help indicate whether large-scale operators are nearing their price objectives.

As a rule of thumb, successive failures to rally beyond former highs or to drop through former lows warns of impending, important trend changes. It is accumulating evidence of a change from strength to weakness or vice versa. Together, the Wave and Figure charts will illustrate the situation in graphic detail.

It's clear, therefore, that trading long trends shouldn't limit technical analysis to the same time frame. Digging into the smallest of the market's actions and reactions can teach a trader important lessons about lifting power vs. selling pressure, the market's responsiveness or lack of it to rotation of supply and demand, the speed of advances and declines, and what changes in activity and volume reveal about the character of buying and selling.



**FIGURE 1:** *Intraday vertical line bar chart of Wyckoff wave. The price plotted is the sum of the top five issues within an industry group. A intraday swing chart of Wyckoff wave bottom. B Intraday swing chart of Wyckoff wave top.*

# The Kelly Hotline

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by Bob Bukowski

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## Vilar F. Kelly, CTA

142 Sleepy Hollow Rd

New Canaan, CT 06840

(203) 966-2153

**Contracts:** S&P 500 and NYFE stock index futures.

**Services:** Daily entry/exit instructions via telephone recording and managed account trading.

**Price:** Hotline: 3 months, \$300; 6 months, \$500; 12 months, \$900; Managed accounts: 6 months, \$600+\$25 per roundturn commission.

**S**ystems for trading stock index futures have much in common with leprechauns—they are both mysterious creations, continually appearing, disappearing and reappearing on the path to the elusive pot of gold at the end of the rainbow.

In the case of the trading system distributed on Vilar Kelly's telephone hotline, something more than luck of the Irish seems to be at work. Trading a single S&P 500 contract under Kelly's direction for the past 12 months would have netted \$ 12,000 after allowing \$ 100 per trade for commissions and slippage. Based on an initial account balance of \$10,000, that's an annualized return of 117% for the 54 trades signaled on the hotline from March 19, 1986 until March 27, 1987. With a maximum drawdown of \$3,550 plus a total outlay of \$900 for Kelly's advice, it was a very good year for the trader who rigorously took every trade. Of course, *last year* doesn't necessarily say anything about what next year's results will be.

Actually, Kelly has been at the business of beating the market for longer than just one year. A registered commodity trading adviser (CTA), retired IBM executive and one-time Army cryptanalyst, he claims to

have computer-tested thousands of systems over the past seven years. Having developed an algorithm that promised to be a consistent winner, he offered his hotline service to the public for a five-month free trial in April 1985.

The system is a trend-following method which derives its signals from momentum analysis. Kelly states that it was originally operated profitably as a simple reversing system, always in the market either long or short. In March 1986, after about a year of operation, he determined the system would be more profitable if a \$ 1,500 profit on the S&P was taken whenever it was available. Subsequent refinements included rules for re-entry if taken out of the market prior to reaching the reversing point. The hotline also provides entry and exit signals for the NYFE contract.

I have monitored the Kelly Hotline since August 1986 and have reviewed previous issues of the monthly newsletter sent to subscribers. While I have not made regular calls to get all the daily trading signals, I did talk to six subscribers who have been trading the system for a year or more to verify that the published monthly trading results were being achieved. Although more than one admitted he/she had not traded every signal that was given, the overall trading record was verified and general comments were quite positive.

The S&P 500 trading results for approximately 12 months ending on March 31, 1987 are shown in [Figure 1](#). This graphically shows the cumulative net profit for this period and for the full two years that the Kelly Hotline has been operational.

It is important to note that the 54 trades since March 19, 1986 were actual trades documented monthly in the hotline newsletter. The prior year's trades, 46 in all, are based on the original reversing hotline signals and were recomputed by Kelly to reflect the current method of taking profits at \$ 1,500. Since these were not actually executed trades, I did not include them in the overall analysis.

As you may have noticed, the Kelly Hotline is really quite remarkable in several key respects:

- It has shown consistent profits after 54 actual trades in a single year, for an annual return in excess of 100%.
- Drawdowns have been tolerable and trade durations have been mercifully shorter which allows for more restful nights than many traders have come to enjoy.
- The price for the service is very reasonable by any measure, but especially for one so profitable.

Reading Kelly's monthly newsletter creates a picture of the man behind it— that of an honest, caring person who sees his subscribers as friends and is genuinely interested in doing everything that he can to see that they make money. Tips on selecting a broker, maintaining discipline and minimizing slippage are some of the recent items of note.

The crucial factor in making money in the future remains Kelly's ability to make enough of the right calls. As we are often reminded, the past is not necessarily an indicator of future performance. This is particularly important, considering that we've had an uninterrupted bull market over the past two years. Whether the Kelly Hotline can perform as well over the next two years remains to be seen.

Two other factors also should be considered. First, the orders that are given to your broker can be quite complex. If all of Kelly's re-entry rules are followed to the letter, an inexperienced subscriber would be well advised to carefully study and understand the implications of multi-tiered contingent orders and one-cancels-the-other orders, before jumping in. An alternative might be a managed account where Kelly

places the orders.

The second consideration is that of excessive slippage or "bad fills," which can seriously erode profits or increase losses in these volatile markets, particularly when a large number of contracts are set to be bought or sold at about the same price. Aside from setting your limits a little away from the crowd, not much can be done about it except to have a conscientious broker and complain after the fact.

This is the first hotline reviewed in *Stocks & Commodities* and Kelly was the only vendor out of six who responded to our challenge of a review. That, together with his performance during this review makes his service quite impressive. If you can trade others' signals, you should look into this one.

*Robert Bukowski is an independent futures trader with Bukowski & Associates in Bellevue, WA.*



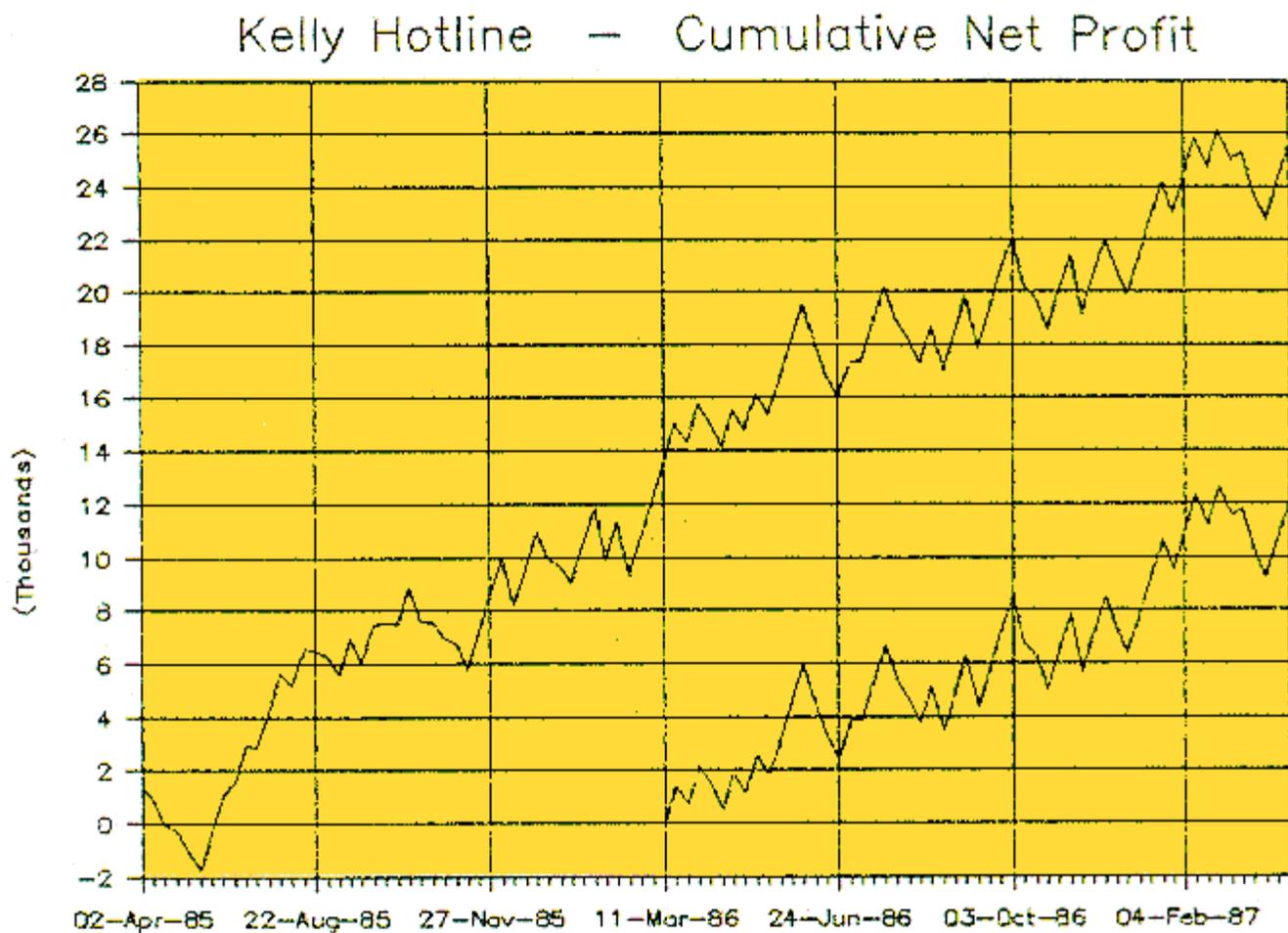


FIGURE 1:

# LETTERS TO S&C

## Edit Errors

Editor,

The articles in your magazine are usually so well written that they are interesting to read even though the reader may not agree with the contents. The article written by William Eng was therefore most surprising. It would have been an act of kindness to either edit it or not print it. The English language was much abused by Mr. Eng, and his writing style showed much confusion in use of words.

For instance: page 23, column 1, last paragraph. The quote "It's none of your goddamn business!" is uttered 1) matter-of-factly, 2) with abruptness, 3) caused emotional pain, 4) in anger. In these sentences the author has described one response in four different ways. Talk about contradictions.

Is it possible that most people would not know a legendary trader? If so, he would hardly be legendary, would he? (Column 1, second paragraph.)

If someone is straightforward, I do not believe he would be "from the hip." Maybe from the heart, or the brain, but not the hip. (Column 2, first paragraph.)

I imagine a trader who is broke 28 out of 30 years could be legendary—a legendary flop—hardly one to emulate or write about.

The fourth paragraph of this article is so weird it is difficult to determine if the word "stature" refers to the man's station in life or his height. I am sure the word "inordinately" in paragraph 3 is misused. Does the author really mean excessively? Didn't he mean invariably?

I could go on and on but you get the picture. The article is a mess and I am not quite sure why it was published.

LLOYD SMALL

*E. Meadow, NY*

*Thanks so much for writing. I genuinely enjoyed your comments, which were shared by my editorial staff. However, I overruled them!*

*Firstly, I wanted the message to get across just as it comes across in real life. There the language is garbled, confused, often overwhelmed with noise. In this respect, you are experiencing the stream of consciousness found on the trading floor, not the respective calm of our living rooms. That's entertainment!*

*Secondly, the message itself came through as harshly as it comes in the pit: keep your positions to yourself. Believe me, this is something it's best to learn well—a little obscenity may burn it into your brain, as the Marine Corps well knows!*

*That's what we're doing in this article. As you comment, the articles are generally well-edited and couched in proper English. Should we depart from that standard, think of it as a puzzle where the*

*meaning is worth discerning.*

## **A Simple System**

Editor,

In the past three years, I've come in contact with over 300 commodities traders, some winners, some losers. While the techniques or systems the winners and losers used were useful in determining the degree of success or failure, a large percentage of the winners seemed to have "good luck."

As a neuro-linguistic programmer, it is my duty to develop patterns that can be used by a "loser" that will turn him into a winner. First, it is significant to note that what most people do after a winning trade is not much different than what they do after a losing trade. They may experience some type of feeling and then go on to the next trade.

Second, most traders have no tangible goal that they can easily relate to. Usually the person seeks to become financially independent. A survey of the meaning of financial independence found that it was a very abstract goal that continually changes. What is vital in the establishment of a goal is that the trader develop one that is very objective in nature and can easily be visualized.

Third, most traders have no experience of making progress towards their goal.

The solution to all of this is relatively simple and has been verified by research at Stanford University.

- 1) Get a large water container, similar to those used in offices.
- 2) Several times a day visualize that container being full of money.
- 3) After each winning trade, place 1% of your winnings in the container.
- 4) Plan to do something fun with the money in the container.

In most cases, this will change the person's "luck" because of the changes that take place in the person's magnetic field. Usually after a person's "luck" has changed, they will learn new techniques that will increase their success even more.

RON JAENISCH

*Course Director*

*Andrews-Reinhart Course*

*Sunnyvale, CA*

## **Cover to Cover**

Editor,

Well now you've done it! Up until a few weeks ago, I never even knew Technical Analysis of STOCKS

& COMMODITIES existed and now after reading a complimentary copy from cover to cover I'm hooked. Now I suppose I'll have to spend *more* money and order the back issues to see what I've missed. Thanks a lot! !

WILLIAM BOYD

*Renton, WA*

### **Article List**

Editor,

I was just reading an article in your May issue entitled "Refining Chart Analysis" that deals with your continuing coverage of the Wyckoff Trading Method. As indicated at the beginning of the article, this is only one of a series of articles that deal with this topic.

May I suggest that your magazine, when running a series of articles like this, list at the end of the article the previous articles from the series.

I enjoy the magazine very much and appreciate the perspective that it has helped me to develop.

ROBERT DIX

*Salt Lake City, UT*

### **Bookkeeping Program**

Editor,

I am enjoying the Ehlers and Hutson articles very much. They both seem to be quite knowledgeable about computers and programming. My guess is that one of them could write a very simple program that would be a basic bookkeeping system for trading.

I am sure a lot of other readers would like a simple program where you can enter your position and the price initiated, whether long or short, date initiated, date covered, price, commission, profit or loss, funds added, funds withdrawn and then a cumulative total of the balance that can be accessed by week, month or year.

JOHN BAKER

*Tolar, TX*

### **Scaling Solutions**

Editor,

In the May issue of STOCKS & COMMODITIES, Mr. William O'Donohue described a problem with Lotus 1-2-3 allowing only one Y scale. I have found a solution to this problem.

Using a formula, it is possible to proportionately force a set of numbers that you want to graph into the range of another set. This generates what I call reciprocal numbers.

For example, say you create an RSI for the Dow Jones Industrials. The Dow is 2000 plus now and an RSI is always between zero and 100. So, you force the Dow into the range of its RSI numbers using the formula, then graph the RSI and the reciprocal Dow numbers together. The result is the RSI line and what appears to be the Dow line on your graph with the high and low levels of the Dow tied to the high and low levels of its RSI. The reciprocal Dow line is proportionately identical to the real Dow line. I only use the closing Dow in my macro, but you could graph its high and low also as lines. No volume though, as you cannot really create a standard high, low, close, volume bar chart with 1-2-3.

There are two disadvantages. Since you only have one Y scale you can show only one set of numbers. In the above example I show the RSI numbers on the Y scale. Second, is a time problem. When a new Dow number is input the macro tests it for a new high or low. Since the formula ties the high and low levels of the Dow and RSI together, if there is a new high or low in the column of Dow numbers, all reciprocal numbers must be recalculated. My IBM XT with its antique 8088 processor should take about 17 minutes to recalculate one year of data (a great time to read the latest copy of STOCKS & COMMODITIES).

On the brighter side, there is a new possibility created by doing this with an RSI. Given what an RSI is meant to do, if the RSI line is above the Dow line and has been trending up, should it further indicate a rise in the Dow and vice versa? Anyway, this trick can be done with any two or more sets of data. Just pick one and tie the rest to it with the formula.

BILL BONE

*Franktown! CO*

### **Wyckoff Info**

Our company has subscribed to your magazine for the last two years and we enjoy it very much.

Over the last year I have seen three articles on Wyckoff's trading methods, the most recent of which is your article in the May issue: "Refining Chart Analysis."

Based on an earlier advertisement in STOCKS & COMMODITIES, I wrote the Stock Market Institute in Phoenix and they sent me information regarding their \$850 Wyckoff course. Now my questions:

- 1) Do you know of anyone who has taken the course and found it worthwhile?
- 2) Do you know of any books that treat his method rigorously and have examples?
- 3) What would you recommend as the best way to become thoroughly familiar with the Wyckoff method of market analysis?

BOB DIX

Salt Lake City, UT

*It upsets me that over the past two years you have only seen three articles on Wyckoff trading methods. I have in front of me the twelfth in my series on the Wyckoff method of trading stocks. In addition, two other articles by David Weis about Wyckoff trading have been published.*

*With respect to Stock Market Institute's Wyckoff course, I believe that much of the material that they are using for their course is supposed to be Wyckoff's original material. If so, it is probably excellent, although my experience with the past four years of research on this project has been that Richard D. Wyckoff tended to reiterate the same information six or eight times to make sure that you got the point. In answer to your question about if I know anyone who has taken the course, yes, I have talked to several people who have done so and I haven't run into anyone who was upset with it. Apparently the course is good stuff. Almost to a man, though, they did say it was pretty expensive.*

*As for your second question about books that describe Wyckoff's methods, I would have to say no. I have spent a great deal of time collecting copies of Wyckoff's published works between the years 1906 and 1940 and I cannot say that there is any one book that succinctly covers Wyckoff's materials. I think you'll find the series of articles in our magazine probably comes as close to that as anything short of taking the course. We also spent several hundred dollars at the Copyright Office trying to locate and verify the authenticity of the Wyckoff material.*

*In regards to your third question, probably the best way to become proficient at applying the Wyckoff method of market analysis is to start off by reading the series of articles from the past two years of the magazine. Then inquire as to the Stock Market Institute's course (602/248-8244) as well as look into the few other books or pamphlets on the Wyckoff method which are available through Fraser Financial Publications.*

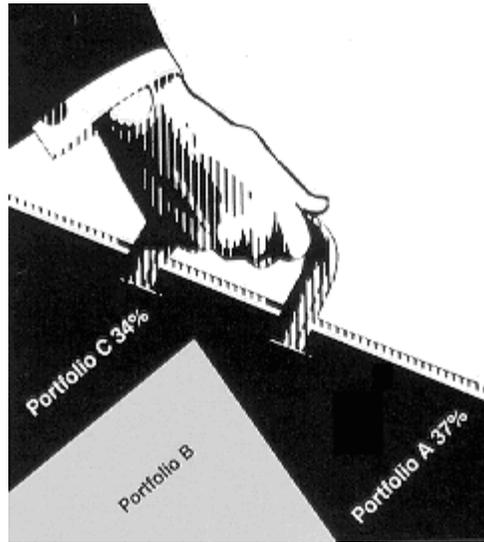
## part 2

# Modern Portfolio Theory in managed futures

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by Gary S. Antonacci

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Optimal portfolio diversification using Modern Portfolio Theory is a particularly valuable tool when applied to futures trading and is the key to earning attractive returns with less risk. Developing efficient portfolios comprised of professionally managed commodity futures trading programs requires three elements: expected rate of return, volatility, and correlation.

I have found through testing that 3.5 years of past performance data works best in estimating future performance results. A track record loses a great deal of its relevancy going back further than 3.5 years, since market conditions change over time and the number of different futures markets is constantly growing. In fact, weighing the past 18 months of data more heavily than the preceding months seems to give an even better indication of expected future returns.

The volatility, or risk, of an investment opportunity is usually represented by the standard deviation of returns about the mean, or average return. Incorporating estimation risk, however, into each investment's measured volatility gives better results than if such estimation risk were entirely ignored.

Estimation risk is the uncertainty that is due to drawing inferences from a small amount of data. If we had an unlimited amount of past performance data, we would know the true past performance characteristics of an investment opportunity. But because we may have only a few years of data from which to make inferences, an investment's true performance characteristics may not be adequately reflected in such small size samples. Fortunately, estimation risk can be calculated and added to an investment's measured risk to give a better assessment of an investment's total overall uncertainty.

Correlation is the tendency for investment returns to move up and down together. A commonly used statistical measure of this tendency is the correlation coefficient, which can take on values between -1

and +1. A negative value means the returns from two investments tend to move in opposite directions. A positive value means that returns tend to move in the same direction. The closer values are to -1 or + 1, the more pronounced are the tendencies.

For portfolio purposes, the best possible correlation coefficient is -1, which indicates that the returns from two investments always move in exactly opposite directions. The worst possible correlation coefficient is +1, which indicates that the returns from two investments are perfectly synchronized.

Fortunately for investors in commodity futures trading programs, it is quite possible to find attractive programs utilizing very different trading styles. This results in correlation coefficients that are close to zero or even negative. But to find these opportunities, one must look beyond the usual realm of mechanical trend-following trading systems, which are often highly correlated with one another. The advantages of doing so are pronounced. I have found that forming a portfolio of five or six good futures trading programs having average correlation coefficients that are negative or close to zero reduces risk considerably without a corresponding reduction in portfolio rate of return.

In [Figure 1](#), the average monthly rate of return of a number of programs is 7.2% while the average monthly standard deviation is 15.6%. On the other hand, the efficient portfolio I have chosen from these programs shows a 6.7% monthly return with only a 4.8% standard deviation. So with only a small diminution in potential return expected volatility has been reduced by over two-thirds! This kind of dramatic portfolio risk reduction is not possible from other investment opportunities such as stocks, bonds or real estate, where the correlations between individual investments are typically high.

Once we have come up with the correlations, volatilities and returns, a computer can search for and locate the efficient frontier by optimizing for those combinations of investment opportunities that simultaneously offer the highest return, lowest volatility and lowest correlation. This maps out portfolios with the least overall risk at every attainable level of return and, conversely, the highest return at every possible risk level.

## **Managed futures trading programs offer some unique and interesting advantages for making the best use of leverage.**

### **Maximizing investor satisfaction**

Locating the efficient frontier is only the first step of investment decision-making based on Modern Portfolio Theory. The second step is selecting the efficient portfolio that maximizes an investor's satisfaction. Investor satisfaction is maximized when expected return is the highest and risk is the lowest. However, investors differ in their preferred trade-off of expected return and risk. We can think of the efficient frontier as providing a menu of portfolios from which investors can make their selection.

But we can go even further and separate portfolio choice from the consideration of investor attitudes toward risk and return. Risk-return attitudes, for example, could present a problem in structuring a homogeneous investment opportunity for a diverse group of investors having different degrees of risk aversion. Fortunately, there is a solution at hand which can best be grasped through an illustration.

[Figure 2](#) displays the efficient frontier and a straight line drawn from point RF, which equals the return available from a risk-free investment such as Treasury bills. This straight line is indicative of the rate at

which investors can borrow or lend funds, and is drawn touching the efficient frontier at point R, an optimal portfolio. Portfolio R is located by finding the straight line from RF that has the steepest slope while still making contact with the efficient frontier.

Aggressive investors can obtain a higher return than portfolio R by investing their assets in portfolio R, and then borrowing additional funds to also invest in portfolio R. For aggressive investors, this strategy is preferable to the alternative of simply investing all assets in a portfolio that is more aggressive than portfolio R.

The straight line segment from R to r represents optimal portfolio R combined with borrowing at the risk-free rate. We can clearly see that this line segment dominates the efficient frontier to the right of point R, because it gives a higher return at every level of risk on the efficient frontier. To do this, we need to find the efficient portfolio that maximizes  $(R-RF)/$  standard deviation of R. This expression is the reward-to-variability ratio, sometimes referred to as the Sharpe Ratio. We are looking for the efficient portfolio that offers the highest excess return per unit of risk.

Conservative investors, on the other hand, can invest a portion of their assets in optimal portfolio R and lend out the remainder, placing them on that portion of the straight line that lies between RF and R. This strategy dominates the rest of the efficient frontier, since the line segment from RF to R gives higher returns at each risk level on the efficient frontier.

Combining lending or borrowing with portfolio R offers a more attractive risk/reward framework than investing elsewhere along the efficient frontier. This implies that all investors should hold portfolio R and borrow or lend in accordance with their individual preferences. This powerful concept is known as the separation theorem. It greatly simplifies the portfolio selection problem, since there is really one optimal portfolio that should be held by all risk-averse investors. (Actually, under certain conditions there may be a different optimal efficient portfolio to the right of point R, but this portfolio would only be of interest to investors who would borrow to invest more than 100% of their net worth into that portfolio. I know of no investor and cannot imagine an investor who would invest accordingly in the commodity futures markets.) Each investor can decide how much leverage to use in conjunction with investing in this singular optimal efficient portfolio.

### **Optimal use of leverage**

Managed futures trading programs offer some unique and interesting advantages for making the best use of leverage. The optimal use of leverage in futures investing generally has been ignored, just as has the use of Modern Portfolio Theory in structuring optimally diversified portfolios.

Although investors typically operate on low margins, managed futures investment programs already employ a significant amount of leverage. This leverage varies considerably across different trading programs, but usually can be adjusted easily. If the leverage of a trading program (or portfolio) of trading programs) is too high, thus giving investors more volatility than they desire, a larger proportion of investor assets can be held as reserves by keeping them in Treasury bills. This is a straightforward application of the separation theorem.

On the other hand, if the leverage of a trading program (or portfolio of trading programs) is too low, therefore giving results that seem too conservative, investors can have their trading advisor(s) trade more aggressively. This might take the form of account underfunding, whereby an advisor is asked to trade as if there were more equity in an account than is actually the case. This way, investors can increase their

use of leverage without actually having to borrow funds. Such a strategy may be particularly appropriate when Modern Portfolio Theory is used to optimally diversify among non-correlated futures trading programs.

As demonstrated earlier, the use of Modern Portfolio Theory techniques can reduce the volatility of futures trading by up to two-thirds without significant diminution of expected returns. This volatility reduction may, in turn, make it possible for investors to increase the amount of leverage they employ in order to significantly enhance their expected returns.

The question arises as to how to best determine the amount of leverage that is appropriate for different investors having varying degrees of risk aversion. Perhaps the simplest way of doing this is for investors first to decide on the maximum monthly equity decline they would be willing to endure. This tolerable drawdown level can then be compared to the expected maximum monthly equity decline of the optimal portfolio, and the portfolio's leverage can be adjusted accordingly.

The expected maximum monthly equity decline of an investment portfolio at the 99% confidence level (i.e., the maximum equity decline should not exceed this amount 99 times out of 100) can be determined according to the following formula:

$$MD=(2.5 \times Sp) -Rp$$

where MD is the expected maximum monthly equity decline, Sp is the portfolio standard deviation, and Rp is the expected monthly rate of return of the portfolio.

In [Figure 1](#), the optimally managed futures investment portfolio,  $MD=(2.5 \times 4.8\%)-6.7\% = 5.3\%$ . Investors who feel this is too large an equity drawdown for them to comfortably endure could split their investment capital between the optimal portfolio and the risk-free asset in a manner that reduces their overall expected maximum monthly equity decline to a more tolerable level.

For example, investors not wanting to bear an MD greater than 3% could invest approximately 60% of their capital in the optimal portfolio having an MD of 5.3 %, and put 40% of their capital into Treasury bills or their equivalent having an MD of zero. The rate of return such investors could expect to earn from this strategy would be a similarly weighted average between the rate of return available from the optimal portfolio and the rate of return available from Treasury bills or their equivalent.

At the other extreme, investors who feel that they can bear an MD greater than that of the optimal managed futures portfolio could increase the leverage of the optimal portfolio in a manner consistent with their own risk tolerance levels. With the optimal portfolio cited in [Figure 1](#), investors willing to endure an MD of 10% or more could simply double the amount of leverage that the trading programs making up the optimal portfolio employ on their own. Doing so, there would be a corresponding doubling of the rate of return aggressive investors could expect from this leveraged version of the optimal managed futures investment portfolio.

**As a practical matter, it should be possible to accommodate a wide range of investor preferences by having just two portfolios for optimally investing in managed futures.**

As a practical matter, it should be possible to accommodate a wide range of investor preferences by having just two portfolios for optimally investing in managed futures. Both portfolios would have essentially the same allocation of assets, but one portfolio would employ leverage in a modest manner, while the other would be much more aggressively orientated, and thus highly leveraged. Investors with risk profiles between these two diverse portfolio structurings could simply invest in a suitable combination of the two portfolios. In this way, all investors, no matter what their reward-to-risk preferences, could benefit from the excellent opportunities available from investing in the optimal portfolio of managed futures trading programs.

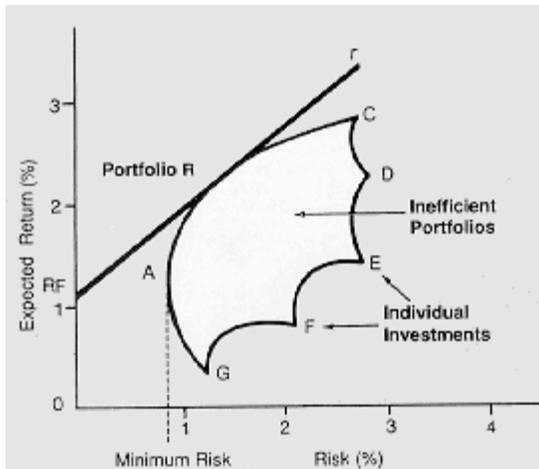
*Portions of Parts 1 and 2 of this article are from an unpublished report, "The Potential Role of the Rudolf Wolff Performance Fund in Efficient Investment Portfolios," from Irwin Investment Research Associates, Upper Arlington, Ohio, April 16, 1986; Scott H. Irwin author. The author gratefully acknowledges this reference. Stocks & Commodities regrets the omission of this credit from the original article.*

**Reference**

*Estimation Risk and Optimal Portfolio Choice.* Vijay Bawa, Stephen Brown and Roger Klein. North Holland Publishing Co., New York, 1979.

	<b>Monthly Rate of Return</b>	<b>Standard deviation of Return</b>
<b>Averages of futures trading programs</b>	7.2%	15.6%
<b>Efficient portfolio of trading programs</b>	6.7%	4.8%

**FIGURE 1**



**FIGURE 2**

# Mutual fund timing

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by Fay H. Dworkin, Ph.D.

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It's like a musical instrument: you have to learn to play it," says Hubert Cafritz about his trading strategy for managing a portfolio of mutual funds.

The system has been used for three years by Cafritz, a pension fund manager, and by subscribers to *The Cafritz Report*. This article describes the results of my own test of the system which simulated the actions of an investor who began building a mutual fund trading portfolio at the beginning of 1984. This hypothetical portfolio is evaluated on a risk-adjusted basis for its 1984-86 performance.

## How it works

The technically based Cafritz system seeks out current mutual fund performance leaders. The leaders' list contains about 85 no-load or low-load mutual funds including an "average" money market fund and three bond funds. The list, which contains a number of widely held funds (e.g., the T. Rowe Price and Fidelity families of funds), mixes equity and fixed income funds and ignores traditional equity fund labels such as "aggressive" or "growth."

In a one-page summary, Cafritz lists each fund's three-, six- and nine-month performances measured by the percentage change in the net asset value, adjusted for distribution. For reference purposes, the list also contains the performances of the S&P 500, the Dow Jones Industrial Average and the Lipper Growth Fund Index for the same three time periods.

The sum of the three percentage changes creates the Cafritz Composite Performance Measure (CPM). The CPM gives progressively more weight to a fund's more recent performance. Clearly, a fund's nine-month performance reflects both its six-month record and its three-month record. Similarly, its six-month record is influenced by its three-month record. The simple sum of the three performance measures, therefore, gives approximately double weight to the last six months and triple weight to the last three.

## The rules

A trader begins by investing equal dollar "units" (e.g., \$ 1,000) in the three mutual funds that rank highest (by CPM) on the list. Cafritz issues fund rankings monthly and has three simple rules governing how to adjust the portfolio from month to month:

**Rule 1:** Hold (do nothing about) funds that rank in the top 25 of the 85 funds under survey.

**Rule 2:** Sell any fund when its rank drops below 25.

**Rule 3:** Buy any fund that rises to rank one, two or three if it is not already in the trading portfolio.

Cafritz admits there is no magic in rank 25. However, it is an intuitively appealing cutoff since it is approximately one third the number on the list. The theory behind the cutoff rank is to abandon funds whose performances become lackluster, although your own tolerance for poor performance may dictate some other cutoff.

Proceeds from the sale of funds that Rule 2 dictates are used to purchase shares in the highest-ranking funds on the list. If only one fund is sold, its proceeds are invested in the top-ranking fund (even if it is already held in the portfolio). If two or more funds are sold, their proceeds are invested in funds ranked one and two. The hypothetical portfolio assumes that the proceeds of the lowest-ranking fund are invested in the No.1 ranked fund, next lowest into No.2, and so on. Cafritz actually pools the equivalent number of proceeds of all sales and reinvests equal amounts in the equivalent number of top-ranking funds. Rule 3 applies even if no sales are called for in a given month, thus requiring the addition of "new money."

**No transactions were required in March or April 1984 because each fund in the portfolio remained at rank 25 or above and the portfolio already held the three funds ranked one through three.**

### **The system in action: 1984-86**

Figure 1 shows the buy, hold and sell transactions the system would have generated on a month-to-month basis in 1984 and summaries of the transactions for 1985 and 1986. In January 1984, the trader would have started a portfolio with \$1,000 "units" of GT Pacific, Royce Value and Strong Investment funds. In February 1984, Rule 1 would have instructed the trader to hold the three funds purchased in January. However, because both Royce and Strong Investment fell below rank three (to ranks five and six, respectively), Rule 3 would have required additional investments of one \$1,000 unit of Price International (rank two) and one \$ 1,000 unit of Scudder International (rank three). No transactions were required in March or April 1984 because each fund in the portfolio remained at rank 25 or above and the portfolio already held the three funds ranked one through three.

The first sale was triggered in July 1984 when GT Pacific fell to rank 27. Proceeds of the sale were invested in the highest-ranking fund of the month—Money Market. In August 1984, four funds in the portfolio fell below rank 25: Scudder International, Price International, United Services Gold Fund and Fidelity Select Metals. All were sold and the proceeds invested in the four highest-ranking funds of the month: Money Market, Price New Income, Strong Investment Trust and Strong Total Investment.

By the end of 1984, the portfolio was left with 10 mutual funds: four fixed income, five equity and one balanced. Strong Investment Fund was the only fund held for the entire year.

### **Transactions and costs**

Over the three-year period, the portfolio held 31 different mutual funds—from as few as three funds in January 1984 to as many as 12 in September and October 1985. On average, the portfolio held about eight funds per month (6.9 funds in 1984, 10.2 in 1985 and 7.8 in 1986).

The number of transactions per month also varied considerably. Although there were no transactions in 11 of the 36 months, there were 12 transactions in February 1985. When a fund is sold, of course, two transactions occur: the sale and the reinvestment in an alternative fund. Cafritz believes the administrative burden of transactions can be minimized by using universal application and redemption forms that are easy enough to construct using any fund's model form. These forms are almost universally accepted, he says, and priority mailers help speed up the delivery of transaction orders.

Figure 2 shows the 1984-86 completed transactions data. In all, there were 36 full turnaround (buy and sell) transactions, with an average period of ownership of 8.2 months. One-half of these transactions (18) resulted in fund retention for six to 11 months. One-fourth (9) were held for less than six months, and one-fourth (9) for 12 months or more.

## **The system appears to be an effective and conservative way to trade mutual funds that are held for maximum growth.**

There were nearly twice as many completed transactions that resulted in gains than there were losses (23 vs.13). Moreover, the 21% average gain for completed transactions was more than twice the average loss of 9.8%.

At the end of 1986, the portfolio continued 16 "open" or uncompleted transactions in seven different funds (Figure 3). The number of open transactions showing gains vs. the number showing losses is 10:6, roughly the same as the 2:1 ratio for completed or full turnaround transactions. The average gain of 64.4% at the study's close exceeded the average loss of 3.2%.

### **The final score**

Over the course of 1984, the trader would have invested a total of \$13,000. In 1985, \$5,000 more was added and 1986 required an additional \$4,000. In all, the portfolio was seeded with \$22,000 over the three-year period. For this reason, Cafritz strongly advises the investor to dedicate a limited amount of funds to a trading account and wait patiently to make month-to-month fund purchases that Rule 3 may require. It would be grossly imprudent to invest everything at once, particularly in a system that attempts to time the market. Rarely do available funds and the "right time" coincide.

Most people would probably want to modify the system to avoid the continuing demands of the system for new money. One way, for example, is to take profit from funds that exceed their cost basis by 40% and retain these monies for future purchases. Another is to sell the lowest-ranking funds on the list to purchase the three top-ranking funds, if they are not already in the portfolio.

Figure 4 shows how the \$35,834 value of the portfolio at the end of 1986 was calculated. Fidelity Overseas accounted for more than half the value of the portfolio.

How well did the Cafritz system do over the three-year period? Since the \$22,000 "seed money" was added to the portfolio over the course of the three years, one measure of the system's performance is its internal rate of return. The portfolio's total value of \$35,834 represents an annualized performance of 24% or 2% per month.

The risk-adjusted rate-of-return (ROR) of the portfolio was computed by the Capital Market Line method of modern portfolio theory to be 23.2% per year over the three-year period. This was three times the rate of the T-bill ROR of 7.8% and nearly twice the S&P 500 ROR of 13.87%. On a normalized "risk" scale where the T-bill risk is set at zero and the S&P 500 risk is set at 1, the Cafritz portfolio scored 1.08. In short, the Cafritz portfolio outperformed the broad market by nearly 70% with an 8% greater risk.

The system appears to be an effective and conservative way to trade mutual funds that are held for maximum growth. Cafritz is optimistic the system will limit losses in a bear market, but acknowledges that it has yet to be put to the test. The system, which appears to perform best during a period when trend

is becoming well-established (in this case, international fund dominance), provides a disciplined and simple-to-use approach to trading mutual funds.

*Fay H. Dworkin is chairperson of the Mutual Fund Special Interest Group of the Washington D.C. chapter of the American Association of Individual Investors.*

## **References**

- *The Cafritz Report*, Box 8565, Silver Spring, MD 20907
- Risk-adjusted rate of return analysis courtesy of Thomas A. Rorro, president of the Washington, D.C. chapter of the American Association of Individual Investors, with his SCORE program.

Mutual Fund Name	Jan-84 Rank	Feb-84 Rank	Mar-84 Rank	Apr-84 Rank	May-84 Rank	Jun-84 Rank	Ju1-84 Rank	Aug-84 Rank	Sep-84 Rank	Oct-84 Rank	Nov-84 Rank	Dec-84 Rank	1984 Total Rank
GT Pacif	*1 B	1 H	1 H	1 H	2 H	11 H	29 S	-	-	-	-	-	-
Royce	2 B	5 H	9 H	12 H	14 H	16 H	15 H	19 H	27 S	-	-	-	-
Strong Inv.	3 B	6 H	8 H	10 H	11 H	3 H	3 H	3 H,B	22 H	15 H	19 H	11 H	-
TRP Intl.		2 B	2 H	2 H	4 H	9 H	22 H	42 S	-	-	-	-	-
SCUD Intl.		3B	3H	3H	5H	7H	13H	26S	-	-	-	-	-
US Gold					1 B	4H	7 H	47 S	-	-	-	-	-
Fidsemet					3 B	10 H	12 H	49 S	-	-	-	-	-
Money Mkt						1 B	1 H,B	1 H,B	17H	9H	18H	13H	-
Mut Sh						2 B	2 H	5 H	6 H	2 H	5 H	4 H	-
Trp Newinc								2 B	23 H	11 H	16 H	7 H	-
Strong Tot								4 B	21 H	8 H	8 H	6 H	-
Nicholas									1 B	1 H	1 H	2 H	-
Acorn									2 B	3H	2H	5H	-
Weingarten									3 B	18 H	20 H	16 H	-
Fid Eq Inc											3 B	1 H	-
Fid Hin Inc												3 B	-
<u>1984 Transactions Summary</u>													
\$1000 Units Invested	3	2	0	0	2	2	0	0	2	0	1	1	13
Total Trans.	3	2	0	0	2	2	2	8	4	0	1	1	25
# of Funds in Portfolio	3	5	5	5	7	9	8	6	8	8	9	10	10
<u>1985 Transactions Summary</u>													
\$1000 Units Invested	1	0	1	0	0	0	2	0	1	0	0	0	5
Total Trans.	3	12	1	0	0	0	2	2	1	8	2	2	33
# of Funds in Portfolio	11	8	9	9	9	9	11	11	12	12	11	10	10
<u>1986 Transactions Summary</u>													
\$1000 Units Invested	0	0	0	0	0	2	1	0	0	0	1	0	4
Total Trans.	2	4	0	0	0	2	1	2	4	7	1	0	23
# of Funds in Portfolio	9	7	7	7	7	9	10	10	8	6	7	7	7

B = Buy, H = Hold, S = Sell.  
\*Numbers in the transactions table refer to rank

FIGURE 1:

<b>Full Turnaround Transactions (1984-86)</b>							
<b>Fund Name (Loss)</b>	<b>Date Bought</b>	<b>Amount Paid</b>	<b>Date Sold</b>	<b>Dividends</b>	<b>Adj. Amt Rec.<sup>1</sup></b>	<b>Months Held</b>	<b>Gain</b>
FIDHIINC	Dec-84	\$1,000.00	Feb-85	99.98	\$1,129.93	2	9.7
BABSON	Aug-85	1,101.55	Oct-85	none	1,001.41	2	-9.1
FIDSELMET	May-84	1,000.00	Aug-84	10.33	805.80	3	-19.4
USGOLD	May-84	1,000.00	Aug-84	none	753.74	3	-24.6
CENTSH	Jul-85	1,000.00	Oct-85	none	923.73	3	-7.6
PACHORIZ	Jun-86	1,000.00	Sep-86	none	928.47	3	-7.2
FIDSELHLTH	Jul-86	1,000.00	Oct-86	none	822.82	3	-17.7
WEING	Sep-84	1,000.00	Jan-85	none	952.55	4	-4.8
CONSTELL	Jun-86	1,000.00	Oct-86	none	896.70	4	-10.3
STPAC	Jan-84	1,000.00	Jul-84	23.48	899.43	6	-10.1
PRICEINTL	Feb-84	1,000.00	Aug-84	179.43	907.62	6	-9.2
SCUDDERINTL	Feb-84	1,000.00	Aug-84	29.59	939.95	6	-6
MONEYMKT	Aug-84	795.47	Feb-85	40.57	836.04	6	5.1
PRICEINC	Aug-84	753.74	Feb-85	64.07	817.81	6	8.5
STRONGINV	Aug-84	907.62	Feb-85	none	992.91	6	9.4
STRONGTOT	Aug-84	910.36	Feb-85	none	1,009.46	6	10.9
MONEYMKT	Jul-84	875.95	Feb-85	53.44	929.38	7	6.1
ROYCE	Jan-84	1,000.00	Sep-84	23.78	990.21	8	-1
MONEYMKT	Jun-84	1,000.00	Feb-85	69.00	1,069.00	8	6.9
MUTSH	Jun-84	1,000.00	Feb-85	122.12	1,155.73	8	15.6
ACORN	Feb-85	1,009.46	Oct-85	74.35	1,118.97	8	10.8
FIDEQUINC	Nov-84	1,000.00	Aug-85	75.45	1,177.08	9	17.7
FIDMERC	Feb-85	1,049.19	Nov-85	none	1,100.24	10	4.9
STEINSPEC	Feb-85	1,029.95	Oct-85	45.43	1,028.09	10	-0.2
FIDOTC	Oct-85	1,001.41	Aug-86	34.33	1,417.05	10	41.5
NICHII	Feb-85	2,032.41	Jan-86	37.92	2,716.70	11	33.7
FIDSELHLTH	Mar-85	1,000.00	Feb-86	2.21	1,342.57	11	34.3
NICHII	Jan-85	1,000.00	Jan-86	18.66	1,336.76	12	33.7
VANGQDI	Feb-85	771.38	Feb-86	149.57	968.58	12	25.6
STRONGINV	Jan-84	1,000.00	Feb-85	80.71	1,120.19	13	12
ACORN	Sep-84	1,000.00	Oct-85	78.02	1,174.36	13	17.4
VANGQDI	Jan-85	952.55	Feb-86	191.56	1,240.55	13	30.2
FIDSELLEIS	Sep-85	1,000.00	Oct-86	none	1,301.59	13	30.2
NICWOLAS	Sep-84	966.43	Dec-85	45.90	1,267.21	15	31.1
FIDSELFIN	Jul-85	1,000.00	Oct-86	none	1,293.83	15	29.4
QUASAR	Feb-85	2,671.42	Sep-86	160.81	4,095.41	19	53.3

**Average Gain = 21.0%, Average Loss = 9.8%**  
1) Amount received on date of sale plus all dividends over the term of ownership

FIGURE 2:

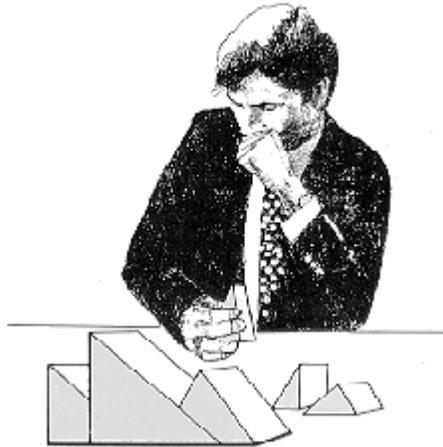
<b>Open Transactions (End of 1986)</b>							
<b>Fund Name</b>	<b>Date Bought</b>	<b>Amount Paid</b>	<b>Date Sold</b>	<b>Dividends</b>	<b>Adj. Amt Rec.<sup>1</sup></b>	<b>Months Held</b>	<b>Gain (Loss)%</b>
<b>FIDOVERS</b>	Feb-86	1,868.04	Open	212.65	3,062.58	11	64.00
<b>SCUDDERINTL</b>	Feb-86	1,340.36	Open	270.45	1,944.01	11	45.00
<b>FIDOVERS</b>	Jan-86	3,996.91	Open	468.66	6,749.58	12	68.90
<b>FIDOVERS</b>	Dec-85	1,221.31	Open	162.51	2,215.71	13	81.40
<b>FIDOVERS</b>	Nov-85	1,100.24	Open	159.29	2,171.76	14	97.40
<b>FIDOVERS</b>	Oct-85	982.66	Open	148.62	2,026.30	15	106.20
<b>PRICEINTL</b>	Oct-85	923.73	Open	179.42	1,736.79	15	88.00
<b>SCUDDERINTL</b>	Oct-85	2,140.71	Open	531.63	3,821.47	15	78.50
<b>CORNERST</b>	Nov-86	1,000.00	Open	34.30	1,037.67	2	3.80
<b>FIDOVERS</b>	Oct-86	1,301.59	Open	90.42	1,302.15	3	0.04
<b>FIDSELMET</b>	Oct-86	1,293.83	Open	None	1,266.53	3	-2.10
<b>GTPAC</b>	Oct-86	822.82	Open	None	796.27	3	-3.20
<b>USGOLD</b>	Oct-86	896.70	Open	None	891.09	3	-0.60
<b>FIDOVERS</b>	Sep-86	928.47	Open	61.55	886.38	4	-4.50
<b>GTPAC</b>	Sep-86	3,934.58	Open	None	3,715.12	4	-5.60
<b>GTPAC</b>	Aug-86	1,340.76	Open	None	1,420.15	5	5.90
<b>Average Gain = 64.4%, Average Loss = 3.2%</b>							
1) Amount received on date of sale plus all dividends over the term of ownership							

FIGURE 3:

<b>End of 1986 Portfolio</b>				
<b>Fund</b>	<b># Shares</b>	<b>12/31/86 Price</b>	<b>12/31/86 Value</b>	<b>% of Portfolio</b>
<b>CORNSTN</b>	67.25	14.92	1,003.37	3.07
<b>FIDOVERS</b>	596.60	28.68	17,110.49	52.29
<b>FIDSMETL</b>	113.59	11.15	1,266.53	3.87
<b>GTPAC</b>	197.85	29.98	5,931.54	18.13
<b>PRICEINTL</b>	60.41	25.78	1,557.37	4.76
<b>SCUDINTL</b>	124.73	39.79	4,963.01	15.17
<b>USGOLD</b>	192.43	4.63	890.95	2.72
<b>Fund Value</b>			32,723.26	100.00
<b>Total Dividends</b>			3,110.88	
<b>Grand Total</b>			35,834.14	
<b>Total 3-year Investment</b>			22,000.00	
<b>Net Return</b>			13,834.14	

FIGURE 4:

# Stop worrying yourself out of profits



Every time Michael thought about entering the market, he said to himself "But what if I lose?" Those thoughts often paralyzed him from action or delayed his entry so long that many opportunities simply passed before he would pick up the phone.

When Michael did open a position, all he could think about were negative consequences. "My system is wrong at least half the time—what if this is one of those times?" He couldn't sleep because his mind was racing with those "what if" thoughts. Michael suffered from a chronic "dis-ease" of the mind called worry.

Current research suggests that both a biological component and a psychological component of stress impair human performance and that it is useful to consider these two components separately. The biological component is the fight-flight response, a primitive reaction that early man developed in order to survive. (See *Stocks & Commodities*, June 1987.) This physiological arousal causes people to narrow their focus and put more energy into what they are doing. It might help you run faster or fight more aggressively, but it does *not* help you invest more successfully.

The psychological component of stress is what Michael was doing: worrying. It involves a concern for one's performance and its consequences. It is the expectation of failure and the negative self-evaluation that accompanies failure.

Worry is probably the precursor to the fight-flight reaction. Constant worry or intense worry certainly produces physical stress and, as such a herald, worry might be expected to only have a mild effect on performance. Research, however, shows the converse is true. Although physical stress at its extreme might result in death, worry generally has a much greater effect on human performance than its biological counterpart.

Much of the experimental research on worry has dealt with a common problem of students—their concern about performance on an examination. Students who worry about test performance are likely to do poorly compared with students who are not concerned. The worry has nothing to do with preparation for the examination—it is simply the fear of poor performance. As a result, concerned students spend at least 25% of their conscious thought worrying about their grades on the examination rather than devoting

their full effort to taking the examination.

Michael, the investor who cannot sleep well because of his concern over possible negative consequences, will perform as poorly as the worrying students. His ability to forecast price movement or select good investment opportunities does not matter. His constant worry about his performance ensures that he will not achieve optimum results.

### **Worry and information capacity**

Our senses are constantly bombarded with millions of bits of information. One can only select a small portion of this information for conscious processing. Thus, people have a limited capacity for dealing with information that comes through the senses. You can test this capacity in yourself by reading the following list of numbers, closing your eyes and then recalling as many of them as you can:

78	23	81	59	44
90	37	17	4	91
16	55	98	11	84

Unless you have an elaborate strategy for organizing the numbers into groupings that you can memorize, the basis for most mnemonic techniques, you probably were not able to recall many of them. Fifteen two-digit numbers far exceeds the capacity of most people.

Now imagine what other people will think of you if you don't recall all 15 numbers. Perhaps they'll think you are stupid or getting old or incapacitated. In addition, imagine that you will be fined \$1,000 for each number that you miss. You could lose up to \$15,000 if you miss them all. And what if the numbers you think you know turn out to be wrong? You really could miss all of them! Now, keeping all of these thoughts in your mind, try again to recall the numbers.

Chances are you missed more of them, if not all of them, on the second attempt. Why? Because worry takes up precious processing capacity. When you worry and take up capacity, little remains to perform more important tasks such as investment decision making. Worry takes away from your ability to pay attention to what is really going on in the market. You cannot notice subtle changes in the market or respond to them because you are too preoccupied with your fantasy of "what if". Thus, if you worry about what will happen if you make a mistake, you probably will make that mistake. By concentrating on potential mistakes, you make them happen

### **Worry and perception**

All the information obtained through the senses about the world "out there" comes from a set of complex mental operations called perception. These mental processes interpret and attach meaning to the information the senses detect. For example, one might see a set of black markings on a white piece of paper and "perceive" it as a bar chart with a "head-and-shoulders bottom" or some sort of "resistance" or, to a non-technician, just meaningless lines.

Perception is a filtering process which selects information for conscious processing. It selects information, from the billion of bits impinging on our sensory apparatus, so we can cope with the world. The selection process is not random, however, but an active process that selects information according to one's expectations. What one sees out there depends on what one *expects* to see. The investor who expects to see a bull market in stocks will tend to perceive information that supports his expectations. He

will "see" bullish technical patterns in his charts and ignore any evidence that might contradict the possibility of a bull market. In contrast, many investors have expected a bear market throughout the current four-year bull market in stocks. These investors continually seek out evidence to support their expectations.

Worry is a form of perception, based on negative expectation. People who worry anticipate negative consequences. Most stressful events are stressful because of the way they are perceived. The event is just an event. It is a person's interpretation of the event that makes it stressful. Winners, for example, have learned how to make it "O.K. to lose." Losers, in contrast, become extremely anxious over losses and, as a result, have difficulty "letting go" of them.

A large loss, or even the potential for a large loss, may devastate the worrier. The person who dwells on the more positive aspects of the situation will view the same event as a lesson or even an opportunity.

Suppose for example, the price of soybeans drops 20 cents per bushel. Let's look in detail at the reactions of five commodity investors to this same event.

An old man with a smile on his face had been stopped out of soybeans early in the day. He had a \$3,000 loss at the time he was stopped out, but the closing price of the day would have amounted to a much larger loss. He felt good about himself for sticking to his trading plan, so he responded to the news by smiling and telling himself, "Great! You stuck to your system."

A soybean farmer had sold his crop two months earlier at a much higher price because he was convinced that certain big companies were manipulating the markets down. The 20-cent price drop was, for him, further proof of manipulation. "Damn them," he said to himself as he frowned. He remained in a bad mood the rest of the day.

An active trader was convinced soybeans were due for a major rally. He had predicted the drop during the day and had used the opportunity to acquire a substantial long position in soybeans. He had a small loss on the day, but he felt a sense of satisfaction because his plan was working well. The only thing he said to himself was, "I'm right."

A company president phoned his broker in a panic even though he was short in soybeans. He now had a \$3,000 profit and he was concerned the market might go against him. His broker had convinced him to enter into the position and now he was afraid that he might lose his profit. "I'll lose again!" he thought as he called his broker to learn if he was still bearish.

A financial columnist was long in soybeans. He had absorbed the loss, because he did not enter a stop with his order. His predominant thought was that he did not stand a chance. If he entered a stop, he was sure it would be picked off by the traders on the floor. If he sold out at a large loss, it would probably be at the low price of the day. If he held onto his position, the market probably would continue to go against him. "Why me?" he thought.

Notice how the same event is a totally different experience for each of these traders. Three traders actually lost money in the market, yet two of them had positive experiences. Two traders made profits, yet both of them were unhappy. Of course, most people are not happy about losses or sad about profits. These examples merely illustrate that profits and losses have nothing to do with experience. People create their own experience by the way they think. Each person experiences life differently because each person's thinking is unique.

People who generally worry a lot will worry a lot about their investments. People who worry about their investments will tend to do so constantly. In any situation which might involve a threat to an individual's self-esteem, worriers show a marked capacity reduction. Self-esteem situations involve a threat of failure, whether it's a failing grade on an examination or performing poorly in the market. In fact, investing may pose a tremendous threat to an individual's self-esteem. The losing investor may not only experience financial hardship, but may also feel that he has failed to prove himself to those he loves or to himself.

**People who generally worry a lot will worry a lot about their investments. People who worry about their investments will tend to do so constantly.**

### **How to deal with worry**

How do you manage worry? If you can discover how you worry, then a simple solution to the problem is to do some-thing else. If the new solution doesn't work, then again do something else. *Keep changing your approach until you find something that works.* This does not necessarily mean hanging your trading system. If you execute a system poorly, you will execute a new system poorly. "Changing your approach" means to change how you think, how you make decisions, how you execute your system.

This solution is simple, but most people find it very difficult to accomplish because they are locked into certain patterns. Changing the way you think and perceive the world is not always easy.

To change the way you think, you must first discover how you start the worrying process. Being objective about your own thinking is difficult while you are doing it, but much easier later when you can try two techniques to discover how you start worrying.

The first exercise is to review a past, painful market experience. It is the quickest way to discover how you worry. You need only recall what happened just before the painful experience. You have no need to replay the experience itself.

Review the experience as if you are watching a movie of yourself. Sit back in a chair and feel yourself in that chair watching yourself on a movie screen.

As you watch your movie, determine what started the worry experience. Was it something you saw or read? Was it something you heard or something someone said? Was it a feeling?

What happened next? Did you start talking to yourself? Seeing pictures? Did your self-talk and pictures trigger the bad feelings? How did you do it?

When people worry they typically get themselves into a negative feedback loop. They talk to themselves, which produces bad feelings which results in more negative talk followed by more bad feelings and on and on. Others see images which produce bad feelings which make the images worse and so on. What kind of loop do you produce?

Once you discover how you start to worry and what kind of negative feed-back loop you produce, figure out some ways to change it. Disrupt your loop in some way. If you say negative things to yourself, practice following those phrases with a picture of something pleasant. Try changing the quality of the voice you hear. If you say negative things to yourself, say it in the voice of some well-known cartoon

character. Be creative. Do anything that is different until you find something that works for you.

If you have trouble discovering how you worry from your past memories, then a second exercise is to keep a worry diary. When you feel anxious or worried about an investment, make a note of it in your diary. Do so at the time you are worrying. Don't put it off. Be sure to include the following information:

- What triggered the worry? Was it someone's actions?
- A memory? A visual image? A feeling?
- How did you go about worry?
- What kind of a loop do you set up for yourself.
- Is this a new or an old pattern?

Later, when the experience passes, make a note in your diary about what you actually did. What could you have done instead? Also comment on your original diary entry.

After recording your worry diary for several weeks, you can study it objectively.. What kind of irrational fears do you have? How does worrying affect you as an investor? Most importantly, you can determine how you trigger an episode of worrying and how you go about worrying.

When you have a good idea how you start to worry, select some changes you can make, such as those just suggested with the past memory technique. Become aware of when you start to worry and immediately select one of your changes. Once you discover how you go about worrying and have selected some alternative behaviors, practice using them. If you do so diligently, then the process will soon become automatic.

Imagine yourself in some future situation where you would normally worry and practice some of the alternatives you have selected. Once you can feel at ease in an imaginary situation you should be able to deal with the real situation. Investors who go through this process frequently comment, "It's just not the same anymore. I don't know what happened, but it's not the same anymore."

*This article is taken from the book How to Control Stress To Become A More Successful Investor, the second volume of Dr. Tharp's five volume course on the psychology of successful investing, The Investment Psychology Guides. Dr. Tharp is a research psychologist and the founder of Investment Psychology Consulting, 1410 E. Glenoaks Blvd., Glendale, CA 91206, (818) 241-1574.*

# The Professional Option Trader's Manual

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by John Sweeney

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**Author:** David L. Caplan

**Publisher:** Opportunities in Options P.O. Box 2126 Malibu, CA, 90265

**Price:** \$70 (or \$150 with a three-month subscription to *Opportunities in Options*)

Despite its name, this is a book for beginners in the options world and particularly for futures traders. Professionals who might, indeed, be using the techniques discussed here will know them well enough to forego this review.

Nevertheless, this book has value as an attempt to take the typical options trader past the usual pestholes (generally, buying options) and get them to use multi-option positions which minimize risk while providing intriguing returns on margin—not that margin is too closely explained here.

While Mr. Caplan clearly has access to the best margin rates (and margin clerks), your average Joe will have difficulty extracting those margin requirements from his brokerage. He most likely will not even have a broker who knows what the margin requirements for these positions are or even knows how to figure them out or how to get the office manager to allow the legal limit. Thus, for most of us, the returns on margin noted here should be taken with extreme caution.

David omitted explaining the complexities of options margining because he is aware that it takes tremendous persistence to discover the rules, let alone understand them. Given the importance the complex margin rules involved in this sort of trading, a short explanation of where to go (the exchanges' experts) is in order.

This book's great virtue is that Caplan is talking about the correct strategies that retail traders can use. There's no detectable math or options jargon employed. There are lots of explanatory pictures and charts (Figure 1). The written explanations are short—generally, a page or two—and clear. He emphasizes keeping things simple and using three essentials of futures trading (trend, volatility, consensus) to assist in keeping right with the market. Best of all, you are spared all the introductory "This is an option..." verbiage most authors inflict on you. All this makes for good value.

Nevertheless, as the author points out, "If things seem too good to be true, they are!" Same for the book. It suffers from very weak or non-existent editing. Strategy numbers proceed from chapter to chapter. Sometimes the strategy summary comes first, then the charts, then the verbiage. Sometimes the sequence is different or the verbiage is scattered at the front and back of the charts.

While the most popular and available strategies are here, other intriguing ideas get little follow-up. After giving lucid explanations of ratio spreads and calendar spreads, which generally combine one strike/expiration with a more distant strike price/expiration, the arbitrage spread between notes and bonds gets exactly two paragraphs and no examples.

An area too little covered in the description of the strategies is the follow up to the position. The obligatory drawings of the outcomes if the positions are held to expiration is here and often Caplan will

throw in a line or two about rolling up or exiting on a windfall. This isn't enough. Options offer tremendous flexibility as the position evolves over time. You can make something out of a position that may be a loser at expiration or minimize losses from a deteriorating position. In outright stock or futures positions, your only choice is often closing out the position entirely. The lack of discussion on follow-up is a major weakness.

The author avoided getting bogged down in yet another esoteric discussion of volatility. He notes that option volatility is very important, reassures you that you don't have to buy a hugely expensive program to get what you want and then dumps several pages of output from his favorite program without explaining how to read it or how to use the numbers. His message—probably correct—is that high volatility and low volatility situations are excellent chances for positioning our trades. Then he demonstrates using a program from Chronometrics to store and graph volatility—and believe me, Chronometrics is not the K Mart of options program vendors.

Gosh, all this sounds awful! David probably writes better about options than anyone except Len Yates or Lawrence McMillan and he's a lot more readable! Here he's thrown out all the chaff of options trading and focused on some truly profitable strategies. Nevertheless, we have good red meat suffering from unprofessional presentation and lack of critical review. Personally, I'm eagerly awaiting the second edition.

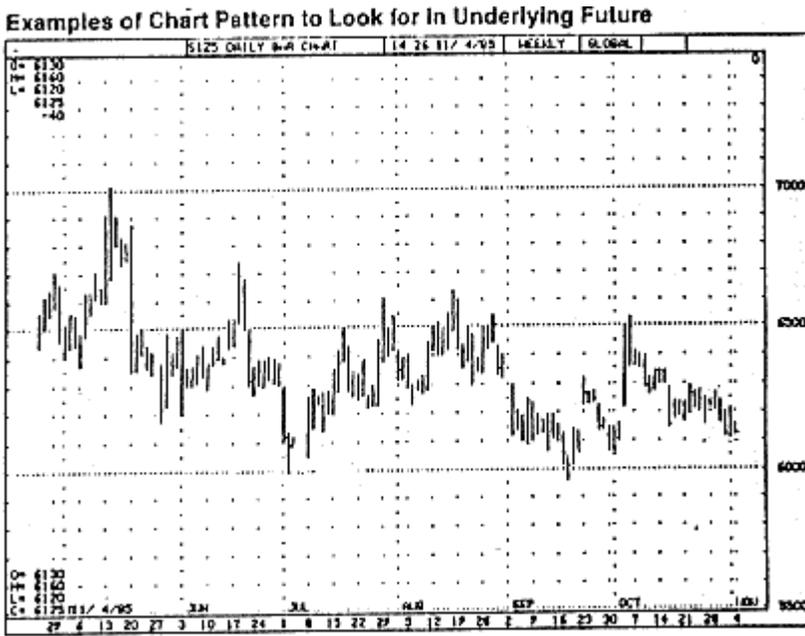


FIGURE 1:

# Using ProfitTaker

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*by Terry Apple*

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Currently, numerous software packages are available that employ optimization to create technical models for futures trading. Every day I receive calls from traders around the country who are considering buying one of these packages. Since many of these traders have little or no previous experience with technical trading software, the most common question that I am asked is, "How would you perform an optimization test to find a profitable trading model?" This series of three articles will provide a general description of three of the most widely used software programs to trade futures, and will outline each of their procedures for developing and optimizing future models.

This month we will explore ProfitTaker developed by Louis Mendelsohn. In subsequent months, we will take a look at Profit Catcher III by Ray Green, and Swing Trader by Robert Pardo.

ProfitTaker is a sophisticated, flexible, and easy-to-use program. Its developer, Louis Mendelsohn, is a widely published author of articles on technical analysis software and was the first to introduce the capability of model design into futures software. In fact, since its introduction, historical design and testing of technical models has become standard in futures trading software.

ProfitTaker is basically a trend-following approach that utilizes five optimizable technical parameters. These include short-term and long-term directional oscillators for directional and timing signals, a timing filter to avoid whipsaws, and two sensitivity bands or channels to determine protective stops. In addition, ProfitTaker lets the trader test and optimize the most profitable execution time for each commodity. All of ProfitTaker's entry and exit rules are fully disclosed. ProfitTaker is excellent at catching trending moves, protecting profits in open positions, and then standing aside during choppy markets.

The ProfitTaker program is divided into three integrated modules: the ProfitTaker module, which performs the daily updates and prints the daily position report telling you exactly what your positions are; the ProfitAnalyst module which is the heart of the program where optimizations take place and the trading models are established; and the ProfitUtilities module which performs various file management and housekeeping functions. ProfitTaker operates in full color (if you have a color monitor) and utilizes all of the IBM function keys. This review deals exclusively with the ProfitAnalyst module.

Upon booting ProfitTaker, you are presented with the Master Menu which allows you to enter any of the program's modules. Selecting menu option B takes you to the ProfitAnalyst Main Menu.

Now you can select option B to take you to the ProfitAnalyst Contract Selection Screen. Here, you are presented with all the futures contracts that are on this subdirectory. In this case, we will optimize Treasury Bonds. You can select as many rollover contracts as you like, but for the sake of conserving time and space we will use five contracts for this study.

I selected the September 1985, December 1985, March 1986, June 1986, and September 1986 contracts for rollover testing. You do this by highlighting the specific contracts to be tested by hitting the Y key for "yes." You then hit the right arrow key to move the rollover column and then hit the Y again to initiate rollover testing. While ProfitTaker can test perpetuals or individual contracts, it is the only one of the three programs that I will be reviewing in these articles that can perform rollover testing. This lets you

optimize models on the active month, thereby avoiding the low volume and open interest periods which can distort the validity of the model that is tested.

Now press the O key and a pop-up window appears which asks for three minimum performance criteria that must be met by the model so that the computer will know what you want printed. These are ratio of net profit to drawdown, cumulative net profit (net profit after slippage and commission) and percentage of winning trades. In this case, I selected 5.0 for net profit to drawdown (\$5.00 profit for every \$1 .00 at risk), \$20,000 for cumulative net, and 0.55 for percentage of winning trades. After this is done, press the O key again and the window disappears. Now press the F8 function key which takes you to the ProfitAnalyst Indicator Matrix Screen (Figure 1).

This screen asks for a beginning set of parameters, an ending set of parameters, and each incremental step that must be tested to get from the beginning to the end. I started with a timing filter of 1 increased by steps of 2 and ending at 7, a short directional indicator of 2 increased by steps of 1 and ending at 35, a long directional indicator beginning at 3 and increased by steps of 1 and ending at 40, and sensitivity bands beginning at 0, ending at 2 with steps of .02.

Then I was given an opportunity to correct any entries. The screen indicates the number of different trading models to be tested. When I get ready to leave the office in the evening, I set the ProfitAnalyst to test between 12,000 and 15,000 different models. It takes less than five minutes to set up this optimization test to run. The next morning, I have a very concise printout containing all the models that met the criteria I requested. I begin by looking for the highest cumulative net and the lowest drawdown. In this case, I found that the model with a timing filter of 5, short directional indicator of 17, long directional indicator of 27, a long sensitivity band .01 and short sensitivity band of .01 had the highest ratio of cumulative net to drawdown. At this point, I run a more refined optimization of the timing filter and the sensitivity bands (Figure 2). On this model, I would reset the timing filter of 5 to 6 at steps of 1 and sensitivity bands beginning at 0 and increasing at steps of .01 and ending at .05.

This fine-tuned optimization tested 72 possibilities and took less than 10 minutes to complete. When this is through, I looked again at the printout to determine which model had the highest profit and lowest drawdown. In this case, the model with a timing filter of 5 a short directional indicator of 17, a long directional indicator of 27, and sensitivity bands of .04 and .01 performed the best (Figure 3).

You now have the best model to use in real-time. However, you still have one more test to perform to find the best execution timing for the entry and exit. Since ProfitTaker can test and optimize the entry/exit on combinations of the open and close, there are four combinations of entry and exit to optimize.

Now go back to the ProfitAnalyst Indicator Matrix Screen and in the beginning row enter the optimized model. For the incremental steps enter 1 for each of the parameters and the program will automatically place the optimized model on the bottom row. Hit function key F9 four times to test all four entry and exit combinations. This takes about 30 seconds to run.

In this final test, the combination of entering on the open and exiting on the open has the highest ratio of cumulative net to drawdown. You are now finished and have a trading model with a timing filter of 5, a short term directional indicator of 17, a long-term directional indicator of 27 and sensitivity bands of .04 and .01. All entry and exit executions of positions are to be taken on the open.

This model resulted in 13 trades, nine of which were profitable for a cumulative net profit of \$35,815.

We now go to the ProfitUtilities module to change the parameters for bonds and can wait for the first real-time trading signal.

ProfitTaker is a technical trading system that uses five optimizable parameters plus execution timing. All of its entry and exit trading rules are completely disclosed. ProfitTaker is the first futures trading program to introduce the concept of historical modeling so that traders can customize trading plans to their own trading style and financial objectives. The ProfitAnalyst module is extremely well-designed, requiring little effort and time on the part of the trader. Once the contracts are selected, the minimum performance criteria entered, and the models to be tested are set up, the computer will test and screen thousands of models on a totally automatic basis.

ProfitAnalyst handles unique factors found only in futures trading, including expiration of contracts and rollovers, as well as lock-limit conditions. I have actually used ProfitTaker to trade our firm's technical account in real-time trading for over a year, with an annual return of 300 percent. ProfitTaker is the top of the line in technical trading software for serious traders who are looking for a disciplined, yet flexible, computerized approach to testing.

*Terry Apple is vice president of research for Cale Futures, Inc. of McLean, VA, where he devotes his full time to commodities and technical research. He began his career as a securities analyst with The Riggs National bank in Washington, D.C., joined Hayden, Stone, Inc. as a stock broker in 1966, and became president of Chesapeake Investment Brokers in Washington, D.C. before joining Cale Futures.*

The ProfitAnalyst Indicator Matrix Screen

Status	Timing Filter	Short Direct	Long Direct	LSensitivity	SSensitivity
Start Range	a [ 1]	b [ 2]	c [ 3]	d [.00]	e [.00]
Inc Size	f [ 2]	g [ 1]	h [ 1]	i [.02]	j [.02]
End Range	k [ 7]	l [35]	m [40]	n [.02]	o [.02]
Current					
*****11,608 Possibilities		f9 = Change, Y = Timing Ok		Entr=Open Exit=Open	
f7 = Abort Test		Optimized			

**FIGURE 1:**

```

ProfitAnalyst Contract Selections
=====
Dir      Commodity  Trading  Trading  Rollover
Contract History Signals
-----
37 TR-09-85 Yes      No       No       Yes
38 TR-12-85 Yes      No       No       Yes
39 TR-03-86 Yes      No       No       Yes
40 TR-06-86 Yes      No       No       Yes
41 TR-09-86 Yes      No       No       Yes
-----
End of Contract Selections

ProfitAnalyst Indicator Matrix Selections
=====
Status   TF      SD      LD      LS/Band  SS/Band
-----
Start
Range   a [ 5]  b [17]  c [27]  d [1.00] e [1.00]

Inc
Size    f [ 1]  g [ 1]  h [ 1]  i [1.01] j [1.01]

End
Range   k [ 6]  l [17]  m [27]  n [1.05] o [1.05]
-----

Total Test Possibilities [*****72]

Entering on the [Open ]
Exiting on the  [Open ]

Report Type [ Optimized ]

NET P/D [ 7.00]
CUM NET [ 30000]
XTWT   [ 0.55]
    
```

FIGURE 2:

```

ProfitAnalyst Trading Signals
System Date [07-07-1986]
History Test For: [TR09B6] Source Drive [C:] Data Drive [C:] Page: 1
Entr=Open Exit=Open Ranges: TF= 5 SD=17 LD=27 LS/Band=.04 SS/Band=.01
----- ENTER -----
Date/In Entr Price Date/Out Exit Price Profit Loss Lt Max$$ Cum/Net
-----
04-11-85 Buy 6956 07-08-85 Sell 7868 9120 0 0 0 9120
07-12-85 Sell 7728 07-22-85 Buy 7593 1350 0 0 0 10470
07-31-85 Sell 7487 08-12-85 Buy 7668 0 -1810 1 -1810 8660
*****
Rollover into [TR12B5]
*****
08-23-85 Buy 7671 09-18-85 Sell 7503 0 -1680 2 -3490 6980
09-24-85 Sell 7484 09-27-85 Buy 7525 0 -410 3 -3900 6570
10-03-85 Sell 7543 10-09-85 Buy 7506 370 0 0 0 6940
10-14-85 Buy 7515 11-20-85 Sell 8100 5850 0 0 0 12790
*****
Rollover into [TR03B6]
*****
11-21-85 Buy 8078 01-22-86 Sell 8437 3590 0 0 0 16380
01-27-86 Sell 8421 01-28-86 Buy 8500 0 -790 1 -790 15590
02-07-86 Buy 8421 02-20-86 Sell 8837 4160 0 0 0 19750
*****
Rollover into [TR06B6]
*****
02-21-86 Buy 8815 05-07-86 Sell 9978 11630 0 0 0 31380
05-08-86 Sell 10075 05-20-86 Buy 9618 4570 0 0 0 35950
*****
Rollover into [TR09B6]
*****
05-21-86 Sell 9590 06-16-86 Buy 9496 940 0 0 0 36890
-----
06-27-86 Buy 9915 07-02-86 OPEN 9934 190 0 [[ Unrealized ]]
-----
End of Trading Signals
    
```

FIGURE 3:

ProfitAnalyst Summary	
System Date [07-07-1986]	
History Test For: [TR0986]	Source Drive [C:] Data Drive [C:] Page: 2
Entr=Open Exit=Open	Ranges: TF= 5 SD=17 LD=27 LS/Band=.04 SS/Band=.01
Trading Performance Results	
Total Closed Out Trades.....	13
Long Winning Trades.....	5
Short Winning Trades.....	4
Total Winning Trades.....	9
Long Losing Trades.....	1
Short Losing Trades.....	3
Total Losing Trades.....	4
Total Breakeven Trades.....	0
% Winning Trades.....	0.692
% Losing Trades.....	0.308
% Breakeven Trades.....	0.000
Total Realized Profits.....	41,580
Total Realized Losses.....	-4,690
Cumulative Profit or Loss.....	36,890
Ratio Cumulative Profit to Total Realized Losses.....	7.866
Maximum Winning Trade.....	11,630
Maximum Losing Trade.....	-1,810
Average Winning Trade.....	4,620.000
Average Losing Trade.....	-1,172.500
Ratio Average Winning to Losing Trade.....	3.940
Average Profit or Loss per Trade.....	2,837.692
Max Number of Consecutive Losing Trades.....	3
Max Dollars Consecutive Loss.....	-3,900
Max Drawdown - Closed Out Trades.....	3,900
Profit Factor.....	8.866
Sharpe Ratio.....	0.135
T. Bill Rate.....	0.070
Leverage Factor.....	0.050
Commissions Factor.....	50.000
Slippage Factor.....	25.000
Commissions - Closed Out Trades.....	650
Execution Slippage.....	425
Cumulative Net Realized Profit or Loss.....	35,815
Ratio Comm and Slip to Cum Net Realized Profit.....	0.030
Total Unrealized Profits on Open Trade.....	190
Total Unrealized Losses on Open Trade.....	0
Total Days in File(s).....	1,063
Total Rollovers.....	4
Conversion Factor.....	-3
Converted Point Value.....	10.00
Converted Daily Limit.....	200

FIGURE 4:

# Using stochastics

*by Cynthia Keel and Heidi Schmidt*

The use of stochastics, particularly in the futures markets, has become a necessary part of the trader's daily strategy. Although application of stochastics is simple to understand, adaptations of the basic equation abound. Analysts should be aware of the ambiguous subtleties in stochastics calculation, the influences the ambiguities have on expected results, and how the uses of stochastics differ among financial software.

This article presents a general summary of the stochastic and its use, as well as a financial software survey.

## The calculation

The initial calculation for the stochastic, called the raw stochastic or %K or Fast K, is the current period's closing price minus the lowest low in the "n" periods divided by the highest high in "n" periods:

$$\% K = \left[ \frac{(C(1) - L(n))}{(H(n) - L(n))} \right] \times 100$$

Where:

C(1) = today's close

L(n) = lowest low in n periods

H(n) = highest high in n periods

The raw stochastic, or %K oscillator, ranges from zero (when today's close is equal to the lowest price in the last "n" periods) to 100 (when today's close is equal to the highest price in the last "n" periods), and is plotted with closing prices to determine the direction of the oscillator relative to current price trends.

When choosing the variables in the equation, the period of observation depends on the investor's time frame. A day trader, for example, will use fewer observations to determine the stochastic than a longer-term investor. The period "n" can refer to days, months or five-minute blocks of the trading day. Any time period imaginable may be used. The only requirement is that a discernible high, low and close be obtainable for each period. A raw stochastic with a periodicity of five, for example, may be calculated using the high, low last from the past five months or the past 25 minutes. In fact, the most ardent users of stochastics that we have talked to use the extremes of either monthly or intraday charts.

## Smoothing

The stochastic is a highly volatile oscillator since it is derived solely from closing price levels. Therefore, it is common to apply a moving average as a smoothing filter of this volatility. The longer the term of the moving average, the smoother the stochastic. A moving average (commonly a 3-period average) of the raw stochastic is termed %D Fast. When %D is compared with %K to closing prices as a price trend indicator, many of the false signals are filtered out. However, these two stochastics alone are still considered too volatile to be reliable trading tools. A 3-period moving average of %D Fast results in a smoother representation of the oscillator and is termed %D Slow ([Figure 1](#)).

In summary thus far, we see there are three basic stochastics, but four names:

%K Fast = raw stochastic

%D Fast = moving average of K Fast

%K Slow = %D Fast

%D Slow = moving average of K Slow

Methods of smoothing vary considerably. The smoothing techniques in most software packages entail moving averages. Some packages allow you to choose the smoothing period of the moving average, some do not. In the 20 software packages we surveyed, the stochastic is smoothed by three types of moving averages: simple, weighted or exponential.

Also, two reputable software packages, Marketview and TSI Trend, use an unusual smoothing technique which they credit George Lane with using. (Mr. Lane is referred to by many as the originator of the stochastic indicator. However, Mr. Lane, in a recent telephone interview, told us he now uses exponential moving averages to smooth.) To calculate the %K Slow, these packages sum the numerator of the raw stochastic over a prescribed number of periods and divide it by the summation of the denominator over the prescribed period to obtain the smooth.

$$\% K \text{ Slow} = \% D \text{ Fast} = \frac{\sum (C(i) - L(n, i))}{\sum (H(i) - L(n, i))}$$

The period of the moving average to determine the %D stochastic is dependent on the trader's time frame to some extent, but is more dependent on the trader's own "zone of comfort." A trader who can accept false signals and whipsaws in favor of earlier reversal signals, will use a shorter period for the moving average.

The final choice of variable in the equation is whether it is optimum to use a simple moving average or a smoothed one. In this decision, the analyst must decide if current prices should carry more weight for the time period or if they should be weighted evenly with all observation used in the stochastic.

Since stochastics are used more as a short-term trading indicator, the use of short-term averages is generally the norm, and exponentially smoothed averages appear to be the smoothing method of choice in determining the slow stochastics.

### Analyzing stochastics

Analyzing the stochastic indicator, once you have decided on the parameters, subjects the user to still another set of alternatives. The stochastic is used by market analysts in several different manners. First, some analysts use the stochastic as they would an overbought/oversold indicator, similar to the way the Relative Strength Index (RSI) is used. When the %K and %D readings are more than 75, this indicates the instrument underlying the stochastic is overbought. Similarly, if the stochastics are less than 24, the market is considered oversold.

Second, the stochastic is used like other oscillators, such as the Net Change Oscillator (NCO). It is charted and its peaks and troughs are compared to those of the underlying instrument—particularly, divergence of the stochastic from the current price trend is noted. If the stochastic moves in the opposite direction of the current price trend, for instance, the price trend would be expected to reverse in the direction of the stochastic in the near-term.

Third, the stochastic may be analyzed like a moving average. Using a short-term and long-term period, the stochastic is charted in tandem. A popular set of stochastics to plot against the T-bond future is the 8- and 20-day %D. A similar study for S&P futures is shown in [Figure 2](#). One looks for the familiar moving average signals of changing or confirming trend, such as short-term/long-term crossovers and short-term leading and long-term patterns.

### **Stochastic software**

Our telephone survey of software manufacturers regarding their use of stochastics elicited the information shown in [Figure 3](#). Most companies were quite approachable when asked about their programs' calculations and revealed whether their systems employed simple or exponential moving averages, whether the user can choose the smoothing method and what terminology they used to describe the stochastics.

[Figure 3](#) is by no means definitive and computer software companies are constantly developing new programs or modifying existing ones. It is interesting to note the variations in naming in just these few programs, and the confusion that arises when one speaks of slow or fast, K or %K, %K or %D stochastics.

In conclusion, we have noted that analysts who have spent time researching various periodicities and smoothing techniques speak highly of the efficacy of the stochastic as a trading tool. On the other hand, those who have only experimented in a limited manner with the various parameters in the stochastic tend to come to dissatisfactory conclusions on its usefulness. If you are interested in stochastics, examine the features of the many inexpensive market software packages available. Look for those packages which allow you the freedom to alter the periodicity of the stochastic at any stage of the calculations, as well as offer you the freedom to choose different smoothing methods.

*Cynthia Keel is Director of Technical Research at Money Market Services where Heidi Schmidt is a Technical Research Analyst.*

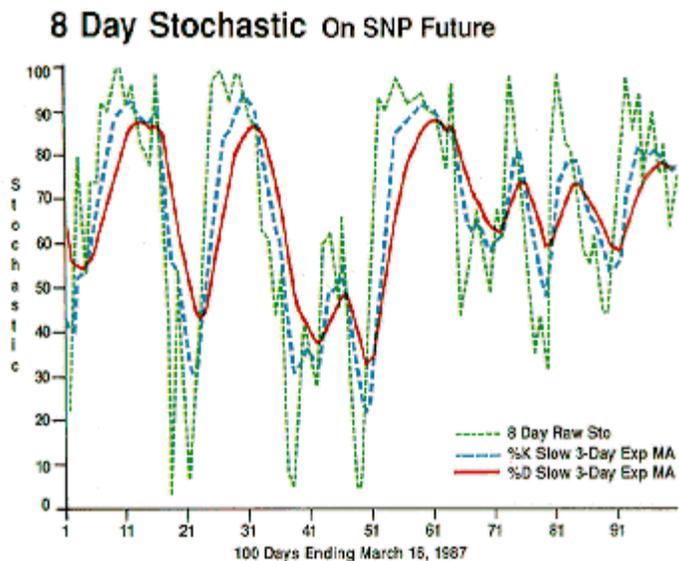


FIGURE 1

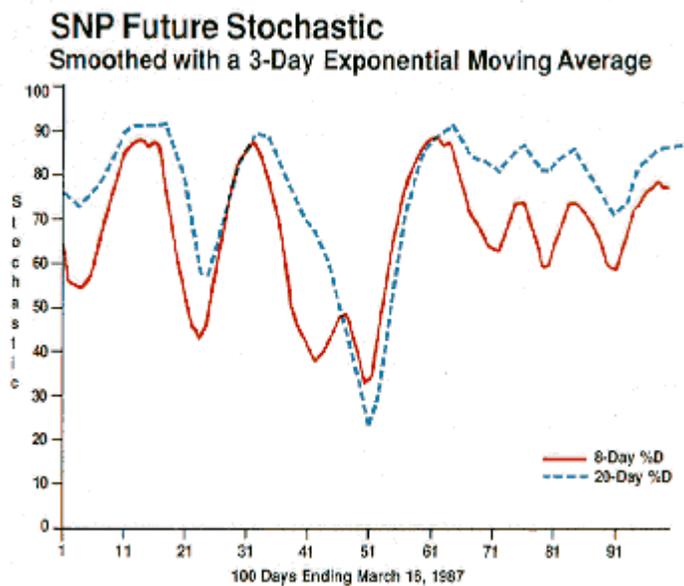


FIGURE 2

<b>Services Offering Stochastics</b>					
<b>Company &amp; Software</b>	<b>Naming System</b>	<b>User Can Choose Smoothing Method?</b>	<b>Smoothing Methods / Moving Aves.</b>		
			<b>Simple</b>	<b>Exponential</b>	<b>Other</b>
CCC Futures Source	stochastic & slow stochastic	no*		X	
CompuTrac	%K & %D	yes	X	X	
Commodity Quote Graphics	%K & %D fast & slow	yes	X	X	
CSA MetaStock 2.0	%K & %D	yes	X	X	
CSA The Technician	%K & %D	yes	X	X	
CSI Quick Study	K line %D & slow D	no	X		
CTS, Inc.	K, %D regular & slow	no			X
Ensign Commodity Futures	%K & %D fast & slow	no		X	
Inmark Market Maker	fast %K, slow %K, %D	yes	X		
Marketview Techniview	K, %D	no no	X		X
N-Squared Stock Futures Analyzer XL	%K & %D	yes	X	X	
Proforma Proquote	%K & %D	yes	X		
Relevance III	%D,	no	X		
Trend Series	%D-S	yes	X		

\* in formation

Source: Money Market Services, Inc.

**FIGURE 3:** *This list is by no means definitive and computer software companies are constantly developing new programs or modifying existing ones. It is interesting to note the variations in naming in just the few programs and the confusion that arises when one speaks of slow or fast, K or %K, %K or %D stochastics.*

# Building a trading system

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*by Frank Alfonso*

---

**D**ramatic world events will continue to produce uncertainty in today's global financial markets, and most trading experts will agree that some form of technical strategy is necessary to reduce this information explosion to an objective buy/sell/hold decision-making process. I have developed a computerized strategy based on three primary trading principles:

**Trade with the trend,**

**Let your profits run, and**

**Cut your losses short.**

Most profitable traders will agree that these three principles have had the most impact on their success. Although markets are in trends less than 50% of the time, participating in major moves is where most money is made in the futures markets. Some experts claim that most of their profits are generated by fewer than 10% of their trades.

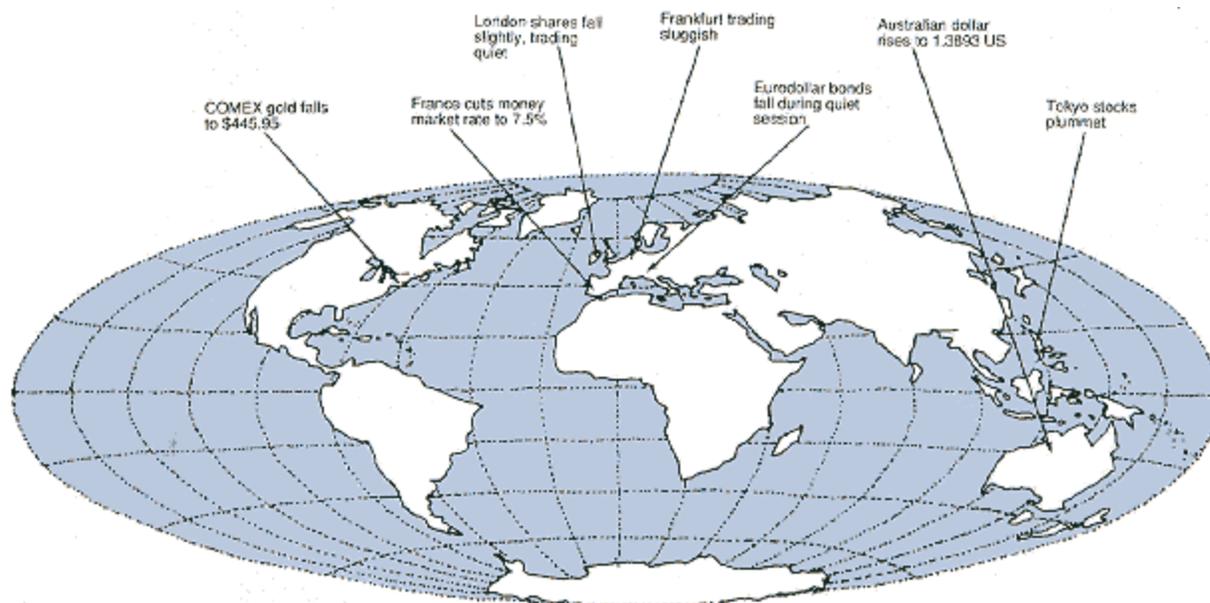
It is no secret, then, that profitable trades must be larger than the losing ones. One of the most successful traders of all time has repeatedly stated that profits should only be taken at the point of seizure. Paradoxically, then, learning how to lose in the futures markets is one of the most important ingredients in learning how to win. A trader must be able to sometimes accept a battering array of small losses in order to remain in the market for the big move.

My system, Eurotrader, was developed with these principles in mind, with the understanding that a profitable computer trading program is primarily a systematic method of applying good trading principles in a disciplined manner, more so than some claim of a "new scientific breakthrough," or "important revolutionary discovery."

As no one can be certain that price patterns, trends or market action that occurred in the past will continue into the future, Eurotrader was developed by testing with 11 years of past data. A program that has performed well in many types of markets is more likely to continue with profits in the future than will a system tested over a short period of time.

Although all my research has been completed and system parameters have been set, Eurotrader allows the user to change all parameters and back test, thus creating a user-customized system. The 11-year performance summary for one customized version is given in [Figure 1](#). Cash prices were used for testing the S&P 500 index and the Eurodollar prior to the introduction of the futures contract with \$100 slippage/commission deducted for each trade. [Figures 2 and 3](#) illustrate other historical test results.

## **Mechanical system parameters**



My first parameter is the ND#, which represents the number of trading days the program uses to compute a daily set of indicators. This trading window is varied by the user, but the program is distributed with the ND# set at 20 days for all markets. The basic trend is determined by monitoring price changes in this window.

Correct use of market volatility is an important factor in the success of applying the system. As different types of markets display different characteristics, Eurotrader divides each market into three volatility levels. (low, medium and high), and then assigns a different parameter set to each level. An active market, with an average daily range of 100 points, would certainly require different stops and profit targets than would a quiet market with only a 20-point average daily range.

Eurotrader first determines the current volatility level, then assigns the system parameter set for that level when computing the daily signals and indicators. Approximately one-third of all the days in the 11 -year test period are included in each volatility level. The volatility numbers are set within the program and are not variable.

**The program can be traded with a \$5,000 minimum account by utilizing the half-size T-bond or several half size currency contracts traded on the Mid-America Commodity Exchange.**

There are five more variable parameters: entry exit, filter technique, standard stop, variable stop and profit target. The parameters may be different for long or short positions, as well as for each market.

The system generally trades with the main trend. However, a weak trend or a sharp reaction against the trend may cause the system to reverse positions. The program is always in the market, either long or short, until a profit target is reached. Single contract positions are used for each market. No pyramiding, compounding or multiple contracts are assumed. A typical daily report based on prices manually input or received from Commodity Systems, Inc. is shown in [Figure 4](#).

The system's manual includes a complete outline on the capital requirements for trading the system, with 13 different suggested portfolios ranging from a \$10,000 account up to a \$100,000 account. The minimum account size necessary to trade all seven markets is \$40,000. However, it is not necessary to trade all seven, as each market trades independently of the others. The program can be traded with a \$5,000 minimum account by utilizing the half-size T-bond or several half-size currency contracts traded on the Mid-America Commodity Exchange.

Frank Alfonso is a general partner of Essex Trading Company, Ltd., 300 W. Adams #319, Chicago, IL 60606, (312) 416-3530.

FIGURE 1

<b>Customized Performance Summary</b>							
1/1/76-5/1/87							
	<b>S&amp;P 500</b>	<b>Bonds</b>	<b>Dmark</b>	<b>B Pound</b>	<b>S Franc</b>	<b>J Yen</b>	<b>Edollar</b>
<b>Total Net Profit</b>	164,140	148,920	102,129	80,442	127,489	91,798	117,925
<b>Total # of Trades</b>	208	105	128	153	182	157	158
<b>% of Winning Trades</b>	50	54	52	55	54	54	58
<b>Avg. Profit/Trade</b>	789	1,418	798	526	700	585	746
<b>Profit/Loss Ratio</b>	2.85	3.10	3.25	2.51	2.49	2.37	2.53
<b>Maximum Drawdown</b>	-5,280	-5,210	-4,826	-3,889	-5,538	-3,715	-4,850

FIGURE 2

<b>Back Testing Results</b>														
Essex—%		One Line Summary Report								20 Day Test		Start Date: 760102		
Eurotrader												End Date: 870501		
<b>Swiss Franc</b>														
	[UBF]	[LBF]	[TBF]	[TSF]	[VBS]	[VSS]	[SBS]	[SSS]	[LPT]	[SPT]				
M	1.05	1.75	8	1	2.5	5	200	350	400	400				
H	0.9	1.6	5	0	1	4	200	375	300	700				
	UBF	LBF	TBF	TSF	VBS	VSS	SBS	SSS	LPT	SPT	TRADES	WIN%	P/L	DDOWN
0.3	1.7	0	0	1	4.5	100	175	300	250	182	0.53	127489	-5538	
0.35	1.7	0	0	1	4.5	100	175	300	250	182	0.53	127489	-5538	
0.4	1.7	0	0	1	4.5	100	175	300	250	178	0.53	125552	-5538	
0.45	1.7	0	0	1	4.5	100	175	300	250	178	0.54	123714	-5538	
0.5	1.7	0	0	1	4.5	100	175	300	250	178	0.53	122839	-5538	
0.55	1.7	0	0	1	4.5	100	175	300	250	174	0.53	121390	-5538	
0.6	1.7	0	0	1	4.5	100	175	300	250	174	0.54	117653	-7032	
0.65	1.7	0	0	1	4.5	100	175	300	250	171	0.54	122192	-7032	
0.7	1.7	0	0	1	4.5	100	175	300	250	169	0.55	124192	-7032	
0.75	1.7	0	0	1	4.5	100	175	300	250	169	0.54	123117	-7032	
0.8	1.7	0	0	1	4.5	100	175	300	250	169	0.55	122018	-7032	
0.85	1.7	0	0	1	4.5	100	175	300	250	163	0.53	123407	-7108	
0.9	1.7	0	0	1	4.5	100	175	300	250	163	0.53	123407	-7108	

FIGURE 3

<b>Parameter Set Performance</b>				
<b>Essex % Statistical Summary Report</b>				
<b>Eurotrader</b>				
<b>Swiss Franc</b>		<b>20 Day Test</b>		Total Number of Trades Made:..... 182
<b>Start Date: 760102</b>				Total Number of Winning Trades..... 98
<b>End Date: 870501</b>				Percentage of Winning Trades:..... 54
				Total Net Profit or Loss: ..... 127,489
				Maximum Drawdown: .....-5,538
<b>Vol:</b>	<b>Low</b>	<b>Med</b>	<b>High</b>	Average Profit/Loss Per Trade:..... 700
[VBF]:	0.3	1.05	0.9	Average Profit/Loss Ratio:.....2.49
[LBF]:	1.7	1.75	1.6	Average Winning Trade: .....1,983
				Average Losing Trade:.....-797
[TBF]:	0	8	5	Largest Winning Trade:.....9,475
[TSF]:	0	1	0	Largest Losing Trade: .....-4,588
[VBS]:	1	2.5	1	Total Long Profit or Loss:..... 84,698
[VSS]:	4.5	5	4	Total Short Profit or Loss: ..... 42,791
{SBS}:	100	200	200	Largest Obtained Equity: ..... 127,489
{SSS}:	175	350	375	Total Slippage and Commission: ..... 18,200
[LPT]:	300	400	300	Maximum Consecutive Losses: ..... 5
[SPT]:	250	400	700	Maximum Consecutive Wins: ..... 6

FIGURE 4

<b>Typical Daily Report</b>										
<b>Eurotrader</b>	<b>Pos</b>	<b>Date In</b>	<b>Price</b>	<b>Last</b>	<b>OTE</b>	<b>Trend</b>	<b>Bands</b>	<b>T/STP</b>	<b>870501</b>	
<b>British Pound</b>	F			16730		31	16945		No	
<b>[IMM] - Jun</b>							16471		Trade	
<b>Japanese Yen</b>	L	870313	6604	7160	6950	17	7314	7204	Hold	
<b>[IMM] - Jun</b>							6998	6354	Long	
<b>Swiss Franc</b>	L	870320	6558	6886	4100	14	6960	6958	Hold	
<b>[IMM] - Jun</b>							6711	6208	Long	
<b>W. German Mark</b>	L	870423	5586	5649	787	7	5653	6236	Hold	
<b>[IMM] - Jun</b>							5528	5448	Long	
<b>Eurodollar</b>	S	870330	9325	9250	1875	-4	9277	9025	Hold	
<b>[IMM] - Jun</b>							9202	9425	Short	
<b>Treasury Bonds</b>	S	860813	10066	9207	8590	-37	9473	8816	Hold	
<b>[CBT] - Jun</b>							8668	10306	Short	
<b>S&amp;P 500 Index</b>	F			28950		-79	29225		No	
<b>[CME] - Jun</b>							26537		Trade	
					Total OTE:	22302				

# Economic Investor

---

*by Bob Lang*

---

## **Economic Investor II**

Econ

One World Trade Center, Suite 7967

New York, NY 10048

(212) 529-3255

**Computer:** IBM PC, XT, AT

**Price:** \$399

**E**conomic Investor is a sophisticated econometric model using concepts and power never before available outside the realm of a mainframe computer. The program minimizes risk in a portfolio, using both rate of return and beta as risk measures. At the same time, it can be used to predict how stock prices will move under different economic conditions.

The program's four data disks contain the results of running thousands of calculations to determine the factors needed to predict price movement. These regression equations have yielded seven variables which, when used with reasonable economic forecasts, allow the program to make stock price predictions. This technique of relating price movement to economic factors is called factor analysis and has been used by academic researchers and institutional investors for years.

The performance that you get out of using the Economic Investor is tied very closely to how well you can predict the variables which drive it, mainly:

**the inflation rate,**

**industrial production,**

**housing starts,**

**the price of oil,**

**the exchange value of the dollar,**

**risk premium and**

**slope of the term structure**

**(Figure 1).**

Most of these values can be estimated from *Barron's*, the risk premium is calculated from the rate of return on AAA and BBB-rated bonds and the slope of the term structure is calculated from the 52-week T-bill rate and the 20-year T-note.

With Economic Investor, current values are entered under macroeconomic scenarios and forecasts can be entered on the same screen. Once forecast items are entered, all analysis is based on those forecasts. These econometric analysis techniques have been used for years by the top financial institutions.

In the "economic scenarios" mode, each of the 1,200 stocks in the program's database can be ranked based on expected return. Along with each return, the probability that the stock will move in the indicated direction also is shown. You can select stocks that have the highest rate of return, lowest rate of return or both in groups of 25, 50, 100, 200 or 500 stocks. The system also can select asset groups according to the 12 categories such as S&P 500, AAA or BAA Corporate Bonds, 20-Year T-bonds, 1-Year T-bills and foreign stock indices.

In "portfolio risk minimization" mode, the Economic Investor will find the 15 best stocks to buy and the three best stocks to sell to minimize overall portfolio risk. This feature can be used in conjunction with beta to control risk in the portfolio. The system shows what will happen to the portfolio's monthly rate of return and the probability it will occur.

This mode can be used to build a portfolio from scratch. For example, if a position worth \$1 is taken in the S&P 500, a risk minimization routine is run to find the best stock to add to the portfolio (Figure 2). Once the stock is added through the program's portfolio maintenance procedures, risk minimization is run again (Figure 3). This technique is used until all dollars have been invested.

Setting up a new portfolio is easy, just remember to have all the data you need close at hand. Besides the security name, you also will need, for each portfolio, the number of shares purchased, ticker symbol, share purchase price, date purchased and the per-share market price.

Price maintenance is simple. Just enter the "portfolio maintenance" mode and select option 6 to "alter company prices." Enter the new price for each stock as it appears and all portfolios will be automatically updated with the new pricing.

The forecasting mode allows the investor to make economic forecasts and then rank all stocks in the database vs. this forecast. This feature allows the investor to identify stocks which may not have fully taken into account the impact of the economic forecast.

To show how this feature works, I entered a forecast for oil of \$20 per barrel and kept all other variables constant (Figure 4). By then selecting the 25 best-performing and the 25 worst-performing stocks, I had a list of 50 securities which, on average, were expected to perform the best or worst if oil increased by 16.25% overnight .

The developer of Economic Investor, a former Wharton School of Finance professor, says studies show that if you have a good forecast your rate of return should be about 26% higher than the returns on the S&P 500.

While the program is menu driven and easy to use, it does have a few drawbacks:

- If you don't have an IBM or Epson printer, you must learn escape sequences.
- Portfolios are limited to 16 stocks if you have 256K of memory or 33 stocks if you have 512K.
- Market price updates are entered manually.
- The only stocks that can be used with the system are the 1,200 largest companies selected by Econ.

¥Error recovery is somewhat weak; the escape key will not get you out of trouble. In many cases you must finish the data entry before you can abort the session.

Overall, the Economic Investor is a macroeconomic forecasting model that puts the power of a mainframe forecasting theory in the hands of a personal computer user. With it, you can minimize risk in your portfolio and forecast how different stocks will perform with changes in the economy.

*The Economic Investor is available from SCIX Corp., Williamsport, PA, (800) 228- 6655, (717) 323-3276.*

Test Account 1 211 Main Street Anytown, USA 99999 555-555-5555								
Client #: 1								
Number of Portfolios: 1								
Note: has 16 stocks in portfolio								
			test1	# 1				
Purchase Price:		\$ 579,031.250						
Market Price:		\$ 784,875.000						
Last Revised: 04/14/87								
Number of Companies: 9								
___Factor/Probability___								
Company Name	Ticker	Inflation	Industrial Production	Housing Starts	Price of Oil	Value of the dollar	Risk Premium	Slope of Term Structure
AMERICAN EXPRESS CO	AXP	-.0290	-.7023	-.1116	-.0040	-.0022	.1140	.0098
		.83	.77	.91	.55	.51	.93	.87
INTERNATIONAL BUSINESS MACH	IBM	-.0183	-.4722	.0291	-.0119	-.0389	-.0303	.0117
		.84	.80	.72	.82	.77	.74	.99
GENERAL MTRS CORP	GM	.0128	-.7417	-.0091	-.0148	.0201	.0048	.0130
		.75	.89	.57	.86	.69	.54	.99
AMERICAN SHIP BLDG CO	ABG	-.0459	-.1256	.0274	.0293	-.0138	-.0202	.0149
		.87	.54	.60	.85	.55	.58	.92
ATLANTIC RICHFIELD CO	ARC	.0321	1.0690	-.1107	.0082	.0020	.1258	-.0032
		.90	.92	.95	.69	.51	.97	.70
C B S INC	CBS	-.0149	.3822	-.0650	-.0067	-.1012	.0540	.0134
		.75	.71	.85	.66	.94	.83	.99
CABOT CORP	CBT	.0103	2.2290	-.0586	.0029	-.1044	.0796	.0019
		.62	.98	.74	.55	.86	.82	.59
DIGITAL EQUIP CORP	DEC	-.0471	.5294	.0163	.0141	.0471	-.0096	.0054
		.93	.71	.57	.74	.70	.55	.75
DEERE & CO	DE	-.0240	1.2280	.0377	.0011	.0148	-.0370	.0036
		.84	.95	.72	.53	.58	.72	.72

FIGURE 1:

Risk Minimization through Addition			
Client Name: Test Account 1			# 1
Portfolio Name(s): test portfolio 2		Last Revised: 04/14/87	# 2
Amount being added: \$ 5,000.00			
Resulting Market Value of Portfolio(s): \$ 5,001.000			
Choose one of the following companies to add:			
Company Name	Ticker	Portfolio Standard Deviation	Portfolio Beta
AAA CORPORATE BONDS	AB	.00265	7.6166
KUBOTA LTD	KUB	.00336	.0252
PITTSBURGH CO	PCO	.00455	1.0579
RAYTHEON CO	RTN	.00470	1.1069
MEDIAN PRICE OF SINGLE FAMILY HOME	HSP	.00497	.0101
U G I CORP	UGI	.00504	.6490
LILLY ELI & CO	LLY	.00634	.6730
SABINE CORP	SAB	.00646	.7890
DANIEL INDS INC	DAN	.00667	.7270
WILSHIRE OIL CO TEX	WOC	.00709	.7488
SOUTHEASTERN PUB SVC CO	SPV	.00716	.3421
WILLIAMS COS	WMB	.00744	1.0839
EGCAT NORTHN IRON ORE PTYS	ONI	.00749	.6310
GRACE W R & CO	GRA	.00753	.9310
GENERAL DYNAMICS CORP	GD	.00777	1.2669
Risk Minimization through Addition			
Client Name: Test Account 1			# 1
Portfolio Name(s): test portfolio 2		Last Revised: 04/14/87	# 2
Amount being added: \$ 5,000.00			
Resulting Market Value of Portfolio(s): \$ 10,901.000			
Choose one of the following companies to add:			
Company Name	Ticker	Portfolio Standard Deviation	Portfolio Beta
SOUTHEASTERN PUB SVC CO	SPV	.00247	.7295
AAA CORPORATE BONDS	AB	.00247	4.0678
GENERAL AMERN INVS INC	GAM	.00264	.9332
ESTERLINE CORP	ESL	.00286	1.1877
EDWARDS AG INC	ABE	.00292	1.3611
TESORO PETE CORP	TSD	.00307	.9300
MEDIAN PRICE OF SINGLE FAMILY HOME	HSP	.00310	.5773
LILLY ELI & CO	LLY	.00315	.9731
DART & KRAFT INC	DKI	.00335	.9327
KUBOTA LTD	KUB	.00338	.5841
U G I CORP	UGI	.00351	.8703
SAN JUAN RACING ASSN INC	SJR	.00364	.7767
CONTINENTAL ILL CORP	CIL	.00377	1.0254
SMITHKLINE BECKMAN CORP	SKB	.00385	.9547
KANSAS CITY SOUTHN INDS INC	KSU	.00386	1.0309

FIGURE 2:

Risk Minimization through Addition

Client Name: Test Account 1 # 1

Portfolio Name(s): test portfolio 2 Last Revised: 04/14/87 # 2

Amount being added: \$ 5,000.00

Resulting Market Value of Portfolio(s): \$ 10,921,000

Choose one of the following companies to add:

Company Name	Ticker	Portfolio Standard Deviation	Portfolio Beta
SOUTHEASTERN PUB SVC CO	SPV	.00247	.7295
AAA CORPORATE BONDS	AB	.00247	4.0578
GENERAL AMERN INVS INC	GM	.00264	.9332
ESTERLINE CORP	ESL	.00286	1.1877
EDWARDS AG INC	AGE	.00292	1.3511
TESORO PETE CORP	TPO	.00307	.9300
MEDIAN PRICE OF SINGLE FAMILY HOME	HSP	.00310	.5773
LILLY ELI & CO	LLY	.00315	.9731
DAAT & KRAFT INC	DKI	.00335	.9327
HUBBOTA LTD	HUB	.00336	.5841
U & I CORP	USI	.00361	.8703
SAN JUAN RACING BSN INC	SJR	.00364	.7767
CONTINENTAL ILL CORP	CIL	.00377	1.0254
SMITHKLINE BECKMAN CORP	SKB	.00385	.9547
KANSAS CITY SOUTHV INDS INC	KSI	.00386	1.0309

FIGURE 3:

Macroeconomic Variable Forecasting

	Current Value		Forecasted Value
INFLATION RATE (in percentage points)	4.68	----->	4.68
INDUSTRIAL PRODUCTION (in index points)	127.3	----->	127.3
HOUSING STARTS (in millions of starts)	1851	----->	1851
PRICE OF OIL (in dollars per barrel)	17.38	----->	26.00
EXCHANGE VALUE OF THE DOLLAR (in index points)	97.33	----->	97.33
RISK PREMIUM:			
AAA CORPORATE BONDS	8.67	----->	8.67
BBB CORPORATE BONDS (in percentage points)	9.21	----->	9.21
SLOPE OF THE TERM STRUCTURE:			
U.S. TREASURY/1 YEAR	5.92	----->	5.92
U.S. TREASURY/20 YEARS (in percentage points)	8.4	----->	8.4

FIGURE 4:

# Essex Eurotrader

---

by John Sweeney

---

## **Essex Trading Company, Ltd.**

300 West Adams #319

Chicago, IL 60606

(312) 416-3530

**Service:** Conceptually disclosed trading system for currencies, T-bonds and S&P 500

**Price:** \$995

**Equipment:** IBM PC/XT/AT or 100% compatible, 256K RAM, DOS 2.0 or higher, 2 drives (one floppy)

## **Ratings:**

Ease of Use: B

Customer Service: B

Documentation: A

Reliability: A

Error Handling: A

Profitability: B

**E**urotrader is a slick package with substance to it. It's a well-implemented compendium of trading ideas (conceptually disclosed), runs smoothly, minimizes losses and builds equity steadily over an extensive ten-year track record. Should you want to customize it, a very smooth optimization capability is included. Whether you will have the macho to trade it depends. Read on!

Eurotrader is a trend follower which identifies the direction of the trend over, say, 20 days by monitoring average daily price changes. Experience using this concept led developer Frank Alfonso to adjust for the volatility of the data by specifying three levels of volatility as measured by the variance of the price changes. To further refine the program, he built the capability to trade against weak trends (i.e., possible trading ranges) but quickly react to breakouts by specifying trading channels. These channels are built using the trend, the volatility values and optimizable parameters called band factors—essentially multipliers of the volatility. As another refinement, profit targets are also used. When a contract goes as

far the system provides, the position is closed out.

Alfonso also took advantage of the benefits of diversification and allowed the use of seven futures contracts: British pound, Swiss franc, Japanese yen, Deutschemark, Eurodollar, Treasury bonds and the S&P 500, although he believes the program can be traded in single markets or in different combinations of markets with accounts as low as \$5,000. These alternatives are all laid out in the manual.

Alfonso also allowed traders to customize their approach to the markets by providing an optimizing capability. This is nicely done but doesn't provide for iteration through a range of parameters. You can change the system parameters easily but should you want to change the window—the time frame—you must go back to the front end of the simulation package. As we'll see below, this is just the area where flexibility would be handy.

As one package, this is impressive: trend capability, volatility adjustment, trading range capability, profit targets and diversification. I believe you can make persistent money with this approach should you happen to have the \$35,000-40,000 to fund a full portfolio. My personal systems don't have the diversification capability found here and for that reason, I was curious to see how this system worked in detail.

Using Essex Eurotrader is trickier than it might appear. Like COMMODEX, it generally shows you a strong current profit outstanding number which is the result of its constant positions in the seven different tradeables. This isn't completely accurate because when the system reverses, the open equity at the end of the day is not computed—it's left blank. After next day's open is available and the position has been reversed or exited, the resulting profit or loss is accurately calculated but the open equity as of the night before is probably erroneous.

The other problem with open equity isn't Eurotrader's. Despite the profits on the daily sheet, you may have already booked nothing but losses. You'd have to cash in your account to collect your profits—then re-establish your positions in the future. This is not a defect. In establishing yourself in any new system, you must first go through a period of throwing away the losers and keeping the winners before you get the portfolio up to speed. You must have the guts to do this should you wish to succeed. This is where most traders will come a cropper.

To see what I mean, look at [Figure 1](#) which shows the Open Trade Equity computed by Eurotrader during our review period. Clearly, equity is growing and the swings are bearable. This belies the basics of your account where you have booked \$7,449 in losses which, together with \$20,712 in open equity, leaves a \$13,263 profit as shown in [Figure 2](#), a more sobering chart.

Now consider you're buying the package and starting up. On day one, do you put on every position listed but at the wrong prices? Probably not. Instead, I chose to add positions as the system dictated changes. The resulting open equity as calculated by the program is displayed in [Figure 3](#), which again is mildly reassuring. [Figure 4](#) is, however, the actual closed trades and [Figure 5](#) is the net position of your account. Again, considerably more sobering.

Until recently, graphs such as these rarely went in the hole. That's not to say that individual contracts won't damage you. Prior to distribution of my package, the largest drawdown in the S&P 500 was \$5,280. Following an immutable law of trading, things got worse as soon as the program was distributed: an \$18,160 drawdown in the S&P during May, 1987. In [Figure 5](#) (Note that this chart goes beyond the 49 days of [Figures 3 and 4](#)), this occurred during days 28-35, driving the new startup portfolio back to zero.

The good side to this was that gains in other contracts turned an \$18,000 drawdown in a single contract into a \$4,000 drawdown in the portfolio.

Looking at [Figure 5](#) you can see that large profits may be given away. Many people would need nerves of steel to avoid grabbing the money and running when they've run up some winnings. Several traders using the package did take winnings early. They also dropped contracts which took losses. Here's where you've got to have discipline to follow the rules and continue trading. For example, the drawdown from days 49 to 64 in [Figure 5](#) may turn out to be an excellent time to have started trading. (We plan to keep track and report on this!)

You may also be curious as to how it trades generally. Using CSI data, I've plotted S&P and T-bond trades in [Figures 6 and 7a](#) to give you a feel for this. You can see that despite all the hard thought that's gone into this, the system can still find itself reversing quickly. However, whipsaw losses are minimal: usually one trade and occasionally two, although recent stock market action caused four. I was particularly impressed that during the long, dull bond market from July 1986 to March 1987, the system stayed resolutely short without getting whipped.

### Trade identification

This system's historical tests routinely show winning percentages of 50%-60%. Given the limited amount of time I had for the review, I couldn't check each contract for 10 years but I did spot check the bonds and the S&P to see whether the system reliably identified winning trades early on and protected profits.

[Figure 8](#) is the distribution of maximum adverse excursion for the S&P 500. (See *Stocks & Commodities*, October 1985 and April 1987.) Despite its miserable recent experience and its history of taking the most frequent and serious drawdowns of all the seven contracts, this evidence suggests that Eurotrader is relatively efficient at identifying good S&P trades. From the graph of winning trades, it's clear that winning trades generally don't have adverse excursions of more than 500 points. (An aggressive trader might put in stops at 200 points, being able to re-enter after being stopped out!) Confirming this, the graph of losing trades is comparatively flat. This means we could probably improve results with stops set just beyond where most winning trades go. (By the way, user comments indicated that the system's stops were too far away to be effective in limiting losses, which confirms the Maximum Adverse Excursion evidence.)

[Figure 9](#) (the scale is in 100ths, not 32nds.) is the same data for T-bonds. Here the evidence for selectivity is good, as well, despite bonds being the second worst for frequency and severity of drawdowns. The peak for winning trades is in the right place with sharp tailing off as desired. However, there are five winning trades with very large adverse price movements—adverse excursions—between 200 and 300 points.

This says there were significantly better places to enter. On inspection, these large adverse movements often occurred 10 or 15 days into the trade, not quickly, as I personally like to see. Again an aggressive trader, adequately capitalized and willing to re-enter, could place stops at, say, 150 (i.e., at 48 points or \$1,500 from entry).

Making improvement tough in bonds is that the losing trades' adverse movements are also bunched in the area we'd like to reserve for winning trades: within zero to 150 points from entry (i.e., zero to 48/32). The system clearly identifies winning trades in bonds but not as well as in S&P's. I personally suspect this is because it uses the same time horizon for every contract (20 days, a figure you can change). I think there's

enough consistent experience with the cyclical content of these contracts to justify the option of using a different time frame for each.

### **Drawdowns**

Drawdown information for each contract is provided, but what we really want to know with this system is the drawdown for the portfolio we are trading. I did an inspection of each contract's drawdowns and matched it with the timing of the other contracts' drawdowns. I didn't have time to do it day by day, but my impression is that the worst cases for the entire portfolio of seven contracts were three drawdowns of about \$7,500—until I wrote this article in May/June of 1987. Then we had a drawdown of \$16,829 in this portfolio ([Figure 5](#))! This would be unbearable on the recommended \$35,000 portfolio with one of each contract. Waiting until a drawdown of at least \$7,500 may be an essential for a startup.

### **Nuts and bolts**

When you receive the package, you'll get 10 years of history and up-to-date data. You'll use this to generate trading signals and back test your parameters. The data will be in Eurotrader's "present value" format. Eurotrader transforms each price given it so that a continuous contract is maintained. This is not discounted present value, so we have another case of trading inappropriately appropriating terminology from other disciplines. Nevertheless, the plus to this is easy, consistent historical testing. The minus is that data entry had better be done right the first time because discovering errors is nearly impossible and correcting them tedious. All users complained about this feature.

Eurotrader may be usable with CSI data, but I could not get that part of the package to work (or find anyone else who had) since the system needed a at least a year of back data. Downloading a year's back data on a single currency contracts is largely a waste of time—there's little activity six months back. I'm told, if it does work, signals will be slightly different from those generated by using data maintained in Eurotrader's proprietary "state." However, data entry by hand is easy and even an inveterate downloader such as I didn't mind popping in a few prices daily. Hand entry will allow you to get results consistent with the historical data, but it would have been better to develop the system using somebody's proprietary continuous contract or program for rollovers, as, say the Right Time and Volatility Breakout System programs do.

**This system is focused on the right things—trend, volatility, trading ranges, diversification**

### **Using systems**

Users to whom I talked were picking the system apart. They would use it just for the currencies or they had dropped the S&P contract because it was too big and had taken too many large losses. That's a human reaction but the only justification for trading a system—or developing it!—is to eliminate those human inputs. This system must be traded consistently. A trading system is, ideally, a disciplined, fully specified set of rules. It's the result of thought and research, the final product of all our work in technical analysis. Deviations, such as I've suggested for stops, need to be as carefully developed as the original idea. Observing a set of losses isn't "careful development" in my book. Don't pick and choose the trades.

### Conclusions

Well, is it worth a grand? Oddly enough, despite several contrary user comments, lack of full disclosure and my fixation for doing-it-yourself, I'd say "Yes." This system is focused on the right things—trend, volatility, trading ranges, diversification—and working well enough to be used without modifications. It's no bed of roses to take these trades and there's certainly no guarantee of success in the future. I would wait for a severe system drawdown before starting to trade and I'd also explore the idea of different time frames for each contract.

The pricing is right for a fully implemented system with established parameters (i.e., no tedious hours of optimization necessary), especially if you achieve profitability. Off the track record and the potential for improvement, I'd guess you've a fair chance of getting your money back and then some from Eurotrader. I can't compare it directly to the *Right Time* programs because they have no track record like Eurotrader. Nevertheless, *Stocks & Commodities* is planning coverage of consistent trading systems and this is one we'll include.

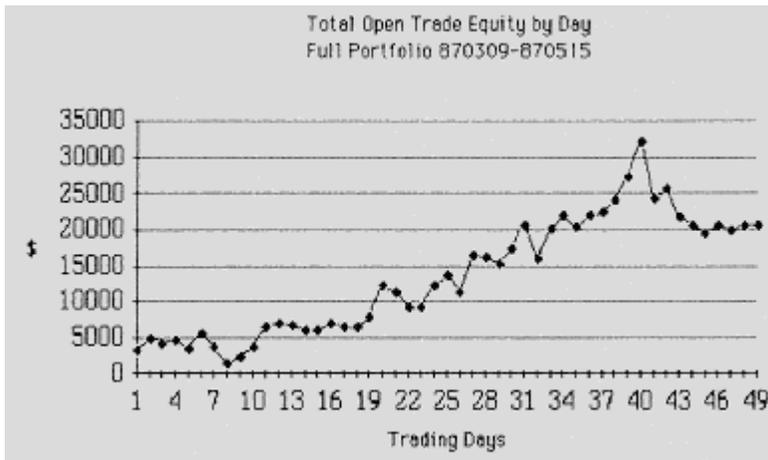


FIGURE 1:

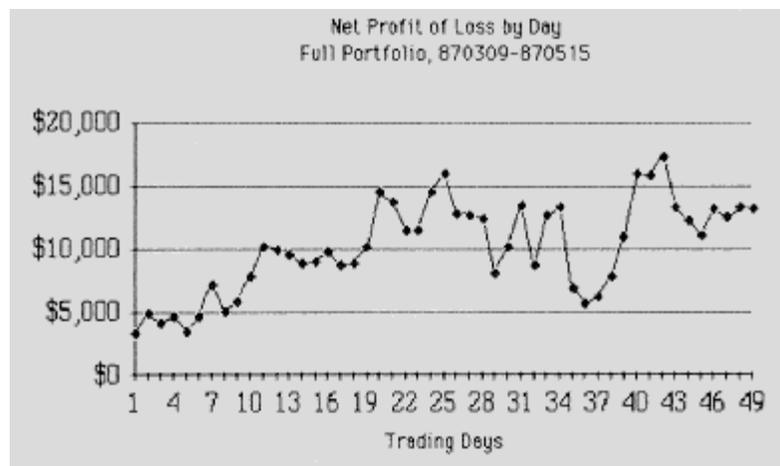


FIGURE 2:

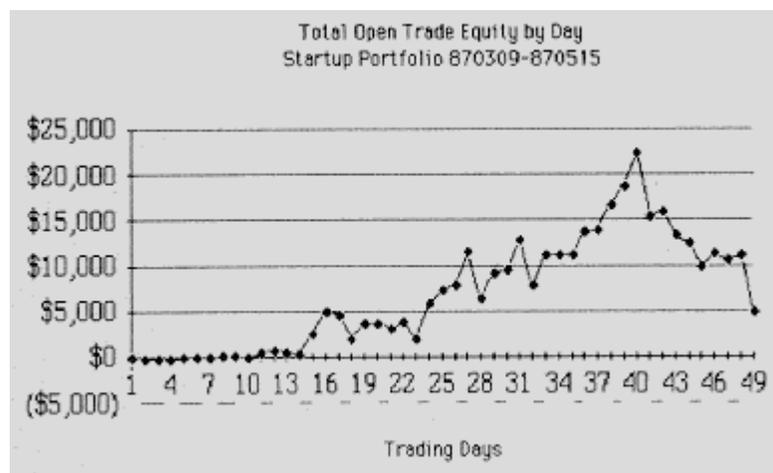


FIGURE 3:

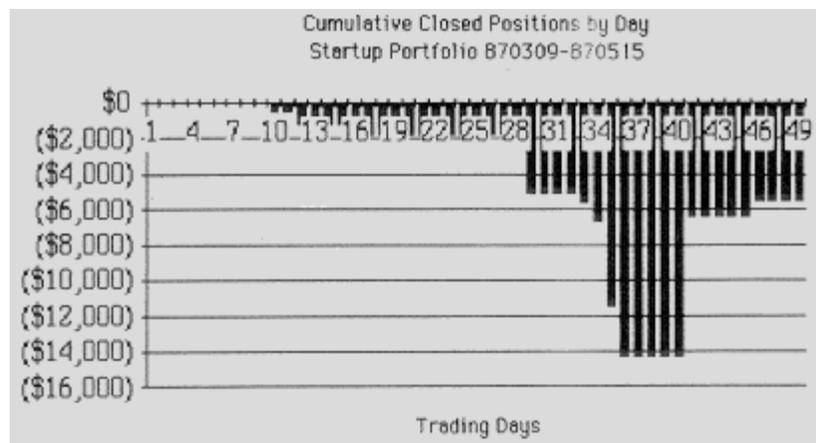


FIGURE 4:

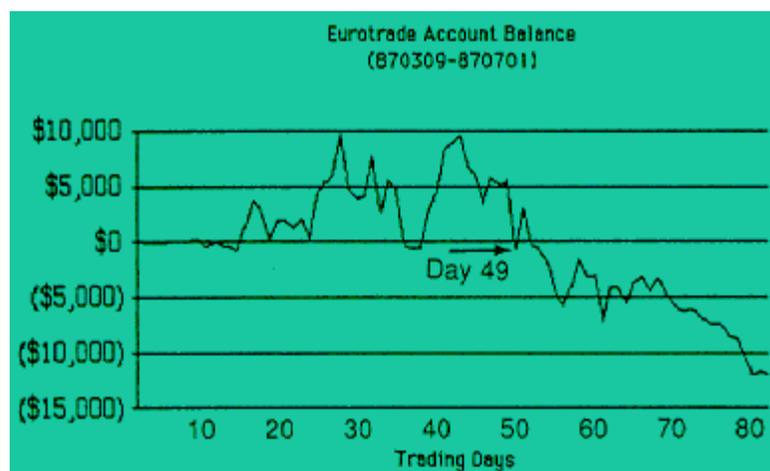
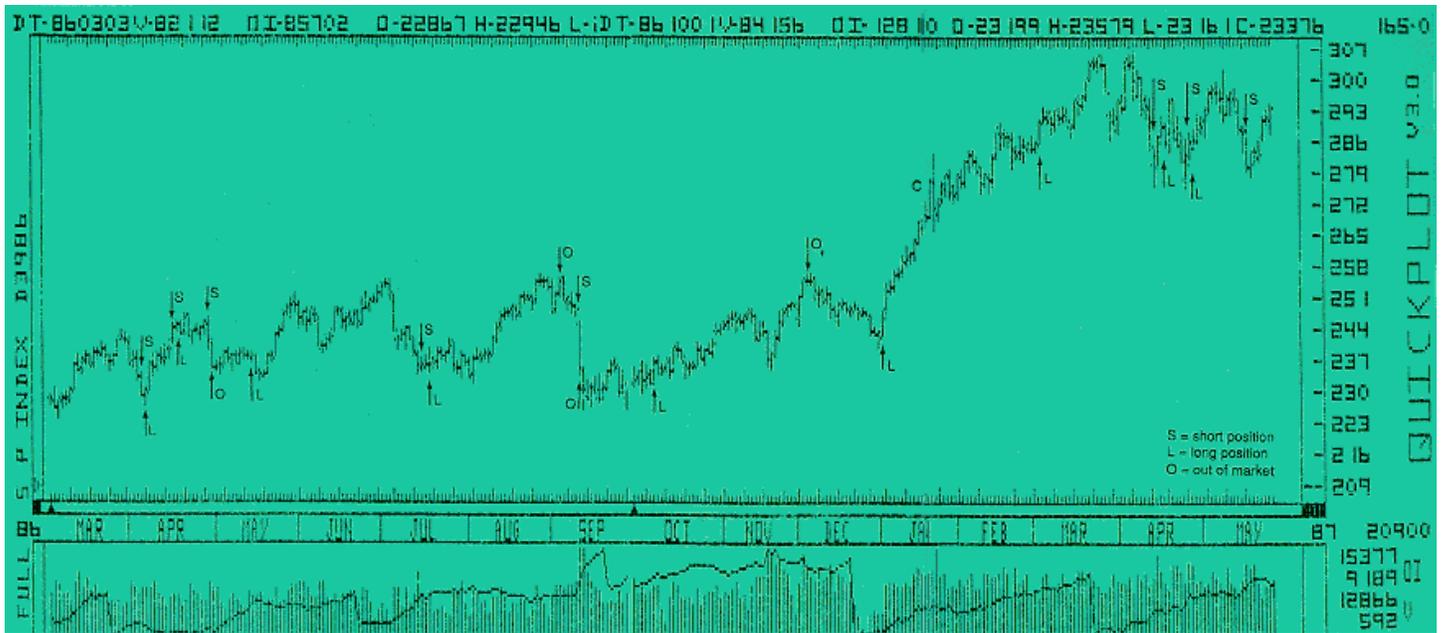
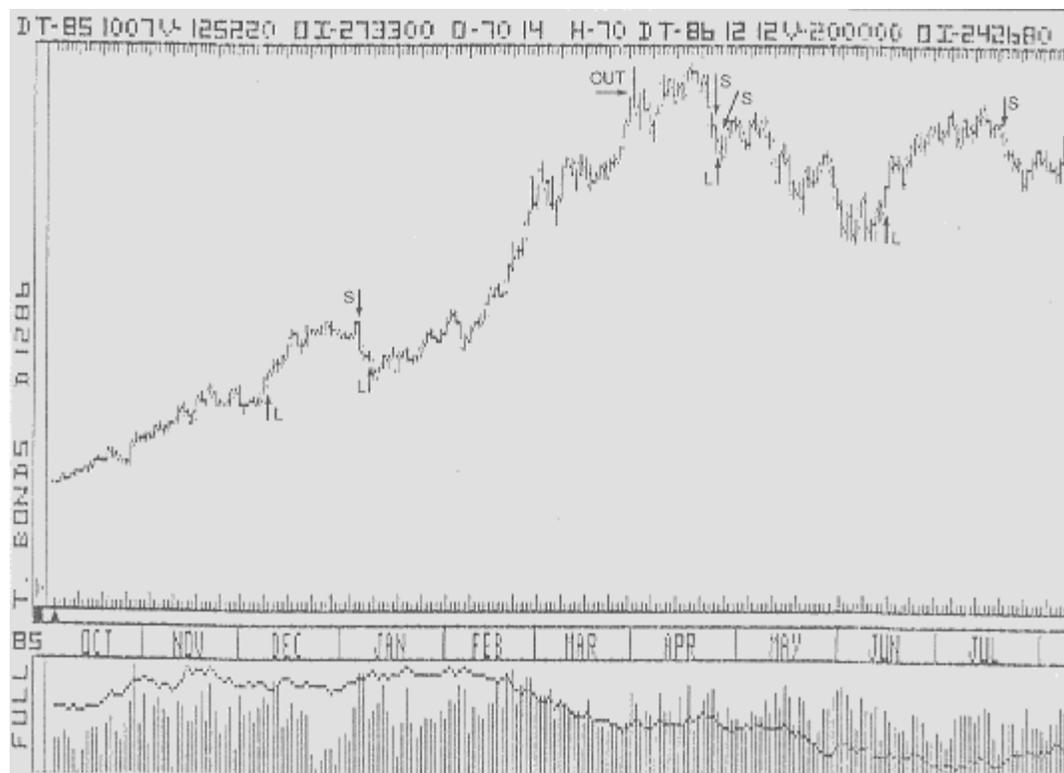


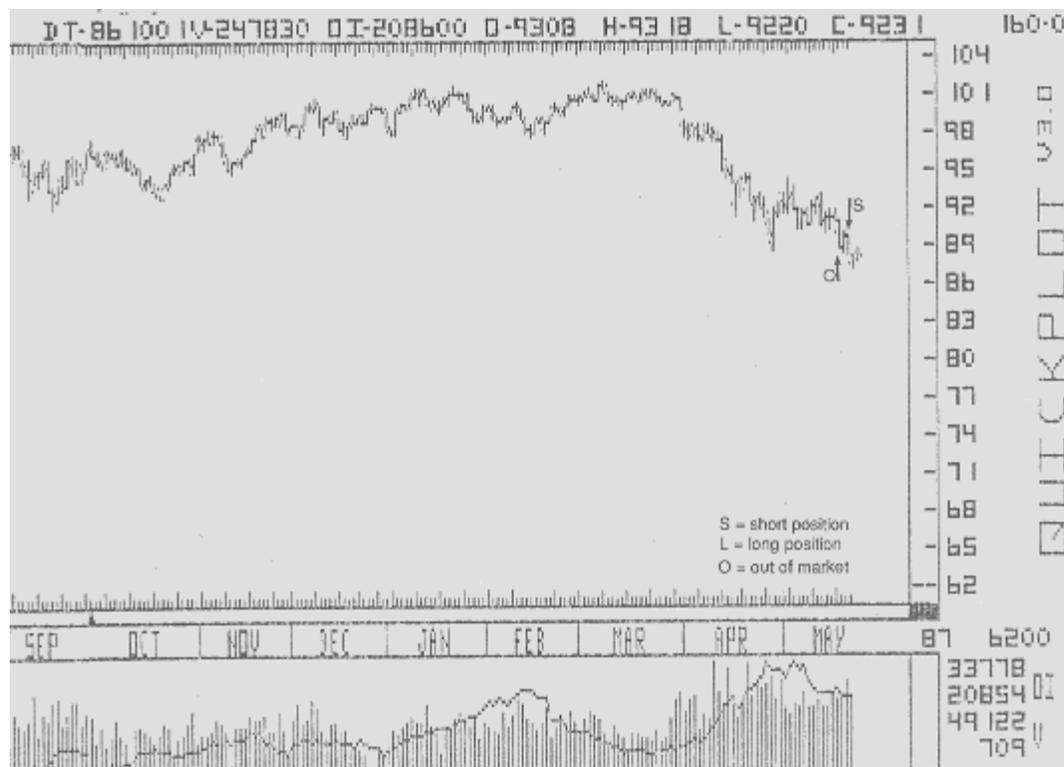
FIGURE 5:



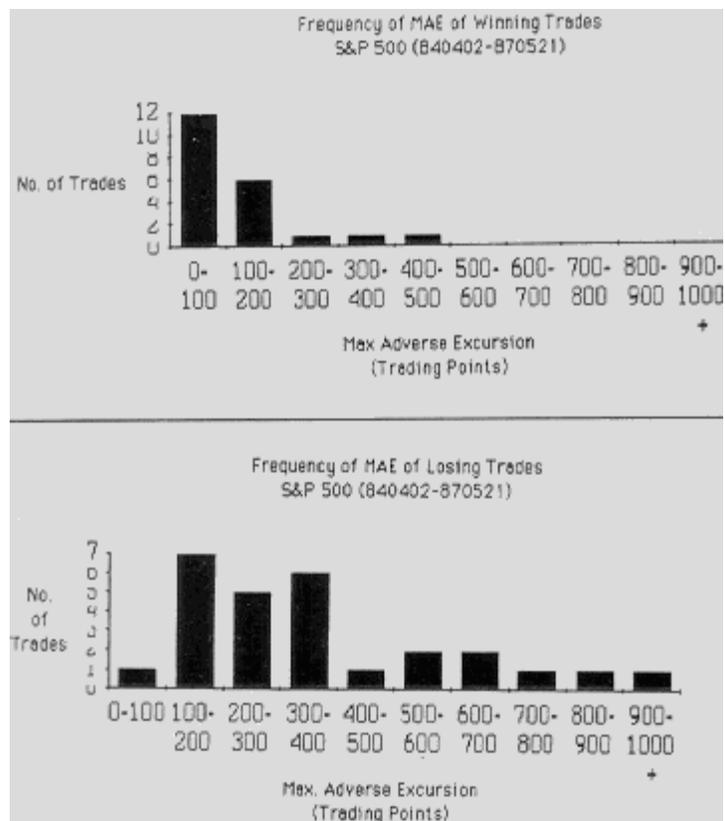
**FIGURE 6:** *The S&P trading is the most subject to whipsawing and large losses, but overall results are still profitable.*



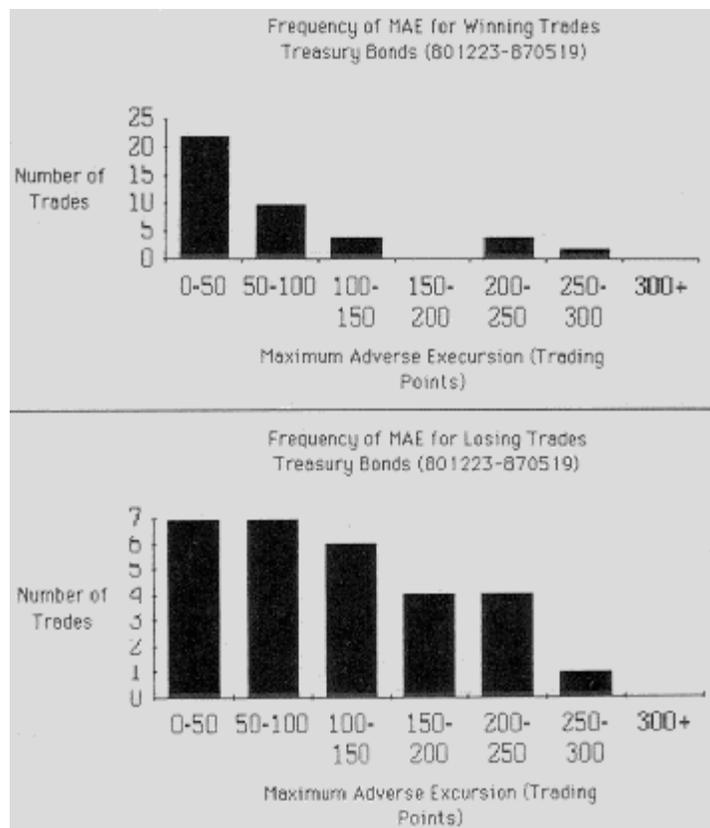
**FIGURE 7a:** Treasury bond trading is far less likely to be whipsawed than S&Ps. Note the lengthy short position from August 1986 to May 1987.



**FIGURE 7b:** Treasury bond trading is far less likely to whipsawed than S&Ps. Note the lengthy short position from August 1986 to May 1987.



**FIGURE 8:**



**FIGURE 9:**

# Estimating the Market Profile Value Area for intraday trading

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by Donald L. Jones

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The prime question for every trader is whether to get into a market, or if in, whether to stay in or get out. Since these questions must be decided on the basis of inadequate knowledge (no, we really do not know where the market is going), a key element in the trading decision is the state of the market. Is it facilitating trade with its breadth (price range) and depth (volume), or is it showing signs of change?

A principal tool in measuring the extent to which a market is facilitating trade is Value Area, a feature of the Market Profile/Liquidity Data Bank generated by the Chicago Board of Trade. This information used to be obtainable only on the floor of the exchange, but now is available from a Chicago data service and several quote services that carry the Market Profile.

The clearing corporation calculates the Value Area *after the close* and reports it in the Liquidity Data Bank. There is, however, a way to get around this time lag by approximating the Value Area *during the course of the trading day*. The approximation relies on Market Profile statistics as they are generated throughout the day and shows high accuracy when tested against the real thing.

Market Profile reports both the prices at which trades occur and the time blocks, called TPOs, in which they happen. For instance, the after-the-close Liquidity Data Bank report for March T-bonds on Feb. 6, 1987 ([Figure 1](#)) shows price hit 100:28 at TPO "A" which is between 8 a.m. and 8:30 a.m. During that same half hour, trades also were made at prices between 100:27 and 100:14. In the next half hour from 8:31 a.m. to 9 a.m. (TPO "B"), the market traded at all prices from 100:18 to 100:8. Thus, the Market Profile builds throughout the day, often finishing up as a bell shaped curve of TPOs.

After the close, the clearing corporation factors in the trading volume at each price (tick) traded, resulting in the Liquidity Data Bank report which is just the final Market Profile of the day overlaid with volume statistics. Once the volume is in place, the Value Area can be calculated and is shown in the Liquidity Data Bank report as the 70% Range of Daily Volume.

Obviously, it would be attractive to the trader to know the day's Value Area before the close rather than to wait until the next day. An estimated Value Area can be found during the trading day by substituting TPO volume for actual trading volume. An example of the ongoing process during the trading day of Feb.6 is illustrated in [Figure 2](#).

**From these data it is fair to infer that TPO substitution for actual volume offers an exceptionally good estimate of the actual VA.**

The procedure for finding the Value Area is to first find the price with the maximum TPO count. On Feb. 6, this would have been 100 15/32 and 100 14/ 32 at 1:30 p.m. Sum TPOs on either side of the center alternately until 70% of the maximum TPO count is included. That identifies the price range for that Value Area (100 11/32 to 100 16/32).

Feb. 6 was a turning point in the bond market. If the Value Area is widening over several days on increasing volume, the market is responsive to the needs of the traders and , hence is facilitating trade. If, on the other hand, the Value Area is narrowing on decreasing volume, the trader should beware of impending change. Prior to Feb. 6, movement had been up for several days, culminating in a large up move on Feb. 5. On the 5th, the Value Area widened considerably from the previous day, showing that the market was facilitating trade. On the 6th. the Value Area was narrow all day as shown by the range between VA UP (100 16/32) and VA LO (100 11/32) in [Figure 2](#).

By the 1:30 p.m. report, it could be inferred that the market was not facilitating trade since the difference between VA UP and VA LO was only 6/32 compared with 17/32 the previous day. Assuming an exit in the middle of the final full period, the price out would have been 100 15/32. The next trading day, Feb. 9, the market opened lower and traded down, closing at 99 19/32.

While the computation of the estimated VA from TPOs is straightforward, there is no guarantee such a procedure will give an accurate estimate. One way to compare the estimated with the actual is to take end-of-day Liquidity Data Bank profiles and calculate the VA using the TPOs instead.

The estimated values for the T-bonds were within one tick in 57 of the 80 cases tested (71%) and within two ticks in more than 81% of the cases. For the soybeans, one-tick proximity occurred in 51 of 76 cases (67%) and accuracy within two ticks occurred more than 80% of the time.

From these data it is fair to infer that TPO substitution for actual volume offers an exceptionally good estimate of the actual VA.

There are several important ramifications from this study. First, the active trader can develop a reasonable estimate of the day's Value Area prior to the close, instead of waiting for the Liquidity Data Bank report. This permits Value Area-based trading decisions during trading hours instead of waiting until the next day. The day trader now has a guide in addition to tail counts, TPOs, range extensions and the like.

*Donald Jones is president of CISCO, a futures database service, 327 S. La Salle, Suite 800, Chicago, IL 60604, (312) 922-3661.*

*Marker Profile is a registered trademark and Liquidity Data Bank is a trademark of the Chicago Board of Trade.*

<b>Liquidity Data Bank® Volume Summary</b>						
<b>T-bonds, February 6, 1987</b>						
<b>Contract</b>	<b>Trade Price</b>	<b>Volume</b>	<b>% of Total</b>	<b>Cti1%</b>	<b>Cti2%</b>	<b>Half Hour Bracket</b> <small>Times at which prices occurred</small>
	100 28/32	10,120	3.5	51.9	17.9	A
	100 27/32	2,968	1.0	65.0	5.3	A
	100 26/32	6,086	2.1	59.8	7.8	A
	100 25/32	20,612	7.2	58.2	11.7	A
	100 24/32	14,308	5.0	58.5	13.3	A
	100 23/32	3,298	1.2	59.2	4.5	A
	100 22/32	2,948	1.0	56.0	2.7	A
	100 21/32	5,998	2.1	55.0	9.1	A,L
	100 20/32	8,934	3.1	55.7	17.8	A,L
	100 19/32	9,656	3.4	56.7	12.9	A,L
	100 18/32	13,084	4.6	53.6	15.2	A,B,L,M
	100 17/32	19,774	6.9	51.9	14.7	A,B,C,H,I,L,M
	100 16/32	27,540	9.6	52.5	18.1	A,B,C,D,H,I,J,K,L,M
	100 15/32	21,386	7.5	55.2	15.4	A,B,C,D,E,F,G,H,I,J,K,L
	100 14/32	26,188	9.2	56.3	17.2	A,B,C,D,E,F,G,H,I,J,K,L
	100 13/32	34,054	11.9	56.4	16.3	B,C,D,E,F,G,H,J,K,L
	100 12/32	36,400	12.7	56.3	16.2	B,C,D,E,F,G,J,K
	100 11/32	10,706	3.7	65.2	9.8	B,C,D,E,G,J
	100 10/32	7,084	2.5	56.4	15.0	B,C,J
	100 9/32	4,166	1.5	52.1	10.9	B,J
<b>Mar 87</b>	100 8/32	212	0.1	50.0	0.0	B
		207,722	72.8	55.6	15.9	A,B,C,D,E,F,G,H,I,J,K,L,M
<b>Value Area</b>	<b>70% Range of Daily Volume</b>	<b>100 11/32 to 100 20/32</b>				
				<b>% of Total</b>		
	Total Volume for Mar 87 U.S. Bonds		285,522	56.0	14.7	
	Total Volume for U.S. Bonds		300,350	55.9	14.6	
	Total Spread Volume for Mar 87 U.S. Bonds		9,628	50.6	19.9	
<i>Cti1% = floor traders Cti2% = commercial traders</i>						
<i>Volume figures shown are actual number of contracts multiplied by 2</i>						

FIGURE 1:

<b>Market Profile and Value Area Estimates</b>				
<b>March T-bonds, February 6, 1987</b>				
<b>Price (32nds)</b>	<b>10:30 am</b>	<b>11:30 am</b>	<b>12:30 pm</b>	<b>1:30 pm</b>
100 28	A	A	A	A
100 27	A	A	A	A
100 26	A	A	A	A
100 25	A	A	A	A
100 24	A	A	A	A
100 23	A	A	A	A
100 22	A	A	A	A
100 21	A	A	A	A
100 20	A	A	A	A
100 19	A	A	A	A
100 18	AB	AB	AB	AB
100 17	ABC	ABC	ABCHI	ABCHI
100 16	ABCD	ABCD	ABCDHI	ABCDHIJK
100 15	ABCDE	ABCDEFG	ABCDEFGHI	ABCDEFGHIJK
100 14	ABCDE	ABCDEFG	ABCDEFGHI	ABCDEFGHIJK
100 13	BCDE	BCDEFG	BCDEFGH	BCDEFGHJK
100 12	BCDE	BCDEFG	BCDEFG	BCDEFGJK
100 11	BCDE	BCDEG	BCDEG	BCDEGJ
100 10	BC	BC	BC	BCJ
100 9	B	B	B	BJ
100 8	B	B	B	B
<b>No. of Prices</b>	21	21	21	21
<b>Center Price</b>	100 15	100 15	100 15	100 15
<b>*TPO Up</b>	9	9	13	15
<b>*TPO Lo</b>	19	26	29	39
<b>Total No. TPOs</b>	45	54	63	76
<b>VA upper price</b>	100 17	100 17	100 17	100 16
<b>VA lower price</b>	100 10	100 11	100 11	100 11

*Market Profile data from the CBOT. Value Area calculations from CISCO.  
\*TPO Up and TPO Lo = number of TPOs above and below center, not including single TPOs*

**FIGURE 2:**

# Gap watching

*by Joe Van Nice*

**T**here's nothing on a chart that isn't laden with significance for a technical trader. Price ticks and volume bars jump off the chart at your eye, but they're just the beginning. Even gaps, the blank spaces left when prices leapfrog to a higher level, can be important technical indicators of the future.

Gaps are a chart's way of showing you the trading ranges in which no actual trading took place. Most are easy to identify and to interpret since the price action immediately following a gap will identify the upcoming price movement.

Gaps can be subdivided into four basic categories:

**Common gaps** -This type of hole in the price chart usually is assumed to have no special meaning because, in the recent past, trading did take place at its level ([Figure 1](#)).

**Breakaway gaps** -Most often you'll spot these accompanying a breakout from a congestion area or consolidation pattern. They usually signal the onset of a rapid price move, especially if the market follows through in the direction of the breakout in subsequent sessions.



**Runaway gaps** -After a breakout has already taken place the runaway gap shows up. They're often reliable indicators of a strong underlying trend, especially when accompanied by high-volume or a limit move.



**Exhaustion gaps** -Put on the glasses for this one because it is very difficult to identify except, of course, in hindsight. An exhaustion gap marks the final stage of a move and tells you the market has run out of

steam. The key to recognizing this genus of the gap family is often the intraday action following its appearance. If a point-and-figure chart or some other very short-term indicator shows labored and unsuccessful attempts at rallying after a gap opening, consider the possibility it's an exhaustion gap and an impending reversal formation is in the works.

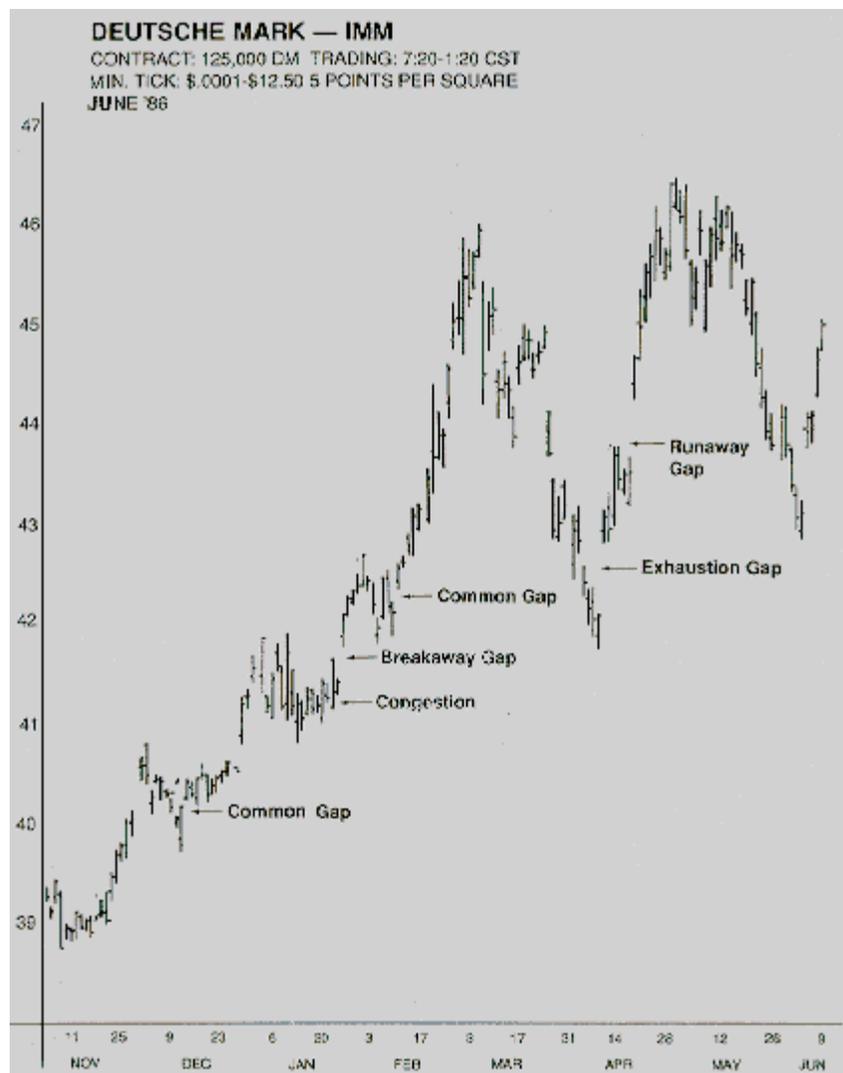
To fully understand gaps, a trader also should understand the behavior of congestion areas and the market forces that create them. A congestion area is simply a price range that a market has traded in for a few weeks or longer. When approached from above, the area acts as a support and when approached from below, the congestion area acts as resistance. How strongly it acts in this manner usually is related to its duration and volume.

The behavior is a product of market forces at work within the congestion area. In one of these regions, bullish and bearish forces are in balance and sizable numbers of positions have gathered on both sides. If prices subsequently break below the congestion area's trading range, a return rally would do two things. It would allow the longs who entered the market within the trading range to liquidate at a small loss or maybe even a profit, and it would allow those who missed the original move to go short at a level that previously had proved profitable. Similar reasoning governs the approach to a congestion area from the upside.

Like any chart interpretation, gaps tell their stories to practiced eyes. Careful examination of [Figure 1](#) will show that every major Deutschemark price move was preceded by an easily identifiable gap. Analyze the gaps in your charts-they're always trying to tell you something.



*Joe Van Nice is president of Commodity Trend Ltd., 1224 U.S. Highway 1, Cove Plaza, North Palm Beach, FL 33408, (800)331-1069.*



**FIGURE 1:**

## In This Issue

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*John Sweeney, Associate Editor*

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**S**uppose you fire up a new trading system. It feels just like a hot sword in some medieval test of mettle. Your hands are on fire but you don't dare drop it because it's your livelihood. To boot, as soon as you do drop it, your market eats your lunch.

I've been going through this recently when I discovered a whole new fear! My basic trading system hasn't changed in five years but I did add a whole new approach in June. I've found it very difficult to operate both systems at once—it's as though I'm constantly being pulled in two different directions. At the same time, I can hardly let go!

I've always been a trend-follower but, intellectually, I wanted the ability to trade against short-term actions. Analytically, that turned out to be feasible and the development process was sterilized even more by extensive computer testing. I even modeled the combination of the two systems.

It was very easy to say, "Well, I'll just net out the trades should they conflict." I never gave it the "gut test" though! Once money was on the line I discovered I never wanted to go against the trend, no matter what the tests said. Now I'll have to explore a whole new range of fears—take them out and measure them, see how big they really are and whether I should be afraid or not.

Fear and greed. I never seem to get away from the basics!

George Arndt is at it again. He does business under the name Harvard Investment Service and is selling something called the "Conservative Trading Approach."

Very little about George is straightforward. On August 19 last year, George and Harvard Investment Services got nailed for a \$30,000 fine and a stiff "cease and desist" order for violating various sections of the Commodity Exchange Act while promoting "Easy Trader."

Previously, a federal judge took \$291,000 out of George's hide when Larry Williams demonstrated to the court's satisfaction that another Arndt product, the "Floor Trader's Manual," was in fact an infringement of one of Larry's copyrighted systems.

George's usual habit is to associate himself with some famous name (Harvard?) and claim professional expertise. In April 1987, I heard he'd somehow hooked up with Richard Dennis! I called George and he allowed as how it wasn't really Richard Dennis' system, but was a mechanical system developed from two years of studying Dennis' writing and research. The resulting system stemmed from Arndt's training as a physicist! While peddling Easy Trader, George claimed to be "a research scientist modeling computer work" and "a computer analyst" when, in fact, he had never been so employed. The latest from George is in the same genera: Jesse Livermore's name is liberally sprinkled through eight pages of promotion.

In April, we offered to review George's "Dennis" system which, apparently, had no disclosure document. George declined that opportunity but we're generous. We'll be happy to review CTA. Until we do, I'd advise against reaching for your checkbook for this one.

*Good Fortune!*

# Introduction to spread investing

## *Part 1*

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*by Frank Taucher*

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**M**ost commodity traders are aware of the lower risk and margin requirements that traditional spread trading offers vs. outright long or short positions. Many even have a favorite spread or two that they enjoy trading each year.

But are you aware of the fact that many spread traders actually earn higher returns while sleeping sounder than outright speculators?

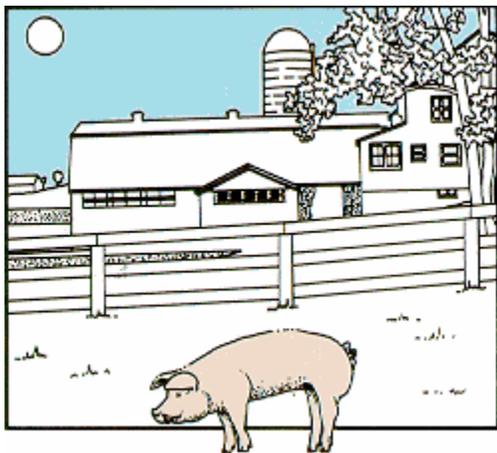
Spread investing allows one to identify attractive spread trades that can be used to construct a diversified *portfolio* of profitable and reliable spread trades. It is this diversification that allows steady profit growth, the steady growth that provides for nocturnal bliss.

Historically, spreads have been analyzed on the basis of:

- 1) **Fundamentals,**
- 2) **Technicals** (trendlines, moving averages, cycles, RSI, stochastics, pattern recognition and the like),
- 3) **Historical Trading Range Analysis** (which also includes ratio spreads such as the gold/silver ratio, hog/corn ratio, etc.), and
- 4) **Seasonality.**

It is the last of these methods of analysis, seasonality, that I use as the basis for developing potential trades in my program. I am simply searching for situations that have a tendency to occur at a certain time of the year, year after year after year.

Seasonality is certainly not a new concept in commodity trading. Indeed, there are many fine books that discuss seasonality and list seasonal spread trades. A couple of problems seem to almost universally arise, however.



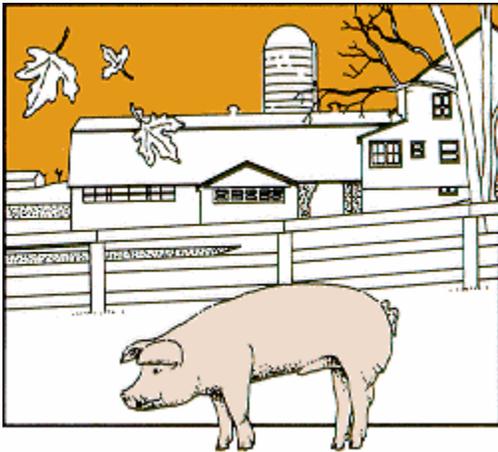
First, most of the popular books on seasonality were written in the late 1970s or early 1980s. One is thus faced with the problem of determining whether or not the seasonality has continued through the intervening years after the book was written.

For instance, in recent years, some seasonal patterns have changed due to increased international competition. Two good examples would be the effect of Brazilian production on our domestic orange juice and soybean markets. Another cause of changes in seasonal patterns would be the generally deflationary trend in commodity prices since the gold rush days of 1980.

A second problem that arises in some of the popular books is that some of the past seasonal patterns were compiled using cash rather than futures data.

Third, most seasonality in commodities has been depicted by a line on a graph representing an average of prices over several years. Of far greater importance, however, is what those lines represent in dollars. A line the length of the page may represent a seasonal move of \$300 on one page, while the same line on another page may represent a move of \$1,000.

Fourth, reliability comparisons from a single entry point to varied exit points were not readily available in the past to allow one to determine the probability of a successful trade based on past historical experience. The reason is reliability was normally represented on a linear basis (i.e., week to week, month to month, and so on). Reliability comparisons over varied time periods was a guess, at best, and was made by estimating the reliability based on each of the successive time periods. For example, reliability over a five-week period was guesstimated by inspecting the reliability of each of the five individual weekly periods and assuming those held over the entire period. My work has shown that such is not necessarily the case.



Fifth, when the trade strayed from its normal seasonal the stocks with a portfolio of diversified seasonal spread pattern and experienced a contra-seasonal move (as all seasonal patterns do at some time), how badly did it stray? Asked another way, what was the worst loss that those average lines were masking? Also, how could the investor obtain such information as the worst open equity drawdown from a graph? This type information is important because it can tell one how long to hold onto a trade before calling it quits.

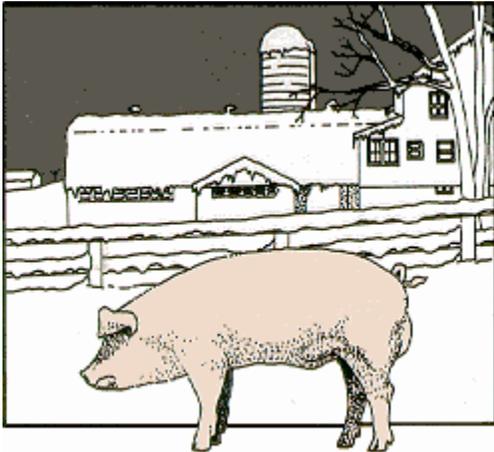
Sixth, if the average had one extremely large profit or loss, inclusion of these results might abnormally skew the seasonal.

Seventh, how were results obtained (if they were at all) when unlike units of measurement were compared. Some examples are live hogs vs. pork bellies (30,000 lbs. vs. 40,000 lbs.), feeder cattle vs. live cattle (44,000 lbs. vs. 40,000 lbs.), Treasury bills vs. Treasury bonds (\$1 million 90-day bill vs. \$100,000 8% coupon bond) and gold vs. silver (100 oz. vs. 5,000 oz.).

Eighth, many interesting commodity markets have been created since much of the good seasonal work was done. The stock indices and energy complex are examples. Here, such interesting spread relationships as crude oil vs. heating oil, heating oil vs. gasoline or S&P vs. Value Line can be explored.

Finally, and perhaps most importantly, one is faced with the continual problem of constantly updating the seasonal pat-terns to reflect the constantly changing commodities markets.

It was to solve these problems and many others that my program was developed. Again, the end objective of the each program was to allow the investor to easily identify and quantify attractive seasonal spread trades which can be used to construct a diversified portfolio of many such trades. The process can be likened to that of a mutual fund manager who seeks to manage a portfolio of many stocks to lessen the possibility of ruin from any one position. We simply replace the stocks with a portfolio of diversified seasonal spread trades.



An example of a seasonal spread trade is laid out in [Figure 1](#). Here is what the numbers mean - The WZ/SX is the spread we are going to analyze—namely, long December Chicago Board of Trade Wheat (WZ) and short November Soybeans (SX). In my program, I always present my data in this format. I buy the first side (or leg) and sell the second. The advantage of this format is that when determining the spread's value, the second side is *always* subtracted from the first and when graphing the spread, the only way the spread will make money is if it is increasing on the chart (just like the graph of a stock or the price of gold).

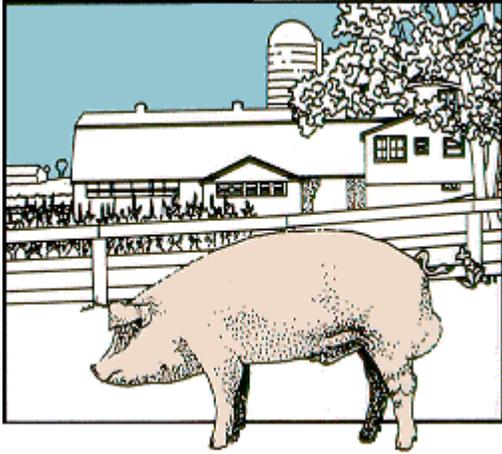
These two simple changes from traditional spread analysis make the entire process far less confusing, especially to the beginning spread trader.

Back to our example. "OPEN" and "CLOSE" denote the beginning and ending dates of the seasonal (Aug.15 and Oct. 22).

Next, we can see that the spread has been analyzed over the past 17 years (YRS) and has been 76% reliable over this time (REL), meaning 13 winning years and four losing years.

In the next three columns, we see that the worst loss (WL) in any one of the 17 years has been \$3,463,

that the worst drawdown (WD) has been \$4,788, and the average drawdown (AD) each year has been \$1,464.



The trade has produced a profit of \$1,318 on average over each of these years (AP). As this is written, the margin (MGN) for this spread is \$750. If we related the average profit to just the margin required to carry this position, we would obtain an expected return on investment of:

$$\$1,318 / \$750 = 175.75\% \text{ which would annualize to over } 900\%.$$

Additionally, our inspection of the trading history of this spread indicates that a stop (STP) of \$2,500 (50 cents) is appropriate. Hence, as one can see, this particular spread tends to be quite volatile.

The trade can be graphed as in [Figure 2](#). Here, we are graphing quarter-month time periods (X-axis) vs. the dollar value of the spread (Y-axis). Note that the Y-axis could also be denominated in the more conventional *price* format and the appearance would be exactly the same.

In my program, I not only search out which markets are likely to gain on other markets during specific periods of time, but also which specific contracts are most likely to exemplify that gain (when the spread involves unlike contracts).

For example, in our example we specifically used the months of December CBT Wheat and November Soybeans. Also analyzed, however, are March and May wheat vs. the November Soybeans and January, March and May Soybeans vs. the December wheat. The same applies to other combinations of wheat and soybeans contracts as it does to other futures markets.

This type of analysis can aid not only the spread trader, but also the outright trader. For instance, suppose you wished to trade outright positions in the grain/soybean complex during mid-August to late October. The above analysis would suggest that the best way to do so would be to trade long positions in the wheat market while trading short positions in soybeans.

**Finally, and perhaps most importantly, one is faced with the continual problem of constantly updating the seasonal patterns to reflect the constantly changing commodities markets.**

Arriving at such an answer obviously required that quite a large amount of data be processed (I analyze

more than 3,000 spreads in my program). Indeed, it was not until the costs of processing and storing data became sufficiently low during these past few years that the project really became feasible.

For those who have interest in the actual hardware, I store the data on Bernoulli cartridges and process it on IBM ATs with compiled programs that I write myself. A number of technical problems relating to the presentation of the output were solved with the advent of the laser printer which allowed the print size to be reduced so that long periods of time could be thoroughly studied for each spread.

*Frank Taucher, Suite 190, 8236 E. 71st St., Tulsa, OK 74133, publishes The 1987 Commodity Trader's Almanac and has prepared a special information packet for Stocks & Commodities' subscribers.*

SPRD	OPEN	CLOSE	YRS	REL	WL	WD	AD	AP	MGN	STP
WZ/SX	815	1022	17	76	3463	4788	1464	1318	750	2500

FIGURE 1:

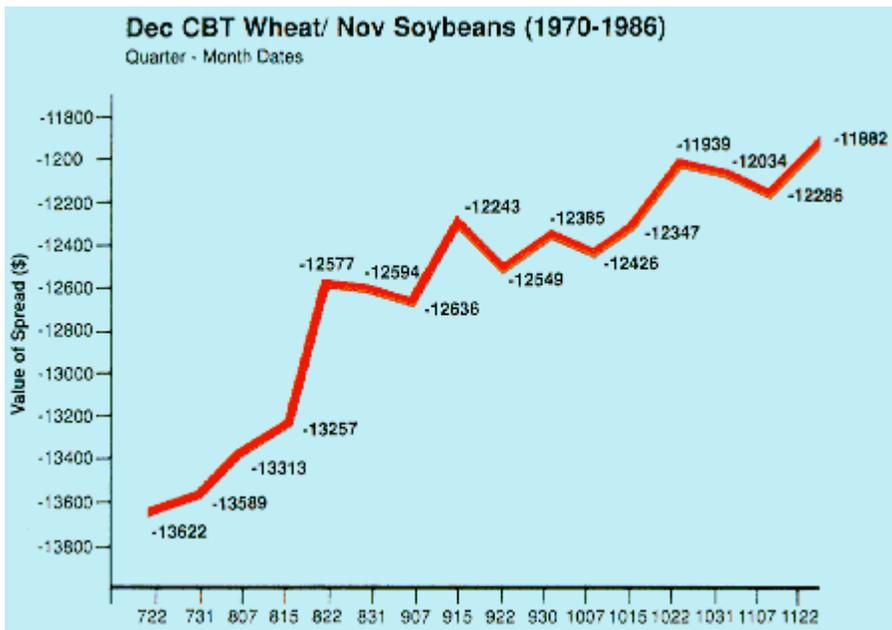


FIGURE 2: Going long in December CBT Wheat and short in November Soybeans each year from 1970 to 1986 produces an average annual profit of \$1,318.

# Letters To S&C

## **Schwager on Schwager**

Editor,

I always get a kick from seeing references to my articles (or interviews) in the "Letters to S&C" column. It reminds me of the line about the suspense involved in watching the 1962 Mets. "Whenever there was a fly ball, you knew someone was going to drop it, but you didn't know who." Well, in my case, I know I'm going to be misquoted—I just never know how. Sheldon Smith (June 1987, "Letters to S&C") quotes me as follows: "He then makes the statement that he has a block on trading; for him nothing works." Where does Mr. Smith get his issue of STOCKS & COMMODITIES from—the Twilight Zone? I never made such a statement, nor do I believe it is true. Yes, in substance I did say or imply that I am not a "great" trader, I've never developed a "great" system, and my market calls are not always right. Nevertheless, I am a winning trader, I have developed good trading systems, and I've made enough good market calls to be in my current position (Director of Futures Research and Managed Trading at Paine Webber) or comparable positions since 1973. I don't see any contradiction between this reality and the substance of my statements.

As for Mr. Smith's suggestion that I do my own company a favor and find another occupation, I am confident that very few commodity brokers at Paine Webber would share that assessment. Finally, with regard to refusing royalties from my book, I can assure Mr. Smith that I have a very clear conscience on that score. I did not write my book to make money. If that were my motive, I could have sold twice as many copies by leaving out the hard stuff, cutting the length in half, and using a sexier title. My goal was to write the best general book on the futures markets, and to do so from a perspective of the real trading world (i.e., not an academic treatise). It is not only my belief, but the opinion expressed by every review of the book that I have ever seen, that readers get their money's worth.

There is enough hype in our business without my contributing to it. I think Mr. Smith has confused the difference between honesty and failure.

JACK SCHWAGER

*Dir. of Futures Research &*

*Managed Trading*

*Paine Webber, Inc.*

*New York, NY*

## **Corrections**

Editor,

My article on "How to Select Takeover Candidates" was published in the May issue of STOCKS & COMMODITIES. I was gratified that many of your readers called me to say that it was an excellent article. Many have also noted the transposition errors of several charts in the article. Specifically, the DCV and price charts on Figures 4, 5, 7, 8, 9, and 10 were transposed. Further, the charts for Beatrice (Figures 6A and B) should have been those for USG (Figures 5A and B) and vice versa.

The above article represents about 40% of a report entitled "Market Timing Report for Special Situations" that is available to your readers for \$50. The address for payment is 13616 N.43 St., Suite 200, Phoenix, AZ 85032.

Thank you for the opportunity to set the record straight.

*Errors were made by STOCKS & COMMODITIES. The corrections mentioned were published in the August issue.*

### **More Kille/Drinka**

Editor,

I am writing to you in response to your editorial in the March edition soliciting reader suggestions. First let me say that I began subscribing to STOCKS & COMMODITIES early this year. I am absolutely delighted with your publication and eagerly await the arrival of each new edition. I almost immediately ordered Volumes 1,2 and 3 of your back issues.

I am a tyro in the field of commodities investment, however, much experienced in other areas of financial endeavor. I am semi-retired and have spent much of the last year studying the technical approach to commodities speculation. Fascinating, to say the very least.

Of course, the entire validity of the technical approach is based upon the reliability of historical testing of indicators. I have read my share of criticisms of the technical approach, from the Random Walk Theory on down. I do not believe that the markets are random. I hope to hell I am right because I am about to begin trading.

But doubt persists. Possibly naive questions like: If studies like those of Drinka and Kille are really valid, why isn't almost everybody using them? Why do the studies out-perform the public funds by such wide margins? Don't the funds own PCs? Why isn't everyone rich? Is it all bad frills?

You get the point I'm sure. And I'm sure that these same questions run through the minds of many of your readers. I think it would be a great service to your readers, and possibly a seminal contribution to the field of technical analysis, if you could run a series of studies that would help lay these nagging doubts to rest. I suggest the possible use of the Drinka studies on T-bond, silver and corn indicator performances as a beginning.

T-bond and silver studies use the 1981-1985 periods. If the same indicators were tested for the preceding 5-year period, 1976-1980, and the same optimizing procedures were used, would the test of parameters of each indicator have been the same as the parameters arrived at for 1981 - 1985? And if different, how would they have performed if projected through 1981-1985?

The corn study covers 1979-1983. How would those indicators with those parameters have done from

1984 through 1986? How would the Eurodollar have done in 1986?

The result of such a series as I suggest would make breathing a lot easier for many of your readers. . . I hope. I should also like to suggest additional information that might be included in future studies of the Drinka-Kille type:

1. P/L performance for *each* of the years studied
2. Return on margin capital
3. Largest string of losses
4. Average net profit
5. Risk to return ratio
6. Standard deviation
7. Coefficient of variation of average profit

One other suggestion for a possible article...the pros and cons and possible pitfalls of optimization. And, oh yes...how do I get back copies of your 1986 issues?

RICHARD M. FIRESTONE

*Helmuth, NY*

*Demand for various permutations of the Drinka-Kille series has been high, but both these folks have full-time work. They are interested in some new areas which we'll be publishing soon. Software to do this set of analysis is available to answer each individual's concerns. Regarding back issues, they are available for \$8 each, or \$79 for the set. Order information can be found on the back issue card in this issue.*

**Definition**

Editor,

The May 1987 issue contains a brief discussion of the Trading Liquidity: Futures report. The discussion makes reference to "3-Year Maximum Price Excursion." Would you please explain precisely what that term means? Thank you.

MARK LEVINE

*Sherman Oaks, CA*

*An "excursion" is the range of prices over the last three years.*

**Programming CompuTrac**

Editor,

Never mind the criticism from some of your readers. STOCKS & COMMODITIES has become the number 1 magazine in its field.

I really enjoyed the article where you interviewed Larry Williams. Next time you interview him, ask him to discuss in more detail some of the technical principles that he feels are most important (like he briefly mentioned volatility). This way he could discuss the principles without revealing the secrets and give the rest of us something to work on. I imagine he is the type of fellow who would enjoy stimulating a few thousand minds to see what any of us could come up with.

Can you let me know where I can get reprints of those articles by Cliff Sherry that you mentioned?

Another interesting article you might place in the magazine would be a three or four part series on programming the CompuTrac User Study. There are several thousand members in CompuTrac right now and I imagine many of them are your readers. Such an article would be most informative because CompuTrac really didn't do that great a job in explaining how to use that portion of the product. I bet Jack Hutson could help out there. Keep up the good work.

JOHN BAKER

*Tolar, TX*

*We are interested in this idea of running an occasional column or page in the magazine devoted to the CompuTrac User Study application. We are forwarding a copy of your letter to Tim Slater at CompuTrac to see if he may have some material and suggestions as to how we might be able to initiate this. Regarding the Cliff Sherry articles, back issues of STOCKS & COMMODITIES can be purchased for \$8 each or as sets of the volumes. Ordering information can be found on our back issue card in the magazine.*

# The TEM Trading Systems and how it all began

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*by William Cruz*

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The last thing on my mind when I started trading futures in the mid-1970s was developing and marketing a trading system. In fact, if someone had told me back then that I'd be trading full-time and actually making a great deal of money at it I would have probably thought they were nuts!

But as they say, reality is stranger than fiction, and that's just where I find myself today. In just the past four and half years, I've gone from being a consistent commodities loser to a very profitable winner. Since Jan. 1, 1985, my research account has increased 398% without any addition or withdrawals of funds. What makes this fact even more satisfying to me is that I've been able to help several hundred other traders make the same turnaround.

How did it happen? What caused such an extreme change? The TEM system I developed which uses an unusual combination of technical and cyclical analysis to pinpoint exact buy and sell points.

The sequence of events that led to its discovery started in November 1979. I was experiencing what was, at that time, a very usual year. I had had some big wins during the year, but, unfortunately, they weren't big enough to cover my losses. Consequently, I was in the red again.

Shortly thereafter, I had an experience which would drastically change my trading career and life for the better. I received a letter in the mail which seemed too good to be true. It described a trading system which could successfully trade every commodity under the sun with one simple formula.

Its numbers were impressive, but then again, it only had an 18-month track record. Putting my reservations aside, however, I dished out the hefty \$3,000 purchase price and waited for my "super system" to arrive.

Chances are you know how my experience turned out. After spending more than 40 hours just learning how to run the darn thing, the system turned out to be a terrible flop. This disappointing experience brought me to the realization that nobody really had found the answers and private research was the best course to follow.

I started my research of cyclic analysis in the early part of 1980. I had always been fascinated with price cycles and the theory of "mirrors in time," so I knew from the beginning I wanted to concentrate on cycles. From the beginning, I decided to focus all of my time and energies on one commodity. I had learned long ago that specialization is the only way to achieve true success in any field. As a violinist by training, the early days saw me constantly juggling between daytime research and nighttime concerts and rehearsals. Luckily, my line of work gave me quite a bit of free time to devote to the markets. Initially, I read everything I could find concerning cycles and the effects of time on market movements. Ultimately, however, I decided the best course to follow was to start entirely from scratch and discard all of my preconceived notions.

On June 9, 1981, I finally made the breakthrough which had eluded me for so long. I discovered a series of historical time cycles which predicted major market movements years in advance with astounding accuracy. I named it the TEM Cycle Series for Time Extraction Method.

Further testing revealed that, although the TEM Cycle Series produced huge profits, it occasionally sustained excessively large drawdowns. I realized this flaw would make it impossible for me to trade the system, so I went back to work. Several months later I discovered that by combining the TEM Cycle Series with certain technical analysis techniques, drawdowns were decreased by 73% without reducing profits. This was the final breakthrough which led to the development of the first TEM system, the TEM Pork Bellies System, in 1983.

There was still one more problem to be solved, however. My research and development costs had left me very short on funds, consequently, I found myself without enough money to trade my new system.

I solved this dilemma by publicly offering 100 copies of the Bellies system to traders for \$975 each. The system had been tested with 10 years of historical data and within a few weeks I was completely sold out and had raised enough seed money to seriously start trading TEM.

TEM's first full year of real-time trading resulted in a net increase of 105%. During the next few years, I applied TEM's trading formulas to other markets, all with similar results. First came the TEM Cattle System in 1985. In its initial year of real-time trading it generated a net profit of 142%. One year later, in January 1986, I introduced the TEM T-Bond system. The Bond system's first year of actual trading produced a return of 167%. And finally, this year, we released the latest TEM system, the TEM S&P 500 Trading System, which generated net profits totaling \$34,090 since its release on January 1, a 150% gain.

The heart of these systems is the TEM Cycle Series which is not made up of one or even two "master" cycles that forecast major tops and bottoms. The series is actually made up of several separate cycles, each one fitting into a different time frame of market activity. There are four distinct phases for each cycle: up, down, reversal up and reversal down. The phases are the master framework for day-to-day trading.

My research has led me to believe there are nine separate cycles which make up the entire series. So far, I have discovered only six of them and found they forecast 87% of all major market movements. Although the remaining three cycles have eluded me for six years now, I am extremely confident that they, too, will be eventually discovered and incorporated into TEM.

A less sensational, but also very important reason for TEM's trading profits is my philosophy of trading. By philosophy I mean the "Strategic Trading Principles" which form the foundation of every TEM system. The five most important of these principles are:

Specialization—I realized many years ago, that to make real money and keep it, a system must be fine-tuned to react to the subtle movements of a specific market. For this reason, I developed each TEM system to trade only one commodity.

Small drawdowns—A trading system that generates huge profits is great, but the question is, Did you have enough capital to see the trade through? This is where small and manageable drawdowns are crucial. I have never been one to believe that you have to risk a fortune to make one. I employ a special filtering process to keep drawdowns to within 5% to 6% of capital gain.

Longevity—Long track records ensure that a system's profits are not due to some fluke that occurred during a certain time period. Before any trading formula is incorporated into a TEM system it is first tested for profitability over at least 10 years of historical data.

Restricted Distribution—In the past I have seen many, very good systems made worthless because of

over distribution. To prevent this from happening to TEM, the availability of each new system is always strictly limited. Once the cutoff point is reached for a specific system no more are made available at any price.

Real-time Proven—As every trader knows, the ultimate test of any system is real-time trading. Unless a system can handle the rigors of actual trading, with its slippage and commissions, it is not truly a trading system.

These five principles have guided me in the research and development of all TEM systems. Now, naturally, I would never imply that they represent the only areas one should look at when analyzing a trading system. They do, however, represent a very solid starting point from which to begin your own evaluation process.

In the final analysis, the only true judge of any system is the profits which it produces for its followers. Six years ago I was fortunate enough to uncover a system which has been profitable. These profits have convinced me that the futures markets definitely do offer "hidden fortunes" to traders determined enough and stubborn enough to find them!

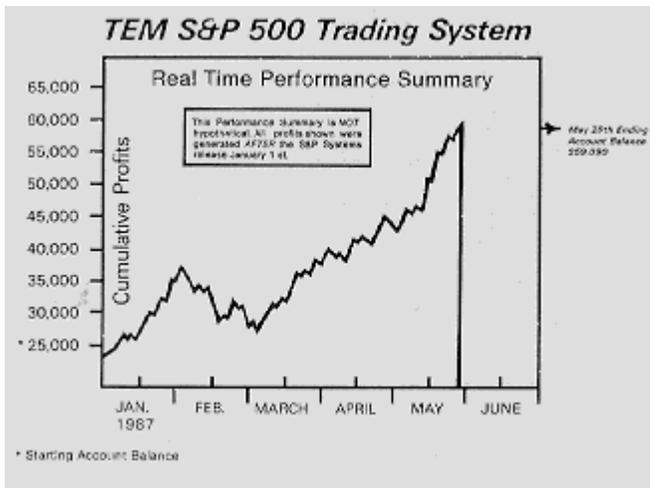


FIGURE 1:

# War Stories from Commodex

*by Philip Gottself*



Unforgiving is a word frequently used to describe both markets and subscribers to stock or commodity advisory services. When we in the advisory business make profits, it is never enough. When we experience losses, we are never forgiven.

While most experienced investors suggest it is imprudent to attempt picking absolute tops and bottoms, such as "crystal ball" performance *is* expected from "experts" who publish newsletters that cost hundreds or even thousands of dollars a year. Hence, we try to develop market models and fundamental analysis that come as close to perfection as possible. In addition, we must establish sufficient discipline to effectively abandon our pursuit of the top or bottom when an approach fails or exposes us to excessive risk.

In March 1987, we favored the short side of gold (Figure 1). An interim top formation seemed to have been established and the dollar's decline had stalled. Based on basic parity, we felt gold would come into alignment with foreign currencies. The drop from January highs seemed to confirm that gold had overextended the dollar's fall.

Brazil's announcement that its interest payment would be stopped failed to push gold beyond the critical 41760 resistance in April gold. Therefore, we thought we were safe with a short position using a 41760 buy stop and a 39015 objective. Obviously, we were looking for a quick \$10 to \$15.

We were wrong. By the last week in March, prices had violated our stop and an unusual increase in the rate of open interest growth in silver convinced us that our strategy had to be quickly reversed.

Prime interest rates had been bumped up by several major banks. Strength in meats and grains hinted that inflation was creeping higher. The continuation of the dollar's slide supported arguments that foreign goods would become more expensive.

The difficulty was changing from short to long within a single week. Too often, we tend to become gun-shy after being proven wrong. However, successful trading requires flexibility and an open mind.

Once indications changed, our recommendations had to follow the market.

On April 2, *Commodities Futures Forecast* recommended buying June gold at market and on declines of \$7 to average in. In addition, we advised buying July silver (Figure 2) at market and on declines of 14 cents. Many found these signals difficult. Both metals had already moved substantially higher when compared with previous price ranges. The positions were held while silver made limit-up moves and excitement grew.

Where was the top? As most traders realized, charts provided little guidance since we were in new high territory and no consolidations were apparent. The Relative Strength Index (RSI) and stochastics would have exited both markets well in advance of the top.

We resorted to detailed analysis of volume and open interest using the COMMODEX Trend Index as an oscillator. Past experience showed that Trend Index speed would probably decrease as a top was approached. Speed could be measured as the slope of the Trend Index line or a first difference equation. When the amount of cash entering a market slows down, trends usually lose momentum. Of course, precise timing is almost impossible particularly when an advisory publication goes to press weekly.

Fundamentally, arguments for gold remained the same. Silver raised new questions. Who would want silver at prices exceeding \$9? Regardless of arguments, silver usage has not grown to justify such high near-term prices. The market was becoming overbought. The near vertical price line was vulnerable to a sharp break. Since "Key Reversals" usually provide a reversal window, we calculated that silver would have to correct 60% from limit (approximately 30 cents) before being vulnerable to a major sell-off.

Thus, the strategy for Thursday, April 23, was to place a reversal stop in July silver 32 cents under its high. As protection on new short positions, a trailing 11-cent stop was recommended.

On Friday, silver rapidly climbed the expanded limit. We placed stops and assumed nothing would happen for the remainder of the day. However, silver broke and our reversal stop was hit.

Regardless of our convictions, panic set in. Had we sold into a major bull move? Was this only a slight correction? Fear mounted as the downturn slowed just 50 cents off limit.

Then, prices crashed. We were saved. Within minutes after moving limit down we scrambled to place our 11-cent trailing stop above the market. Before long, prices bounced up and took us completely out.

There is a saying, "It is better to be out wishing you were in than in wishing you were out." In the case of silver, this could not have been more true. While it appeared we had picked a top, the reality is that strategy deserves the credit. Perhaps this is the most important lesson. When a market has the potential to turn, strategy should be adjusted.

### **Turning points**

How can you design a trade that has the greatest chance to pick a top or bottom with the least exposure? Reversal stops and "trailers" offer the most flexibility but, obviously, we do not want to place reversal or trailer stops prematurely. We should have some feel for when the markets might turn.

Accumulation and distribution measurements are extremely helpful for picking turning points. Cash moves markets. In futures and options, cash can be exactly calculated by multiplying initial margins plus variation margins by open interest. For example, an increase of 10 contracts multiplied by a \$5 price change in gold leads to \$5,000 in variation margin plus the initial margins. The more cash entering, the

stronger a trend becomes.

On the other hand, a decrease in cash often signals a change in price speed or direction. Obviously, the less money there is, the less the chance for gain.

The Trend Index acts as an accumulation/distribution oscillator. Effectively, the index is derived from changes in price, volume, and open interest. As positions accumulate with rising prices, the Trend Index moves higher. If positions build on falling prices, the Trend Index falls.

Unlike popular price-only indicators that tend to mirror chart movements, it is possible for the Trend Index to turn before prices change direction or speed. This is because 20% of the index is based on open interest and 20% on volume.

Imagine you are selling the only house on a block in an attractive area. If a single buyer comes along, there is likely to be a long negotiation. If a second buyer enters the picture, you are more likely to achieve a better selling price. If another house is constructed B next door, prospects change again.

Counting the number of houses for sale and the number of qualified buyers is similar to the way the Trend Index operates. Even though prices may be moving up, we can predict a top is near when the number of interested buyers begins to decrease. This was the case for silver. The Trend Index leveled off. In other words, cash was entering the market at a decreasing rate. At some point, price would be forced to correct.

Why are market cash flows so important? Too often, prices simply do not provide sufficient information for anticipating tops or bottoms. A major complaint against RSI and stochastics centers on the fact that these indicators mimic rather than lead price action.

Conduct your own experiment. Use a straight edge to vertically line up RSI with prices. Do the same for stochastics. You will notice the lines move in concert. Thus, only a high or low value can lead to assumed over-bought or oversold conditions.

When markets move in limits, price indicators peak or bottom well before a move is over. If traders begin taking profits, the Trend Index will change speed or direction even if prices continue trending. Therefore, we have a chance to institute reversal strategies at more appropriate times.

### **To Chase Or Not To Chase?**

How many times have we watched a market run away because we tried to pick a price or were afraid to take a plunge? In late January, April cattle "gapped" up leaving a hole between 60 and 61 cents ([Figure 3](#)). After failing above 62 cents, it seemed the gap would be easily filled. However, this was not the case.

Fundamentally, all indications pointed to higher prices. Yet, the gap loomed as an inevitable retracement goal before any major breakout. For the sake of a few cents, we could not resist an attempt to pick a bottom in cattle before going long.

With hindsight, the correct strategy would have been to buy April or June cattle at the market in accordance with fundamentals. Then we should have added to the long position on dips to the 60/61 gap. That would have been too easy. Instead, we went against the fundamentals and sold April cattle with a 6010 objective. We were chasing 3 cents. To add insult to eventual injury, April prices came within inches of our objective before making a decisive spike higher that dashed our hopes for success before expiration.

Rather than admit total defeat, we bought June cattle at the market and suggested adding to the position on declines of 75 points. We were still trying to wish the market lower to prove we could, in fact, pick a bottom. Alas, we finally decided to abandon our foolishness and cover April before being stopped out.

Our behavior was far from unique. A good percentage of "war stories" are really "fish stories" about the one that got away. If April had achieved our short side objective, we would have been heroes. Yet, the trade was not sound. Most experienced chartists know that gaps do not have to be filled. In this case, ego was in the way of progress.

In a market where the rule is "cut losses and let profits run." we must be able to "commit and stick." If your analysis says buy, don't try to squeeze a few extra points. Commit to your strategy and stick to your plan.

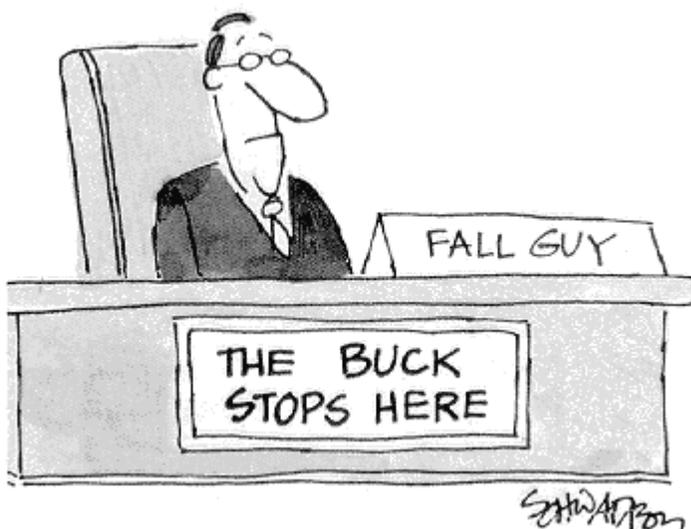
Over the years, we have experienced many market battles with many "war stories." For some reason, it seems almost impossible to prevent ourselves from making the same mistakes. While it is easy to preach discipline, actions prove that practice is always more difficult.

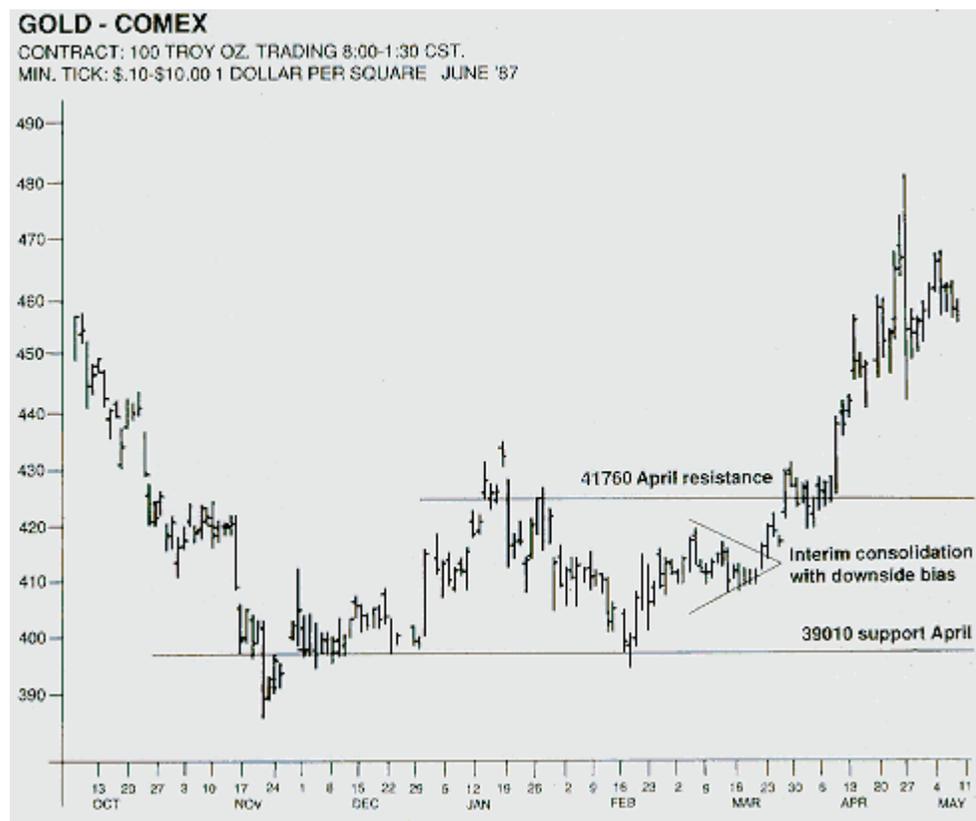
I have found that while I may repeat common human behavior by overstaying or trying to pick tops or bottoms, I have learned to face the music when I am wrong and take steps to make it right. I remember the poem my father used:

*"I Never saw a perfect trader, nor ever thought there'd be one. But I can tell you anyhow, I'd rather be than see one!"*

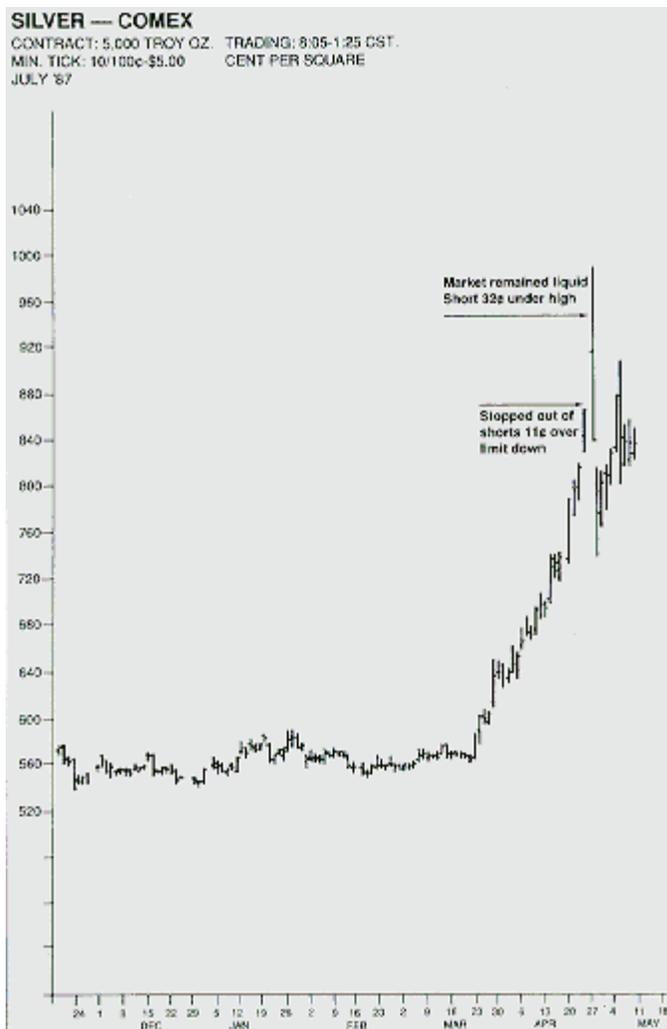
**In a market where the rule is "cut losses and let profits run." we must be able to "commit and stick."**

*Philip Gotthelf is President of EQUIDEX Incorporated, 7000 Boulevard E., Gutenberg, NJ 07093, 1-800336-1818, publishers of the COMMODEX System for futures trading and the Commodity Futures Forecast Service. A graduate of Lehigh University with a B.S. in economics and finance and a minor in statistics, he is known for extensive work in the futures industry and is regarded as a futures industry expert.*





**FIGURE 1:**



**FIGURE 2:**



**FIGURE 3:**

## IN THIS ISSUE

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by John Sweeney, Associate Editor

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Why look at all these trading systems we've been reviewing? After all, this is a do-it-yourself publication, right?

Well, my best hope is that new ideas will come out that will help your trading. Given the miserable records of most published systems, it's too much to hope you'll find the Holy Grail! Let's settle for some inspiration.

One thing I hadn't counted on was the intense pressure vendors will put on you once you start reviewing their products! We routinely send the draft reviews to them to correct any errors and omissions we may have made. You can imagine the results, I suppose, but, for some reason, I didn't.

Mel Cassidy, whose J.C. Productions product we review in this issue, got back to me in a particularly grumpy mood. Despite high sales, stacks of favorable letters and good recent success, our phrasing (see "15 contracts," "both balloons," "bottom of the list") didn't meet approval. The facts weren't at issue, so we quickly got down to the business end of a long exchange:

Mel: "Anyway, John, please, let's pass (on the review)."

John: "Well, I'm afraid we're too far down the line. I'm almost ready to put this in the machine."

Mel: "Don't put it in the machine, I don't want that article in there."

John: "Well, I'm afraid you can't stop it..."

Mel: "Well, I can stop it. Where are you, in Seattle?"

John: "Yep!"

Mel: "We don't have an attorney in Seattle, but we'll stop that article and if you print it you're in deep *bleep!*"

John: "Go for it..."

Mel, it has to be said, had just explained how this particular system had only been used by customers for five months and that they were on version 18 of it. Moreover, they were constantly changing it to adapt to current conditions and that it might stop "working" tomorrow, in which case they'd change it some more.

I was genuinely intrigued by this iterative approach (How do you know if it's stopped working?) and hoped to describe a whole new technique, but, clearly, my interview techniques failed me.

Given the enviable, if short, track record, I'd also hoped to include CF-DM in our monitoring of trading systems, but for now we'll content ourselves with Eurotrader, Volatility Breakout (reviewed next month) and the Kelly Hotline. In time, we should know much more about how all these programs do in various markets. Hopefully, we'll also learn new ways to trade today's markets while watching over the shoulders of these systems.

*Good Fortune!*

# Money supply (M2): A leading economic indicator

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*by Clifford J. Sherry, Ph.D.*

---

I want to show you an analytical technique that you can use to estimate the probability of future price increases or decreases. I'll use the money supply figures (M2) from 1948-1978 as an example, but you can apply this to any consistent, continuous series of prices. Along the way, we'll learn some interesting things about the behavior of the money supply.

Fundamentalists (and possibly some technical analysts) seem to believe that economic indicators which provide an indirect measure of aggregate supply and demand may give important insights into the behavior of the stock, and possibly the commodities and futures markets.

One subset of economists believes that money supply (M2) is one of these indicators. In fact, it is one of the 12 time series that are included in the Department of Commerce's Composite Index of Leading Economic Indicators (*Stocks & Commodities*, June 1985). The Index and its components tend to lead the economy at business cycle turns, like periods of inflation and recession by 9 to 12 months.

Interestingly, another potentially overlapping subset of economists (and the politicians they influence) believe they can manage the economy to maximize employment, while minimizing the peaks and troughs of inflation and recession. One way they try to do this is to try to increase or decrease money supply. Apparently, they believe these manipulations of money supply are independent of each other, especially if they are separated in time by more than a few months. They seem to believe if they increase or decrease money supply now, this manipulation will have little, if any, effect on manipulations (and the effects they cause) that they decide to make 3, 6, 12 or more months from now. But this may not be true.

Can money supply provide useful information? Many economists and fundamentalist traders seem to believe leading indicators are generated in a random and independent manner. If this is true, it may not be possible to use the past history of the time series to make predictions about its future behavior or the relationship between its behavior and the behavior of another time series (i.e., stock prices) you might be interested in. But, if money supply is not random and independent, it may be possible to detect patterns that can provide you with useful information you can use when making your trading decisions.

I have developed two different techniques that can help determine if a time series is independent or not. Both of these techniques have been described in detail in *Stocks & Commodities* and are based on the relative (October 1985) and absolute (April 1986) changes in the time series.

Briefly, to use the first technique, you compare pairs of values (monthly determinations of money supply) to determine if the first value is larger or smaller than the second and record a "-" or a "+", respectively. After you have examined all of the available values, you will have a long series of +'s and -'s. You then arrange them into a series of transition matrices. In the simplest case, this specifies the frequency that a "+" is followed by a "-" or a "+".

Next, you construct transition matrices with a "lag": that is, you will use the first value and the third, ignoring the second. Lastly, you will compare each of these matrices with one generated under the

assumption of independence, using the chi-square statistic. This comparison will be used to find time frames within which previous changes in the time series impact future changes.

The lagged transition matrices for the lag of 12 months and the lag of 24 months, including the observed and theoretical frequencies and the calculated chi-square statistics are shown in [Figures 1 and 2](#), respectively. Both of these comparisons are highly statistically significant, thus indicating that sequential changes in money supply are dependent for at least 24 months.

To use the second technique, you determine the amount and direction of changes in adjacent pairs of values of money supply. Then collect these value changes into a histogram and divide the completed histogram into parts, like thirds. Examine each value change and determine to which third it belongs and write a 1, 2 or 3, respectively, depending on if the value change belongs to the first, second or third section. A 1 would represent a value change of M2 of -5.8 to +0.1 (billions of dollars), while a 2 represents a change of +0.2 to +1.3 and a 3 a value change of +1.4 to +6.2. These transformed values are collected into transition matrices as indicated above.

The matrices for the lag 2, 12, 24, and 36 comparisons are shown in [Figures 3 through 6](#), respectively. The lag 2 comparison is highly statistically significant, while the lags 12 and 24 approach statistical significance and lag 36 is not significant. This means that money supply is dependent for two but probably not three years, confirming our earlier information.

These transformed values can also be used to create various types of value change density histograms, as described in detail in *Stocks & Commodities* (June 1986). For example, [Figures 7 through 9](#) show the relationship between a 3 and the next sequential 3, the second sequential 3 and the tenth sequential 3. If you examine [Figure 7](#), you will note that if a 3 occurs, the next sequential 3 is most likely to occur in the next succeeding month. If you skip a 3, as shown in [Figure 8](#), the next succeeding 3 is most likely to occur in the third to fifth succeeding month. After that, it is unlikely to occur. When you leave out nine sequential 3's, the next succeeding 3 is most likely to occur in the 12th and 17th succeeding months, rather than in the tenth. A similar pattern can be seen in [Figures 10 through 12](#) for sequential distribution of 1's. You should conduct similar studies on your favorite trading vehicle.

## **Perhaps the most interesting and important pattern emerges when you use the triggered value change histogram to trigger on a 3 and collect the first sequential 1 to occur...**

If you trigger on a 3 (a large price increase) and then collect the distribution of 1's (large price decreases) that occur before another 3 occurs, you get a histogram like the one shown in [Figure 13](#). Clearly, a 1 is most likely to occur shortly after the first 3. [Figure 14](#) shows the distribution of 3's between two sequential 1's. This pattern is even more striking here.

If you trigger on the first month of the year and collect the first 1 or 3 that occurs, you will have histograms like those shown in [Figures 15 and 16](#), respectively. Clearly, a 1 or a 3 is most likely to occur at the beginning of the year. This relationship is statistically significant.

Perhaps the most interesting and important pattern emerges when you use the triggered value change histogram to trigger on a 3 and collect the first sequential I to occur, using each I once and only once. This histogram is shown in [Figure 17](#). If you examine it, you will note that a I is most likely to occur

25-27 months after the 3. If a decrease in money supply following an increase were independently distributed, the probability of a decrease in any given month, in a 27-month period, would be 0.014, while the actual probability of a decrease at 25 months is 0.135, and at 26 and 27 months, the probability is 0.176 and 0.243, respectively. This deviation from independence is highly statistically significant and strongly suggests that changes in money supply are time-locked to each other, over a period of about 2 years. A similar pattern can be seen in [Figure 18](#), which shows the distribution of 3's after the occurrence of a 3, using each 3 once and only once. If you believe that your stock or other investment is tied in any way to money supply, this can be a very important bit of information.

On the whole, this data clearly suggests, using a number of different techniques, that the time series money supply (M2) contains significant serial dependencies and therefore diverges from statistical independence. This implies two things. First, studying the past history of this important time series could potentially provide important insights into its current and future behavior. For example, the time-locked phenomena disclosed in [Figures 17 and 18](#) are potentially very important. Secondly, and possibly more importantly, anyone who uses money supply as an estimator or one of a series of estimators in a predictive model of stock market behavior and fails to take into account these divergences from independence, will find that his predictions are flawed. I believe that all modelers, whether they are technicians or fundamentalists, must be made aware of these divergences from independence and incorporate this knowledge into their model, which will improve the performance of the model.

*Dr. Sherry is a neurobiologist and free lance writer with advanced degrees in psychology from the Illinois Institute of Technology. He has spent most of the last 20 years trying to understand how the nervous system processes information. He has developed a number of statistical techniques to deal with complex time series. He is not an active trader, but continues to spend his time developing new methods to detect signals in noise.*

**Lag-12 relative price change matrix**

---

	+	-
+	186 60.83 257.56	78 121.65 15.64
-	76 121.65 17.14	25 68.83 27.91

---

Chi-square = 318.50

**FIGURE 1: Lag-12 relative price change matrix.** *The first number in each group is the observed frequency of that pattern, the second number, the theoretical frequency of that pattern under the assumption of independence and the third number, the chi-square value for that pattern.*

**Lag-24 relative price change matrix**

---

	+	-
+	176 57.01 248.35	69 113.98 17.75
-	65 113.98 21.05	32 57.01 10.97

---

Chi-square = 298.12

**FIGURE 2: Lag-24 relative price change matrix.** *The numbers are arranged in the same manner as in Figure 1.*

**Lag-2 "value change" matrix**

---

	1	2	3
1	73 38.68 30.45	35 41.83 1.11	10 40.25 22.73
2	36 41.83 0.81	61 60.61 5.50	35 43.53 1.67
3	10 40.25 22.74	34 43.53 2.09	83 41.89 40.35

---

Chi-square= 127.45

**FIGURE 3: Lag-2 "value change" matrix**

**Lag-12 "value change" matrix**

---

	1	2	3
1	31	49	28
	37.55	40.60	39.08
	1.14	1.74	3.14
2	45	43	48
	40.60	43.91	42.26
	0.48	0.02	0.78
3	36	36	50
	39.08	42.26	40.67
	0.24	0.93	2.14

---

Chi-square = 10.61

**FIGURE 4: Lag-12 "value change" matrix**

**Lag-24 "value change" matrix**

---

	1	2	3
1	25	31	48
	36.42	39.38	37.90
	3.58	1.78	2.69
2	34	52	39
	39.38	42.59	40.99
	0.74	2.08	0.10
3	49	41	36
	37.90	40.99	39.44
	3.25	0.00	0.30

---

Chi-square = 14.52

**FIGURE 5: Lag-24 "value change" matrix**

**Lag-36 "value change" matrix**

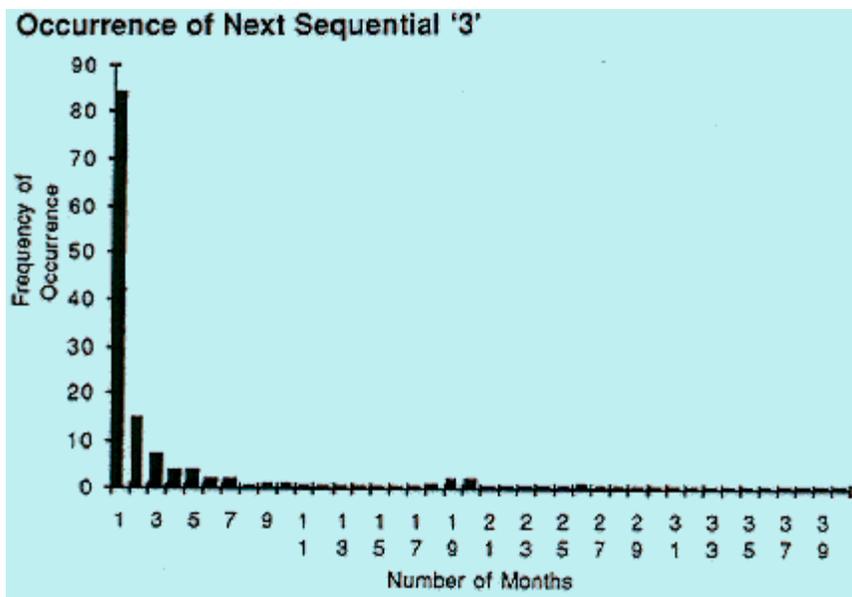
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	1	2	3
1	30 35.29 0.79	36 38.17 0.13	33 36.72 0.38
2	43 38.17 0.61	45 41.28 0.33	35 39.72 0.56
3	35 36.72 0.08	42 39.72 0.13	45 38.21 1.20

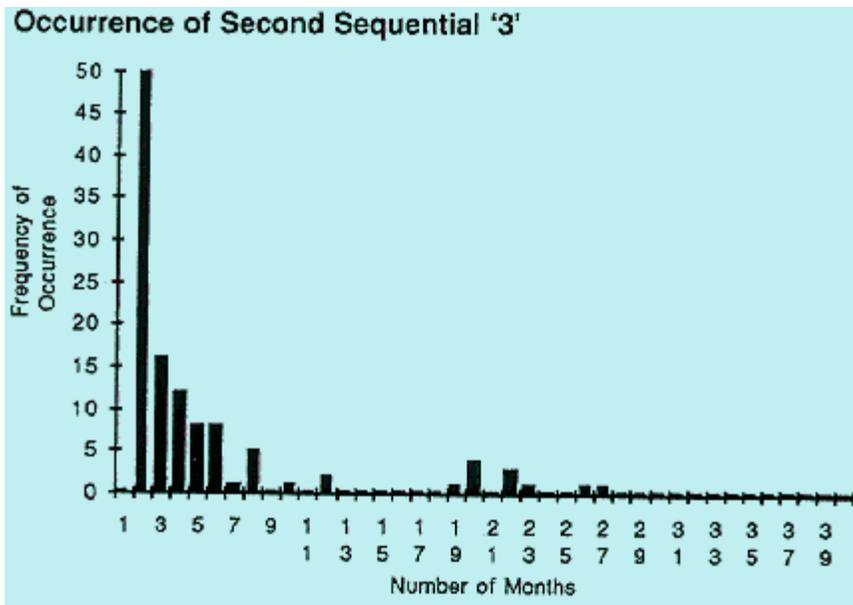
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Chi-square = 4.21

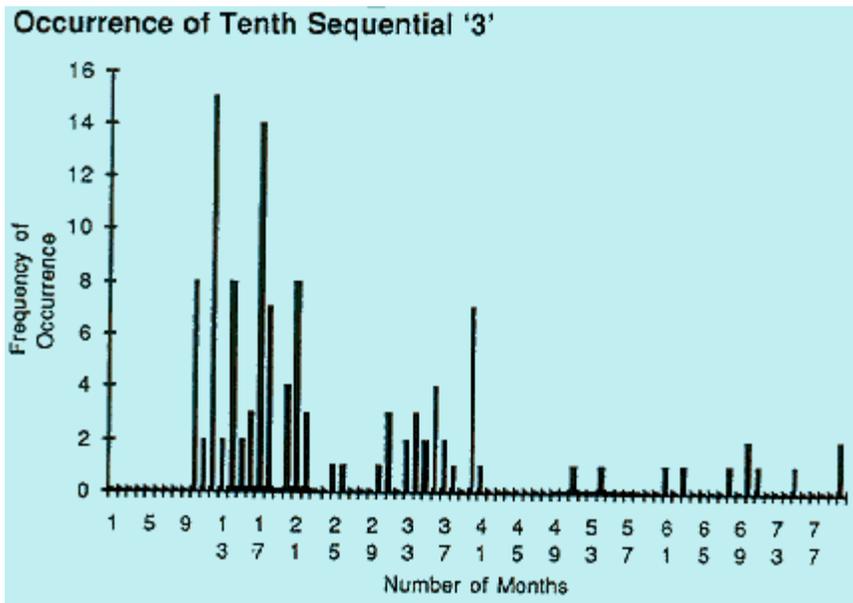
**FIGURE 6: Lag-36 "value change" matrix**



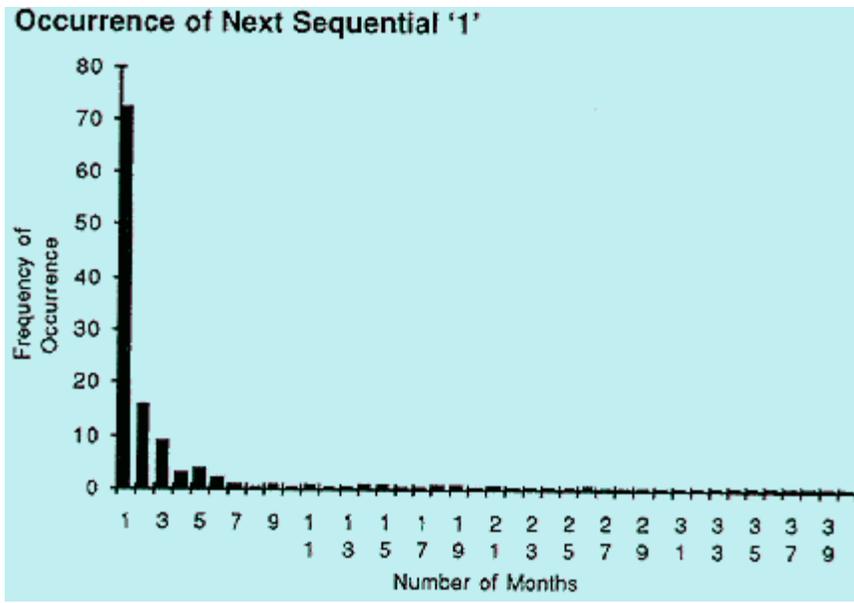
**FIGURE 7: Occurrence of Next Sequential '3'**



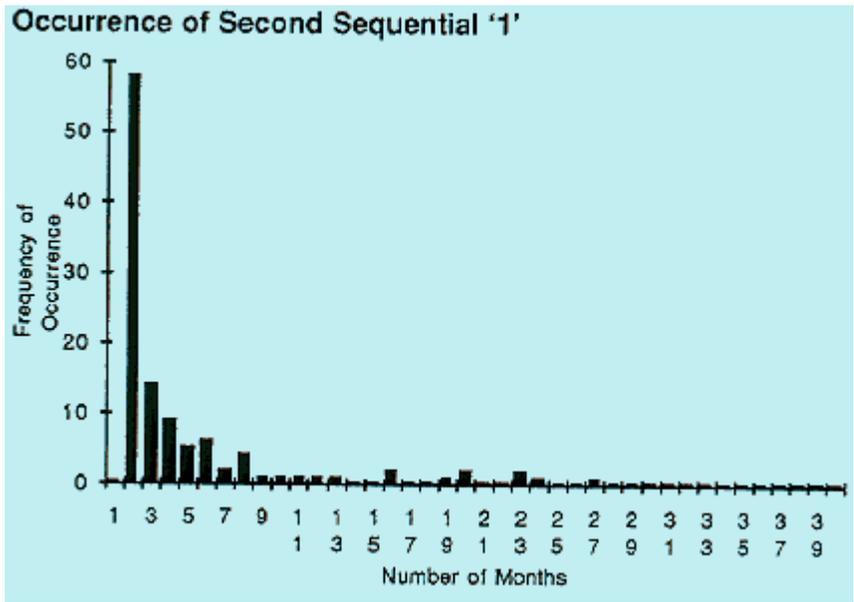
**FIGURE 8: Occurrence of Second Sequential '3'**



**FIGURE 9: Occurrence of Tenth Sequential '3'**



**FIGURE 10: Occurrence of Next Sequential '1'**



**FIGURE 11: Occurrence of Second Sequential '1'**

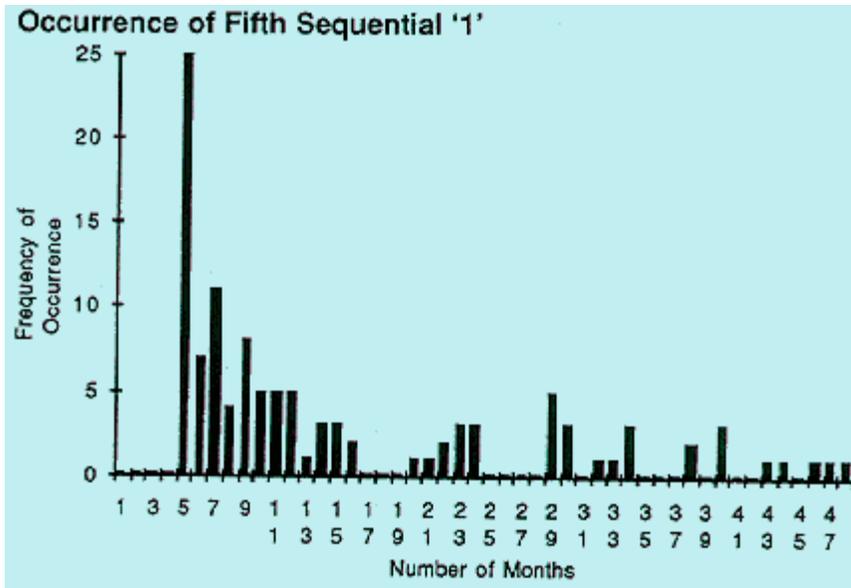


FIGURE 12: Occurrence of Fifth Sequential '1'

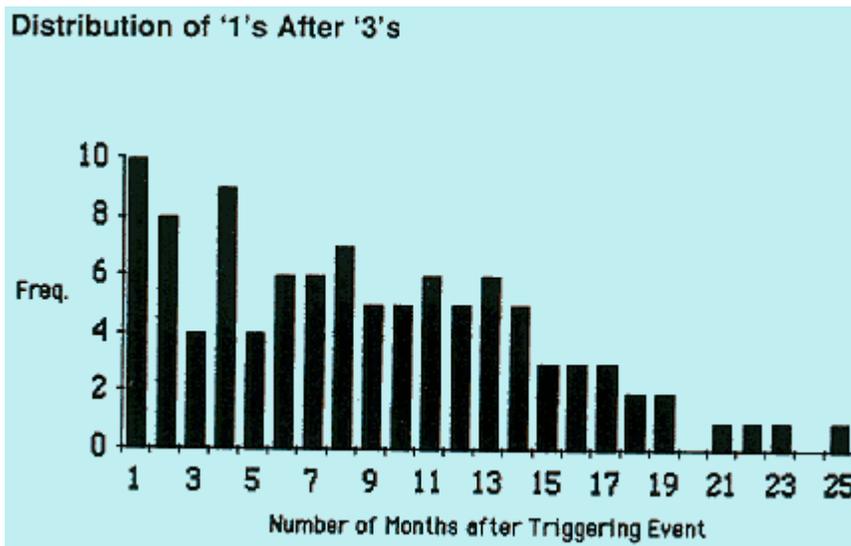


FIGURE 13: Distribution of '1's After '3's

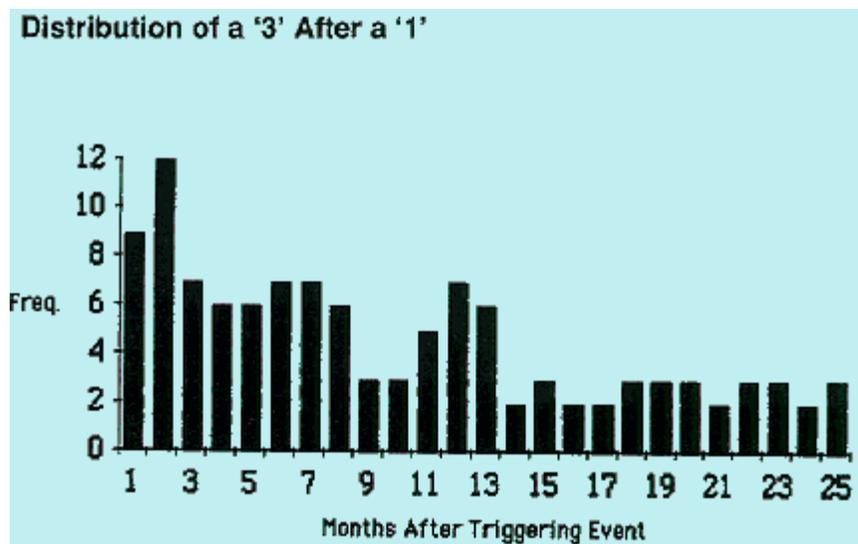


FIGURE 14: Distribution of a '3' After a '1'

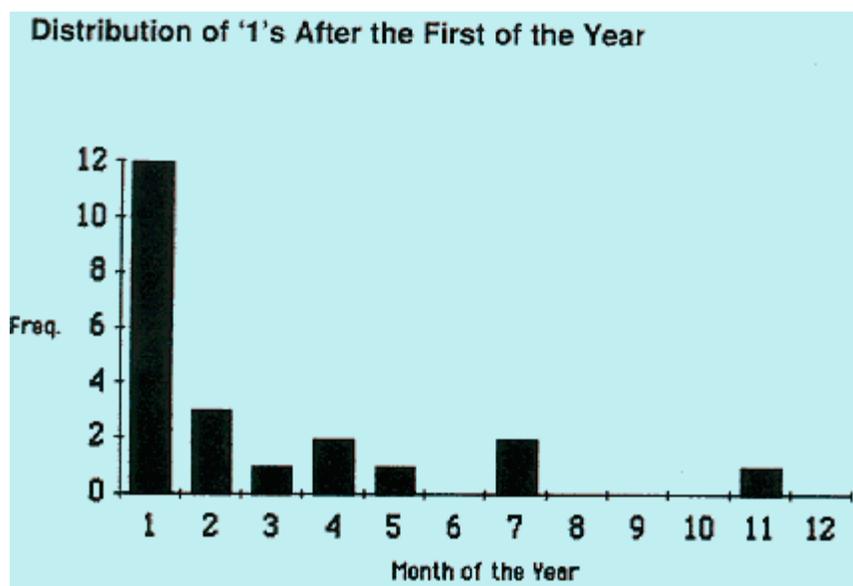


FIGURE 15: Distribution of '1's After the First of the Year

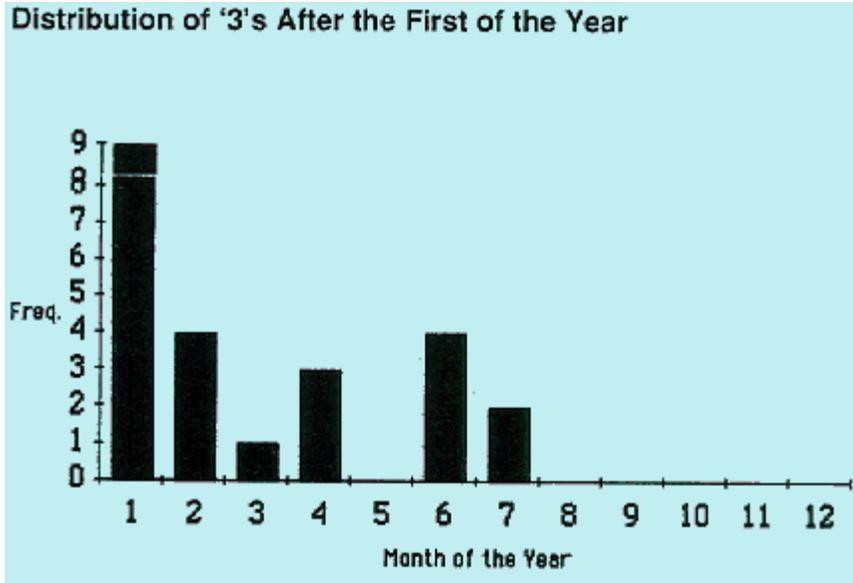


FIGURE 16: Distribution of '3's After the First of the Year

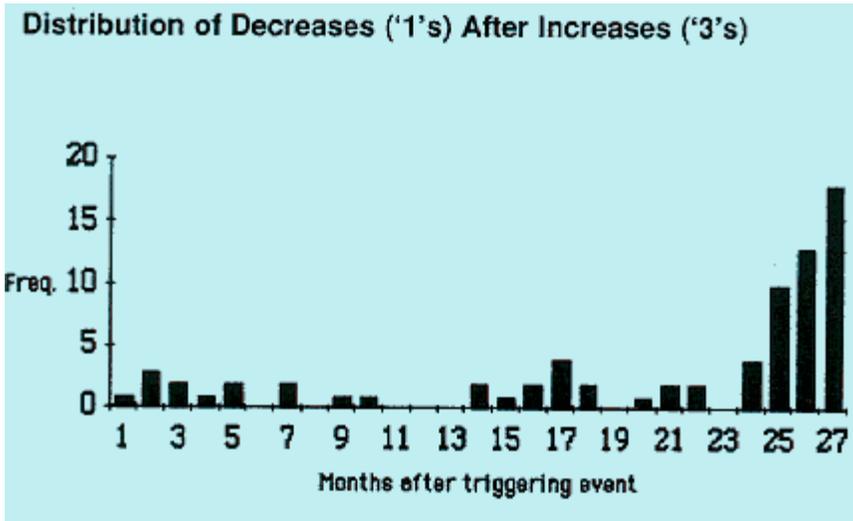


FIGURE 17: Distribution of Decreases ('1's) After Increases ('3's)

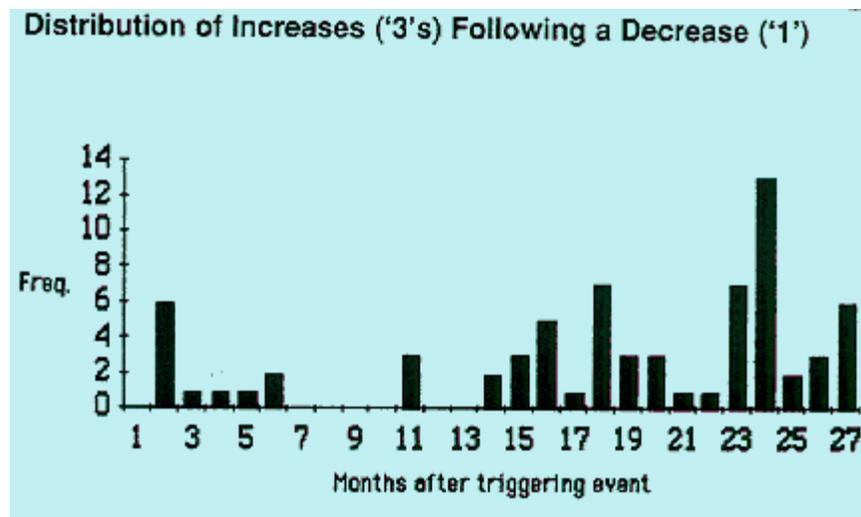


FIGURE 18: Distribution of Increases ('3's) Following a Decrease ('1')

# POINT/ COUNTERPOINT

I believe there are some major flaws in the statistical reasoning in Curtis McKallip's article "Investigating Chart Patterns Using Markov Analysis" (**STOCKS & COMMODITIES** December 1986). Using the raw numbers from his transition matrix, I believe that the observed probabilities for the pairs of states should be as follows:  $p_{1,1} = 58/309 = 0.1877$ ;  $p_{1,2} = 15/309 = 0.0485$ .

Thus the probability of a 1, 2 or 3 is  $78/309 = 0.2524$ ;  $139/309 = 0.4498$  and  $92/309 = 0.2977$ , respectively. If we assume independence, the probability of a 1,1 is equal to  $p_1$  times  $p_1$  or  $0.2524$  times  $0.2524 = 0.0637$ . We can use standard chi-square methods to compare these two transition matrices:

<b>Observed Probability of Pairs</b>			
	<b>1</b>	<b>2</b>	<b>3</b>
<b>1</b>	0.1877	0.0583	0.0065
<b>2</b>	0.0485	0.2782	0.1262
<b>3</b>	0.0162	0.1133	0.1650

<b>Expected Probability of Pairs Assuming Independence (Markov Level 0)</b>			
	<b>1</b>	<b>2</b>	<b>3</b>
<b>1</b>	0.0637	0.1135	0.0751
<b>2</b>	0.1135	0.2003	0.1339
<b>3</b>	0.0751	0.1339	0.0886

$$\chi^2 = \sum_1^9 \frac{(O-E)^2}{E} = \frac{(0.1877-0.0637)^2}{0.0637} + \dots + \frac{(0.1650-0.0886)^2}{0.0886}$$

There is an additional problem that arises because of the way in which the states are defined; that is, that the individual prices that go to define a state are used twice, as the second price in the first pair and the first price in the second pair. I have discussed the problems that this causes at length in another letter (**STOCKS & COMMODITIES**, February 1986), so I will not repeat the argument here. It is important to realize that tests for independence and Markov order can be extended to higher order patterns, like triplets. But, the method used to demonstrate divergence from independence for higher order patterns and Markov chains, beyond level 0, are significantly different, as are the interpretations of the results.

Independence testing is relatively straightforward. For example, if you want to test the divergence of independence of trigrams, the cell in the upper left-hand corner of the observed probabilities transition matrix would be  $p_{1,1,1}$ , while the same cell in the expected probability matrix would be  $p_1$  times  $p_1$  times  $p_1$ .

Markov testing, on the other hand, is somewhat more complex. While it is beyond the scope of this letter

to explain the theory in detail, the model for the first-order Markov process would have the following form:

$$x^2 = \sum_{ijr} \frac{O_{ijr} - E_{ijr}}{E_{ijr}}$$

where  $E_{ijr}$  is defined and calculated as:

$$E_{ijr} = (N_3) \left( \frac{O_{ir}}{O_j} \right) \left( \frac{O_{ij}}{ON_3} \right)$$

The precise meaning of these two terms, independence and Markov order, are somewhat difficult to explain. For example, if you find that trigrams diverge from independence, it means that some combination of individual states, pairs of states and triplets of states diverge from independence. Unfortunately, you cannot specify what this exact combination is. But, an Rth order Markov process means that the probability of occurrence of a specific state depends on the occurrence of the previous "r" states. Note, this is a much more precise and specific statement. But, to be able to make this precise statement, you must be willing to do considerably more computation than would be required with simple independence testing. If you want to make a definitive test of the Markov order of your data, you must test the data against increasingly higher-order Markov models, until you reach one that is not statistically significant. The ultimate Markov order of your data is one less than this value.

*CLIFFORD S. SHERRY, PH.D.*

In reply to the objections, I would like to state the following:

I have references which show the transition probabilities in each cell of the matrix must be equal to the number of transitions for that cell divided by the row total, NOT the grand total of all rows as the writer suggests. *Statistics and Data Analysis on Geology*, (Davis 1986) and references given at the end of the article support this computation.

The correct interpretation of the meaning of the first row sum in the Probability Matrix is "Given that a 1 has occurred, there is a 100% probability that either a 1,2 or 3 will follow." It does not say what the overall probability of state 1 is. The writer should reference his computations: 78/309..." in which row totals are divided by the grand total with the correct technical term "marginal or fixed probability vector."

There is also an apparent contradiction in two statements by the writer: In the second paragraph ". . .the probability of a 1,1 is equal to ...0.637" and the sentence in the first paragraph ". . .p<sub>1,1</sub> = 0.877." Which is it?

There is a misunderstanding of what a state can be. In my model, daily prices are not used. (They can be used, of course.) Price patterns such as triangles, channels, etc. are states as explained in the article. Similarly, sedimentologists do not look at each grain of sand when they are doing Markov analysis on sedimentary sequences. Instead, they look at readily identifiable properties of strata when defining states.

This article did not try to explain how to do tests for independence on higher-order patterns. However, I quote Davis: "The existence of a significant second-order property can be checked in exactly the same manner as we checked for independence between successive states, by using a chi-square test."

Incidentally, Harbaugh and Bonham-Carter (see article reference) and other works do not mention 0 order chains. Their order starts with 1 . Perhaps the writer can explain what a 0 order chain is.

Independence means that the occurrence of one event has no effect on the probability of occurrence of any other event. Markov order refers to the number of steps back in time (T-1, T-2, etc.) a transition calculation looks. Markov dependence means the number of steps actually taken into account. Dependence must be less than or equal to order and the occurrences of events used in the dependency do not have to be contiguous in time. Therefore, the writer's statement that "an Rth order process means that the probability . . .depends on the occurrence of the previous "r" states" is not always true. It is quite possible, for example, to have a fifth-order single dependent chain. See page 128 of Harbaugh and Bonham-Carter for a diagram which explains these concepts clearly.

I don't understand his methodology for determining Markov order. Testing sequentially higher-order Markov models and then quitting when one is found that is not statistically significant may lead to the erroneous conclusion that no higher-order dependencies can be significant. A price series could be tested and show weekly dependencies but not monthly dependencies. Does this mean that annual seasonal dependencies cannot exist? Wouldn't you want to test many different lengths of time for dependency and not just the first few?

My chi-square calculation uses frequencies and the reference which shows how to perform these calculations is Davis, p. 155. Incidentally, most of the figure on page 27 came straight out of a statistics book. I did very little "statistical reasoning" on my own.

There is one area which needs clarification because the reference I used in the original article was incorrect. Davis, p.159 gives the correct procedure for calculating the expected value matrix for embedded sequences. The procedure in my article will not work for embedded sequences (in which the diagonal is zero) because it is impossible for them to have transitions from a state to itself. Davis suggests a trial-and-error procedure which is too lengthy to print here. It is not difficult to perform.

I have the feeling that the writer is using terms in a different sense and this makes it difficult to fully understand his objections. In order to avoid misunderstandings in the future, why not use references in the manner of scientific journals? Then sources will be available to all, especially in areas such as this.

*CURTIS MCKALLIP, JR.*



# Profitability of selected technical indicators: Standard & Poor's 500 futures

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by Thomas P. Drinka and Steven L. Kille

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In previous issues of this magazine, we reported the results of applying moving averages, momentum, Williams' %R, Wilder's Relative Strength Index (RSI), and Wilder's Directional Movement Indicator (DMI) to Chicago Board of Trade corn and long-term U.S. Treasury bond futures, COMEX silver futures, and Chicago Mercantile Exchange IMM Eurodollar futures. We reviewed the formulas and use of these popular technical indicators in the November and December 1985 issues of this magazine.

In this issue, we report similar information for Standard & Poor's 500 futures traded at the International Monetary Market of the Chicago Mercantile Exchange. We simulated trading of 1982-1986 March, June, September and December contracts. The simulations were conducted on the nearby contract only, with the rollover occurring on the first trading day of the expiration month; we present trading results for the period of September 2, 1982 through December 1, 1986. Trades were made at the open and a \$100 commission was charged per turn.

For this analysis, we modified the formula of the HI/LO oscillator. In previous articles appearing in this magazine, we defined HI/LO as in Equation (1):

$$(1) \text{ HI/LO} = (\text{HI} - \text{CL}(t-1)) / (\text{HI} - \text{LO}),$$

where HI = high on day t, LO = low on day t, and  
CL(t-1) = close on day t-1.

Beginning with this article, we use the more elegant version of the indicator (see P.J. Kaufman, *Commodity Trading Systems and Methods*, John Wiley & Sons, New York, 1978) as defined in Equation (2):

$$(2) \text{ HI/LO} = \text{NUM/DEN},$$

where if HL  $\geq$  HC and HL  $\geq$  CL, then

DEN = HL, or

if HC  $\geq$  HL and HC  $\geq$  CL, then DEN = HC, or

if CL  $\geq$  HL and CL  $\geq$  HC, then DEN = CL;

and

NUM = HC

HL = HI - LO,

HC = HI - CL(t-1),

CL = CL(t-1) - LO

HI = high on day t,

LO = low on day t, and

CL(t-1) = close on day t-1.

Figure 1 displays the parameter sets used to simulate trading. Under the two-moving-average-technique,

the short moving average was varied by 1-day increments from a 2-day to a 15-day (these iterations are described as "2(1)15" in the table). Similarly, the long moving average was varied by 3-day increments from a 6-day to a 60-day. Thus, a total of 266 parameter combinations were tested.

These simulations were optimized over five individual criteria: namely, total profit, short profit, long profit, average winning trade and average losing trade. Figure 2 presents the parameter sets that resulted in the greatest net trading profit. For example, of the 266 combinations of two moving averages that were simulated, the 2-day and 60-day combination was the most profitable, and resulted in net trading profit of \$1,150.

Among the seven technical indicators in Figure 2, a 10-day momentum resulted in the greatest net profit. Over the optimization period, this indicator with the buy parameter at -400 points and the sell parameter at 875 resulted in net trading profit of \$104,550. Of this total net profit, \$79,125 was from the long positions, while short positions resulted in \$25,425 net profit. Of 1,074 trading days, positions were maintained for 886.

A total of 43 trades were made: 31 of them were winning trades, and 12 of them losing trades. The 31 winning trades generated a total net profit of \$131,225, the average net profit per trade was \$4,233, and the largest winning trade was \$8,250. Among the 12 losing trades, the largest losing trade was \$5,075, while the average net loss per trade was \$2,223. Finally, among these 43 trades, the largest obtained equity amounted to \$104,650, the largest unrealized loss was \$10,050, and the largest drawdown was \$13,400.

Figures 3-6 follow the same format as Figure 2. These tables display the trading results for optimization by short profit, long profit, average winning trade and average losing trade, respectively. The 10-day momentum that resulted in the greatest total profit also resulted in the greatest profit from exclusively short positions (Figure 3) and in the greatest profit from exclusively long positions (Figure 4).

Figure 5 displays the results of optimization by average winning trade. A 4-day RSI with buy parameter at eight points and sell parameter at 98 points resulted in the largest average winning trade (i.e., \$10,075) among the seven selected indicators. This indicator generated only three trades during the study period. The other six indicators generated as many as 41 trades, with a range of average winning trades from \$3,981 to \$10,050.

Figure 6 displays the results of optimization by average losing trade: that is, the parameter set resulting in the smallest average losing trade. For HI/LO and RSI, the computer program reported parameter combinations that generated no trades during the study period. A filter (*Stocks & Commodities*, May 1987) could be utilized to identify parameter combinations that result in trades.

Among the other five indicators appearing in Figure 6, a 28-day DMI with ADX at 44 resulted in no losing trades. The one trade simulated during the study period generated a total net profit of \$9,650. The remaining four indicators generated as many as 270 trades, with a range of average losing trades from -\$963 to -\$1,475.

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*"I'm going to have to fire you Katzenjaminslov. Your name won't fit on any of our corporate name-plates."*

<b>Parameter sets of selected technical indicators used to evaluate 1983-1985 U.S. Treasury Bond Futures</b>			
<b>Technical Indicator</b>	<b>Days</b>	<b>Parameter Set</b>	
		<b>Sell</b>	<b>Buy</b>
Two Moving Avgs.			
Short MA	2(1)15	na	na
Long MA	6(3)60	na	na
Three Moving Avgs.			
Short MA	2(1)15	na	na
Intermediate MA	4(2)30	na	na
Long MA	6(3)60	na	na
Momentum	6(2)20	100(21)604	-100(-21)-604
HI/LO	na	0.2(0.2)2.8	-0.2(-0.2)-2.8
RSI	6(2)20	6(2)96	4(2)40
%R	6(2)20	4(2)40	60(2)96
na: not applicable			

**FIGURE 1**

**Optimization Criteria: Total Profit**

Technical Indicator	2MA	3MA	Momentum	HI/LO	%R	RSI	DMI
Parameter Set: Days	2, 60	2, 26, 51	10	na	4	4	8
Long	na	na	-400	-0.03	90	38	na
Short	na	na	875	1.00	10	74	na
ADX	na	na	na	na	na	na	48
Number of Trades	57	33	43	17	119	105	11
Days in Market (out of 1074 trading days)	1,074	1,045	886	883	1,033	1,063	331
Total Profit or Loss	\$-1,150	2,250	104,550	59,000	89,225	77,300	25,800
Long Profit or Loss	\$ 22,350	23,275	79,125	59,000	73,625	63,575	33,600
Short Profit or Loss	\$-23,500	-21,025	25,425	0	15,600	13,725	-7,800
Number of Winning Trades	20	15	31	11	87	80	8
Total of Winning Trades	73,750	60,675	131,225	73,625	162,075	149,850	34,250
Largest Winning Trade	\$ 10,150	10,650	8,250	9,250	9,850	5,850	9,250
Largest Obtained Equity	\$ 24,375	29,600	104,650	59,100	94,325	78,600	35,650
Number of Losing Trades	37	18	12	6	32	25	3
Total of Losing Trades	74,900	58,425	26,675	14,625	72,850	72,550	8,450
Largest Losing Trade	\$ 9,500	8,200	5,075	4,700	8,050	8,550	6,250
Greatest Unrealized Loss	\$ 9,750	9,275	10,050	6,275	8,625	9,275	7,075
Largest Drawdown	\$ 29,950	34,250	13,400	17,300	11,900	14,950	10,350

na: not applicable

FIGURE 2

FIGURE 3

**Optimization Criteria: Short Profit**

Technical Indicator	2MA	3MA	Momentum	HI/LO	%R	RSI	DMI
Parameter Set: Days	2, 60	2, 26, 51	10	na	12	14	26
Long	na	na	-400	-0.01	58	3na	
Short	na	na	875	1.00	16	84	na
ADX	na	na	na	na	na	na	38

na: not applicable

FIGURE 4

**Optimization Criteria: Long Profit**

Technical Indicator	2MA	3MA	Momentum	HI/LO	%R	RSI	DMI
Parameter Set: Days	2, 60	13, 28, 48	10	na	4	4	24
Long	na	na	-400	-0.03	90	26	na
Short	na	na	875	1.00	10	98	na
ADX	na	na	na	na	na	na	10

na: not applicable

FIGURE 5

<b>Optimization Criteria: Average Winning Trade</b>							
Technical Indicator	2MA	3MA	Momentum	HI/LO	%R	RSI	DMI
Parameter Set: Days	13, 60	12, 30, 48	4	na	30	4	30
Long	na	na	-825	-0.01	98	8	na
Short	na	na	1,000	1.00	2	98	na
ADX	na	na	na	na	na	na	44
Number of Trades	41	32	7	17	24	3	1
Days in Market (out of 1074 trading days)	1,074	1,046	226	888	604	124	34
Total Profit or Loss	-21,500	-6,225	22,950	57,850	7,900	8,375	10,050
Long Profit or Loss	12,175	21,475	28,500	57,850	25,675	9,225	10,050
Short Profit or Loss	-33,675	-27,700	-5,550	0	-17,775	-850	0
Number of Winning Trades	14	10	4	11	11	1	1
Total of Winning Trades	55,725	58,275	28,500	725	47,575	10,075	10,050
Largest Winning Trade	10,650	10,650	10,050	9,250	8,150	10,075	10,050
Largest Obtained Equity	24,375	25,225	24,725	57,950	15,000	8,450	10,800
Number of Losing Trades	27	22	3	6	13	2	0
Total of Losing Trades	77,225	64,500	5,550	15,775	39,675	1,700	0
Largest Losing Trade	12,800	8,700	2,050	4,700	6,900	850	0
Greatest Unrealized Loss	12,350	11,575	5,650	6,275	9,375	4,050	1,450
Largest Drawdown	52,775	38,350	7,025	18,450	14,375	5,325	3,475

na: not applicable

FIGURE 7

<b>Optimization Criteria: Average Losing Trade</b>							
Technical Indicator	2MA	3MA	Momentum	HI/LO	%R	RSI	DMI
Parameter Set: Days	5, 6	3, 4, 6	4	na	4	6	28
Long	na	na	-525	-0.61	54	2	na
Short	na	na	950	1.00	40	98	na
ADX	na	na	na	na	na	na	44
Number of Trades	270	169	12	0	248	0	1
Days in Market (out of 1074 trading days)	1,074	1,062	346	na	1,070	na	36
Total Profit or Loss	-35,450	-47,400	25,625	na	11,500	na	9,650
Long Profit or Loss	5,050	175	30,175	na	30,975	na	9,650
Short Profit or Loss	-40,500	-47,575	-4,550	na	-19,475	na	0
Number of Winning Trades	104	53	6	na	147	na	1
Total of Winning Trades	142,425	101,125	31,400	na	160,450	na	9,650
Largest Winning Trade	7,450	7,275	9,325	na	4,050	na	9,650
Largest Obtained Equity	3,350	750	31,250	na	30,700	na	10,400
Number of Losing Trades	163	116	6	na	101	na	0
Total of Losing Trades	177,875	148,525	5,775	na	148,950	na	0
Largest Losing Trade	4,825	4,150	2,050	na	9,525	na	0
Greatest Unrealized Loss	4,450	4,100	9,275	na	10,400	na	1,850
Largest Drawdown	56,075	53,125	13,175	na	22,025	na	3,475

na: not applicable

# Serving a trading apprenticeship

## *The Wyckoff method of trading stocks part 13*

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by Jack K. Hutson

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Anyone studying the stock market intends to remove themselves from the ranks of the public that dabbles with luck as their foremost rule of operation. A true student of the market doesn't graduate into actual trading before completing a self-imposed apprenticeship where experience becomes the teacher.

Experience hones practical skills such as the timing of trades and also builds the mental attitude that allows a trader or investor to think clearly and follow an analysis to its conclusion. If you, as a student of the Wyckoff Method, were embarking into an apprenticeship alone, experience could be a hard and painful lesson. But Wyckoff offers a comprehensive package of detours around the common pitfalls that so often sidetrack beginning technical analysts into frustration.

Here, we'll discuss how to approach practical skills and later examine the mental and emotional attributes a technical analyst should encourage.

### **Paper trading**

Medical students don't begin with heart transplants and stock market students don't jump right into trading with their hard-earned capital. Trading on paper is the inexpensive way to gain experience and test abilities.

Although paper profits aren't as thrilling as cold cash profits, early success on paper should bring a thrill in achievement and in knowing that you never again have to take chances or suffer disastrous losses.

Paper trading should continue until you learn what and when to buy or sell—anywhere from 50 to 100 transactions. Use stop orders and keep records just as if you were working with a broker. Figure commissions and taxes; calculate net profit and loss.

Be certain of your judgment before you venture a dollar in the market and don't let anyone entice you into hastily committing real money. In the beginning, knowledge of stock market technique is far more valuable than capital.

### **Actual trading**

When you feel confident to trade with money, start with 10- or 15-share lots no matter how large your capital. You're still in training, so don't try to make money at this stage by over-trading and straining your judgment with extra nervous energy.

Operating with actual money is more of a test of your ability than paper trading, because, says Wyckoff "when your money is at stake you will be more or less at the mercy of the two devils of stock market followers—hope and fear."

Diversify into three, five, 10 or 20 of your best selections depending on your capital and ability to watch

each commitment. Resist the temptation to put all your faith in 100 shares of one stock vs. 20 shares of five issues. Out of five issues, one may fail, one may not turn out as well as expected, but the other three should more than compensate for the others. "The man does not live who can make a profit on every transaction," Wyckoff points out.



## **Any profits made at the start should be used to build up your capital for dealing later in larger lots.**

All commitments need not be made at once, of course, but Wyckoff does advise that trades be in the same number of shares (equal lots) of each stock. Loading up on low-priced stocks, the most speculative and riskiest, would mean that losing trades most often occur in the largest lots, while profits come in small amounts from higher-priced stocks.

If you're investing for intermediate and major swings, you also could divide your capital by investing the same number of dollars in each issue—provided you stick to the higher-grade stocks and do not put an undue percentage of funds into low-priced stocks.

Any profits made at the start should be used to build up your capital for dealing later in larger lots. If you spread your capital too thin in the beginning you may be handicapped and discouraged by early experience. If actual results aren't as good as your paper trading results, go back to paper.

### **Work and study habits**

Find a quiet spot away from interruptions to study your paper and actual transactions. Whether it's your home den, your office after hours or a privately leased office, find someplace far from brokers, gossip, questions and rumors that will confuse judgment.

Devote at least one hour each day to studying the market. You can obtain the comparatively few facts needed to compile your own records from an evening newspaper's stock pages. As Wyckoff explains: "The best results I ever had in judging the market and trading were when I could devote only one hour a day to study of the market, planning my campaigns and giving instructions, and so busily engaged in other affairs that it prevented my studying the (ticker) tape throughout the session."

In Wyckoff's view, it is much better to make one commitment a month that realizes a profit than to trade

every day and show a net loss.

Concentrate on determining the position of the market, defining its trend, anticipating turning points and selecting stocks that should make the most profit in the shortest time. The study should become almost like comparing successive snapshots of a moving object, much like time lapse photography.

### **Learn to sell short**

Selling short is not as easy for most people as trading on the long side. But the biggest and quickest money is on the short side.

Trade on paper until you can sell short as easily as go long. "A trader who can only operate on one side of the market is only half a trader," says Wyckoff. "He sees everything through the eyes of a bull. He thinks everything is always going up. He never can see money on the short side. The truth is, a chronic bear has a better chance of making money than a chronic bull."

### **Time your actions carefully**

Don't jump in too soon and tie up money waiting for a stock to move up or down. Wait for the period of preparation to end and let other people play with the stock until then.

Go with stock that should move soonest, farthest and fastest. You want immediate action for your money and it is bad practice to hold a position for many days or weeks without getting anything out of it.

### **Limit losses and let profits run**

This is a fundamental Wall Street principle that the public notoriously practices in reverse because the public forgets that it's not what you make, but what you keep, that counts.

Decide in advance how much risk is in a trade. Profits should be at least several times the amount of risk before it's considered worthwhile and a stop order should always be used to limit losses. It's no sin to be wrong, but disastrous to let a small loss run into big figures.

Know every minute why you are starting a trade, why you're holding it and why you should close out. If your stops are caught too frequently, use more discrimination in starting trades. Refuse all but the best opportunities and wait for them.

### **Placing orders**

In nearly every case, whether long or short, it's best to place your orders "at the market." If you specify a price, a broker may not be able to get the stock at that exact price and you may miss an entire move.

Limited orders (the office stop and buy stop, where a new trade is to begin at a specific price) can be useful if you are experienced enough to anticipate an action. For example: if you clearly anticipate a slight dip in price that would be an advantageous buying position before a stock continues advancing.

Don't "straddle" the market (being long in one stock and short in another) unless you are so proficient and so controlled that nothing will rattle you.

Work in harmony with the indicated market trends and wait for the best openings, don't try to jump into every turn. If the market indicates a decline, go short. When the decline runs its course, cover and watch for signs of an important reversal. Then go long, and when that important rally has topped out, read the

market for signs of a continuing decline to switch back to short selling.

Wyckoff also advises against timing a long or short trade according to the ex-dividend date (the date dividends are declared) simply to obtain the dividend payment. The allure of this practice in a bull market is that the amount of the dividend frequently will be recovered in the stock's price within a day or two following the ex-dividend date. Likewise, in a bear market, the stock price may sag off by the amount of the dividend and lose several more points due to offerings from those who held the stock just for dividends. Yet, in both cases, this is gambling for a gain that is absorbed in the long run by the average trend.

### **Pyramiding**

This technique of adding shares of stock to a position for each point the stock moves in your favor is comparatively safe only under certain conditions. The ideal time for pyramiding on the short side is when pressure is so heavy and support so light that it signals a sudden and drastic decline. On the long side, it is when sudden and insistent demand creates such an irresistible lifting power that the stock seems about to be driven suddenly and strongly upward.

Wyckoff advises that pyramiding isn't justified without the potential for a 10-15 point move, and that orders to buy or sell additional lots should be limit orders so the broker executes the commitments automatically.

One way to pyramid is to make the initial commitment, say of 300 shares, with a stop order three points or less from the price. For each point the market moves in your favor, add a certain number of shares, in this case 100, with a 3-point-or-less stop order. Move the stop on the initial commitment (lower if short, higher if long), for each point the stock moves favorably. Move the stops on the smaller, subsequent lots so that none of them surpasses the initial stop.

### **Averaging**

Never increase your line if a trade goes against you. Letting a stock run against you more than a few points is bad practice, but "letting it run" to where it seems more desirable to buy or sell more in order to average the cost is worse.

A losing stock proves wrong judgment and a stop order should get you out with a small loss. Why abandon the stop and persist in using wrong judgment?



## Closing trades

There should be as good a reason for closing a trade as there is for beginning it in the first place, and both should be based on your chart or ticker tape analysis. If you begin a trade based on chart indications, finish the trade based on the chart. Likewise, a trade begun with a tape indication should be closed based on the tape.

If analysis says to be "neutral," close your commitment whether there is a profit or loss in it and stand aside until there are definite indications of a move up or down.

How well you're able to follow Wyckoff's practical advice is greatly influenced by the mental attitude you cultivate. Complete self control unhindered by emotion is the stock trader's perfect mental state and how to approach that type of intellectual calm is the subject of our next installment.

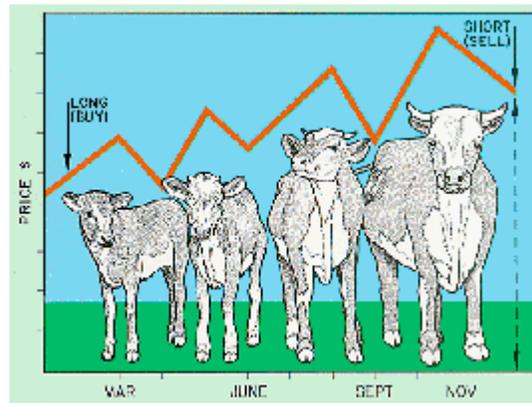


*"Two eggs over light, coffee, toast and marmalade. Will there be any other orders in the court?"*

# Spread investing—Tools of the trade

## *part 2*

by Frank Taucher



In part one, I discussed some of the pitfalls of traditional studies on the seasonality of spreading and how I attempted to correct them in my spread trading. The objective of the program is to develop a diversified portfolio of many spreads that can be used throughout the year for investment purposes. I concluded by reviewing the details of a long CBT wheat/short soybeans spread trade.

This month, I will discuss two tools to uncover these seasonal gems. First, however, it is necessary to state exactly what is required to qualify a spread. There are actually three requirements:

1) The spread must have shown the ability over the period covered to be sufficiently profitable to warrant our attention and investment. This profitability must be measured in easily understood dollars so that spreads may be compared with each other and to their margin and stop requirements. (Note also that the dollar-comparison definition will also allow easy comparison of unlike—but related—commodities such as crude oil/heating oil.)

2) The spread must have shown sufficient reliability over the years to give us an indication that the position has, based on past experience, a high probability of success. Note that this statement obviously does not guarantee our success. As mentioned in the introductory article, all seasonal spreads will, sooner or later, have a contra-seasonal move and will lose money. We simply hope to identify a position that, if entered into over 10 years, should make money in seven of the 10 years based on past historical experience. In any one year, we try to minimize the effects of contra-seasonal moves on any one spread by diversifying over many positions. We are, in short, playing the odds and decreasing the probability of ruin while increasing the long-term chances of success.

**We want to be sure that a \$500 average over 10 years, for example, is not comprised of nine years that made \$50 per year and one glorious year that made \$4,550.**

3) The final item we want is consistency of profits. Here, we want to assure there are no abnormally skewed years of profitability. We want to be sure that a \$500 average over 10 years, for example, is not comprised of nine years that made \$50 per year and one glorious year that made \$4,550. It also would be nice if we could inspect for such things as drawdowns and develop stops for our trades.

An example will best demonstrate the process. The spread we will use in our example is long March feeder cattle/short November feeder cattle (FCH/FCX). [Figure 1](#) is a matrix of this spread from late August to mid-November just prior to the expiration of the November feeder cattle contract. At the top of the table, the column dates from left to right are exit dates when we assume the spread was closed. The dates in the column on the left are entry dates or dates on which we assume the spread was opened for each of the past nine years.

If we look specifically at the place where the 822 entry date and 831 exit date cross, we will see the figures -237/22. The figure to the left of the / is the profitability in dollars while the figure to the right is the reliability in percentages.

Hence, this cell states that, over the past nine years, had you bought the spread FCH/FCX on the close of business on Aug. 22 and closed it on the close of business Aug. 31, the spread would have lost, on average, \$237 each year and would have made money only 22% of the time (would have lost money 78% of the time). Note that a quarter-month does not equate to exactly to a one-week period of time, but is somewhere around 7.5 days (there are 48 quarter-month periods in a year vs. 52 weeks). Also, if one of the days falls on a weekend or holiday, the closing price of the first trading day thereafter is used as the price of entry/exit.

If you continue the inspection on this sheet, you will notice in the cell where the column headed 1031 and the row headed 915 cross are the figures 628/100. The meaning of these figures is simple: an entry date of Sept.15 has combined with an exit date of Oct.31 to produce an average profit of \$628 for each of the past nine years.

Have we uncovered a profitable trade? Considering that the spread has worked every year of the last nine years, through both inflationary and deflationary years, the answer is undeniably yes!

Before moving on to our second tool and our inspection for consistency, let's look at the bottom two rows of [Figure 1](#). In these two rows, we see the average spread in prices (top row) and dollars (bottom row) over the past nine years. For example, note that the average spread on Aug. 31 over each of the past nine years is \$1.40, March over (or premium to) November. To obtain the spread in dollars, we have to multiply the spread of \$1.40 (price) by 440 (unit size of the contract) which results in \$616, (the amount in the bottom row).

To obtain the amount of increase from the period 831 to 907, we can subtract this \$616 from the 907 figure (\$618), resulting in a difference of \$2. Or, we can simply look to the matrix in the cell where the entry date of 831 intersects the exit date of 907. Here we obtain the result 2/56, the left side of which equates to our \$2 increase that the spread has realized, on average, over each of the past nine years from 831 to 907.

We can also graph this spread by comparing the value of the spread in the bottom two rows (either price or dollar value of the spread will do in this case) with the exit date values on the top row of the matrix. The spread is plotted in [Figure 2](#), which covers a longer period than the table in [Figure 1](#).

If, however, the spreads were denominated in unlike units (for instance, feeder cattle vs. live cattle, where the contracts are 44,000 lbs. and 40,000 lbs., respectively), a comparison in terms of price would be meaningless. In such instances, only the dollar amount should be used.

To test for consistency of profits, we will use the "Spread History Printout." [Figure 3](#) lists three of the nine years that were covered in the study (1978, 1982 and 1986). The specific contracts used in the study are listed in the left column. In the top row, for instance, FC7903 translates to feeder cattle, 1979, March. When the spread was opened on 780915 (Sept. 15, 1978) March was bought at 70.90 and November sold at 68.80. The spread difference was  $70.90 - 68.80 = 2.10$  and that is exactly what is shown in the number in the top row. The next three numbers in that row (31196, 30272, and 924) simply calculate the opening and closing prices in dollars by multiplying price by the size of the contract. The 924 is the dollar value of the spread on the opening date. The same applies to the closing prices and spread values in the second row.

In the profits row (row three) we see the figures 231, 1760, and 1991. These figures are the profits for the long side of the spread, the short side of the spread, and for the entire spread. In our example, we see that, in 1978, the long side of this spread made \$231 while the short side made \$1,760. The total spread profit was the sum of these two legs of the spread or \$1,991. To the right of this figure, we calculate the profits for all of the years.

The final two columns (0, 1991) state the worst dollar drawdown and the highest dollar profit that the spread experienced between the entry date and the exit date. Another way of thinking of this concept is that this figure answers the question, "If the spread were closed at the very worst (best) time, what would the loss (profit) have been?" This loss (profit) is the worst equity drawdown (highest equity profit).

The reason the results for 1982 are listed in the second trade is that it was in this year that the trade experienced its worst equity drawdown of \$946. The trade, nevertheless, wound up being profitable that year, making \$297.

The third section lists last year's results. They are listed because they are the most recent results of all nine of the trades. This poor showing occurred despite the fact the entry price of the spread (-0.875) was the second most attractive for all nine years studied. The lowest, -1.875, occurred in 1981 and resulted in a low profit of only \$242.

Finally, in [Figure 4](#), we summarize the results of the nine years of trading. Perhaps the most interesting numbers are the worst drawdown of \$946 and the average drawdown of \$244. The first number indicates that a stop of \$1,000 would have contained all the drawdowns of the past nine years. Is this necessarily going to provide the best stop protection over the next nine years? Maybe, maybe not. What we do know is that a \$1,000 stop, based on past historical performance, is better than a \$500 stop or a \$1,500 stop. Hence, if this spread were to drawdown \$1,000, the spread is experiencing a very strong contra-seasonal move. It should therefore be closed out this year or you need very strong reasons for believing it will turn around and follow the normal seasonal behavior.

The average drawdown of \$244, indicates this spread is usually quite stable.

You might notice the margin requirement for this spread is only \$200. Contrast this margin requirement with the normal requirement for two feeder cattle contracts of \$1,600. This lower margin requirement is a major one that the spread trader uses to advantage.

On this trade, for instance, the figures on the expected return on investment, based on historical

experience and assuming an average drawdown occurs, work out to:

$$\$628/(\$200 + \$244) = 141\%.$$

This return annualized at over 1,000% which is not too shabby for a trade that has been 100% correct! The key is to have a bucket-full of trades like this one so you can take full advantage of the principle of diversification and minimize the effect of poor results from any one spread.

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<b>Quarter-Month Seasonal Spread Trade Analysis</b>											
<i>March Feeder Cattle/November Feeder Cattle (1979-1987)</i>											
<b>Entry Dates</b>	<b>Exit Dates</b>										
	<b>831</b>	<b>907</b>	<b>915</b>	<b>922</b>	<b>930</b>	<b>1007</b>	<b>1015</b>	<b>1022</b>	<b>1031</b>	<b>1107</b>	<b>1115</b>
<b>822</b>	-237/22	-235/33	-208/44	136/67	95/67	106/67	-23/33	148/56	420/78	551/67	427/67
<b>831</b>	.	2/56	29/33	373/78	332/89	343/89	214/67	385/78	658/78	788/78	664/78
<b>907</b>	.	.	27/33	370/78	330/78	341/78	211/78	383/89	655/78	786/78	561/67
<b>915</b>	.	.	.	343/89	303/67	314/67	185/56	358/67	628/100	759/78	634/89
<b>922</b>	.	.	.	.	-40/44	-29/44	-159/44	12/44	285/56	416/67	291/56
<b>930</b>	.	.	.	.	.	11/56	-119/22	53/33	325/78	456/78	331/56
<b>1007</b>	.	.	.	.	.	.	-130/33	42/44	314/67	445/67	320/78
<b>1015</b>	.	.	.	.	.	.	.	171/78	444/78	574/78	450/78
<b>1022</b>	.	.	.	.	.	.	.	.	273/78	403/78	279/56
<b>1031</b>	.	.	.	.	.	.	.	.	.	131/56	6/44
<b>1107</b>	.	.	.	.	.	.	.	.	.	.	-125/33
<b>Spread</b>	1.40	1.41	1.47	2.25	2.16	2.18	1.89	2.28	2.89	3.19	2.91
<b>Dollars</b>	616	618	645	989	948	959	830	1001	1274	1404	1280

**FIGURE 1**

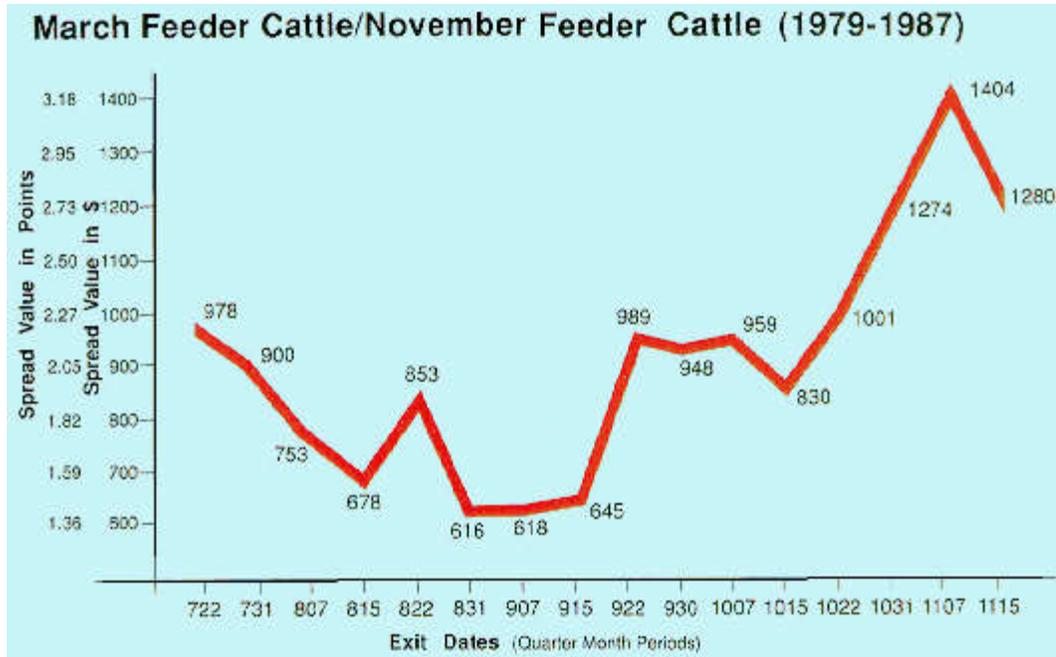


FIGURE 2

Spread History Printout											
Spread (Buy-Sell)	Date	Bought	Price Sold	Bought	Spread Spread	Dollar Value		Spread Spread	Cumulat Profits	Worst Draw	Highest Profit
						Bought Sold	Sold Bought				
FC7903-FC7811	Opened	780915	70.9000	68.8000	2.1000	31196	30272	924			
	Closed	781031	71.4250	64.8000	6.6250	31427	28512	2915			
	<b>Profits</b>					231	1760	1991	1991	0	1991
FC8303-FC8211	Opened	820915	66.4000	66.0000	0.4000	29216	29040	176			
	Closed	821101	65.0750	64.0000	1.0750	28633	28160	473			
	<b>Profits</b>					-583	880	297	4444	-946	297
FC8703-FC8611	Opened	860915	62.9500	63.825	-0.8750	27698	28083	-385			
	Closed	861031	61.1250	61.675	-0.5500	26895	27137	-242			
	<b>Profits</b>					-803	946	143	5654	-187	539

FIGURE 3

## Summary

9 = Total Years	5654 = Dollars Won	628 = Average Win	0 = Worst Loss
9 = Number Won	0 = Dollars Lost	0 = Average Loss	-946 = Worst Drawdown
0 = Number Lost	99999 = \$ Won/Lost	200 = Margin	-244 = Average
100 = Percent	5654 = Total Profit	628 = Average Profit	414 = Average Monthly Profit
Average Spread Entry (Price): 1.4667		Range: -1.8750 to 4.3000	
Average Spread Exit (Price): 2.8944		Range: -1.3250 to 6.6250	
Average Spread Entry (Dollars):645.33		Range: -825.00 to 1892.00	
Average Spread Exit: 1273.56		Range: -583.00 to 2915.00	

**FIGURE 4**

# Want to try something HOT!?

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*by John Sweeney*

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## **FUTURESWARE/CF-DM**

J.C. Productions,  
P.O. Box 19726  
San Diego, CA 92119  
(619) 466-5703

**Service:** Undisclosed trading system for Deutchesmarks, copy protected.

**Price:** \$750

**Equipment:** IBM PC/XT/AT or 100% compatible, 256K RAM, DOS 2.0 or higher, one 5 1/4" drive.

### **Ratings:**

Ease of Use: B+ Error Handling: B  
Customer Service: A Profitability: A  
Documentation: C Drawdown: A  
Reliability: A Track Record: F

**S**ome systems are so active it could give a guy a heart attack. J.C. Productions has put together one of the most active and breathtaking trading systems I've run across. Of course, I haven't seen everything in the world, but of the trading systems I have used, this one is unique.

To begin with, like a lot of floor traders and senior traders, CF-DM often trades against the market. Oh, it has its "I'm wrong" points when it will turn around and go the other way, but generally it will hold onto a stance with bulldog tenacity until normal market oscillation pops its position back into profitability. As the position sinks deeper and deeper into the red, CF-DM just adds to it steadily, waiting for that "inevitable" bounceback to take a profit and reverse in the trend direction. Documentation supplied on disk says the program may go as high as 15 contracts in building a position. Author Mel Cassidy says limit your exposure to four contracts, but then the track record must be recalculated. We tested it just as it comes in the box.

I shouldn't overemphasize the pyramiding. CF-DM has a very high percentage of correct trades. When it switches from long to short, it surrounds the initial position with a buy stop and a sell stop. These act to build the position if the favorable stop is hit and reverse it if the unfavorable stop is hit. This means you

must adjust the size and location of your stops daily, which, in turn, means this is not a lazy man's system. Once on board, you had better plan vacations carefully!

It is, however, a totally black system. Nothing about its workings is disclosed so everything you read here is conjecture. Nevertheless, it seems safe to say this is not a trend follower but a pricing pattern system. I say that because it only takes it two to five days of open-high-low-close to take a position. Trades run from two to 15 days and are often pyramided. Results in [Figure 1](#) show a steady growth in account balance, but with some attention-getting drawdowns.

And *sensitive!*? It's not unusual at all for a one-tick difference in opening price or closing price to change the trading recommendation from "Buy at Open" to the more usual "Buy Stop at XXX and Sell Stop at XXX." You'd better be sure you have good quotes from your source and good data entry and error-checking techniques because just a single digit's difference might get you away from the correct trading signals.

### **Nuts and bolts**

CF-DM runs from its own floppy disk quite smoothly. I had some initial problems with the security setup but a service call quickly turned that around. I found, too, that you can bomb the program if you foul up date entries, somehow get the file too large or edit it too much. Nevertheless, for day-to-day running I had no problems. I was able to run it directly from my shell program, Direc-Tree. Data entry and editing are very efficient: on one screen are the data, trading recommendations and menu of choices ([Figure 2](#)). You can recalculate the signals, get a history report and a trading signal in less than three minutes.

### **Track record**

Off a nine-month track record, this thing makes money. Of course, off nine months of experience, lots of things seem to make money! Nor can you sit down and backtest data yourself. Security features prevent using the program on old data. Compare this to Eurotrader's *10 years* of verifiable, historical trading and its recent large drawdowns. Despite the good results you see, this program's claims have to be taken with a ton of salt. Far too many systems look good if used in a restricted period of time. For this reason alone, CF-DM goes to the bottom of the list as far as track records are concerned.

### **Probabilities**

OK, you're still interested, you say. "What does the little we know about this system tell us?" you ask.

CF-DM is unique in several respects. Looking at [Figure 3](#), you'll see that the worst movement against its trades (see "Maximum Adverse Excursion," *Stocks & Commodities*, October 1985) is generally very small for *both* winning trades and losing trades. There is no significant difference in the *shape* of these two curves! Perhaps we are dealing with a system that comes out ahead not by selecting winning trades in the usual sense, but by playing the probability that prices will oscillate into winning territory sooner or later. Perhaps this is why the system will continue to add contracts to losing positions, secure in the probability that any snap back will pull the total position into the black. In any event, I could find in this data no better entrance or exit points than these used by the program, a strong point in its favor.

There *is* a significant difference in the frequency of winners vs. losers. There's a very reassuring preponderance of winners! Again, this is partly because the aggressive pyramiding proliferates the number of "right" trades that profit on the bounceback. Nevertheless, this high percentage of favorable

trades gives the program a high ranking on this most sensitive of traits for a system's success.

There's nothing logically wrong with the pyramiding, probabilistic approach, but you have to wonder what happens to it in a strongly trending market. Given the lack of a track record, I can't really analyze this possibility. In the data I did have (Figure 4), it got onto the right side of a DM move in late December 1986 and then smoothly adjusted to the trading range that subsequently formed in February 1987. Good luck? Good trading? Who knows?

### Profitability

Whatever the reason, the resulting numbers for the short period we analyzed were impressive. Combining the March, June and September contracts for the period 11/20/86 - 6/30/87 generated lots of action: 65 trades in 136 days. It also generated—need I say it?— money: \$52,637 in closed net profits. Worst open equity (maximum drawdown) was \$2,450. You could live with that, you say? Well, would your heart have quivered when you tacked on more contracts to a position nearly 200 points in the hole?

Figure 5 is Eurotrader's full portfolio, comparable to Figure 1 for the same period we've been using since *Stocks & Commodities* started evaluating trading systems. Clearly, for this short period J.C. Productions' product did better, far better. CF-DM was highly active and very profitable. (What doesn't show here is Eurotrader's massive 10-year buildup of winnings.) Other value may lie in following the unique trading style, one I've never had the nerve to follow though I've known stout souls who can. Nevertheless, given the price for an undisclosed system, the short track record, and the aggressive pyramiding strategies, I think macho and deep pockets are required here. Approach with CAUTION!

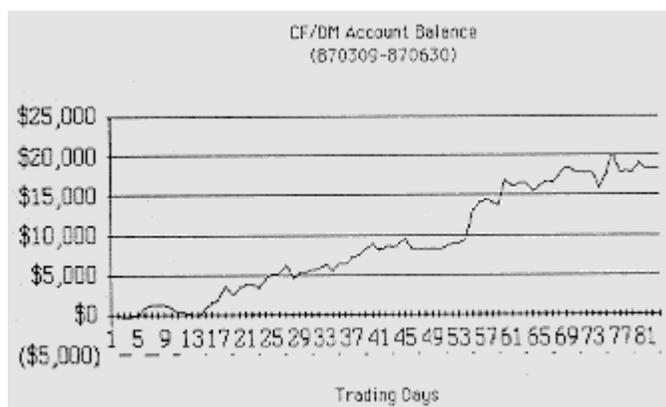


FIGURE 1

FUTURESWARE/CF-DM ITL MODE 01-01-1990

Date	Open	High	Low	Close	Position	JJT Add/Reverse position (%)
JUL 24 87	5412	5420	5400	5411		JJT SEP 87 DEUTSCHEMARK
JUL 27 87	5423	5426	5405	5406		JJT
JUL 28 87	5397	5414	5395	5412		JJT For next trading session
JUL 29 87	5404	5408	5400	5402	SHT 5404	JJT based on AUG 05 87 data:
JUL 30 87	5401	5416	5385	5410	LNG 5401	JJT Buy Stop = 5400
JUL 31 87	5406	5414	5392	5395	SHT 5406	JJT Sell Stop = 5255
AUG 03 87	5394	5399	5353	5356	SHT 5370	JJT
AUG 04 87	5344	5349	5300	5313	SHT 5306	JJT
AUG 05 87	5333	5347	5326	5334	LNG 5333	JJT
.....	.....	.....	.....	.....		JJT

Enter the Date in this format: MM/DD/YY

F1- Help      F2- Guidelines      F3- Daily Report      F4- Historical Report  
 F5- Signal Update      F6- STL/Chg Stops      F7- ITL Mode      F10- Save/Exit

FIGURE 2

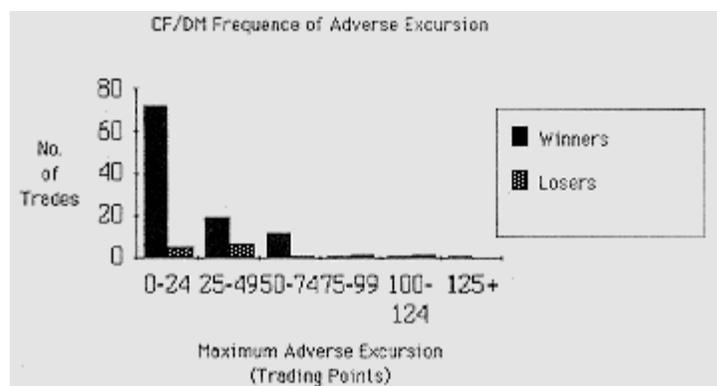


FIGURE 3



FIGURE 4

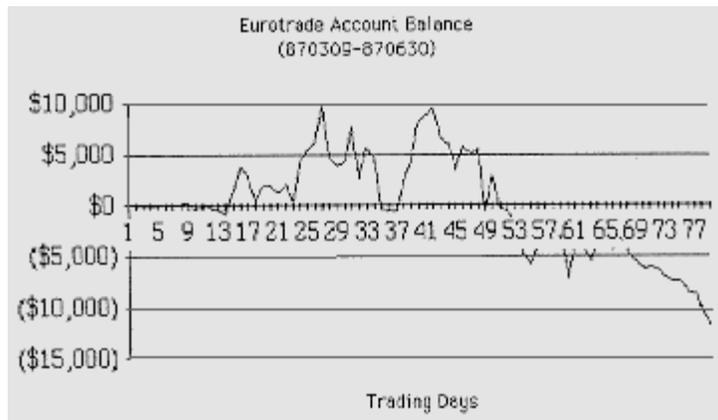
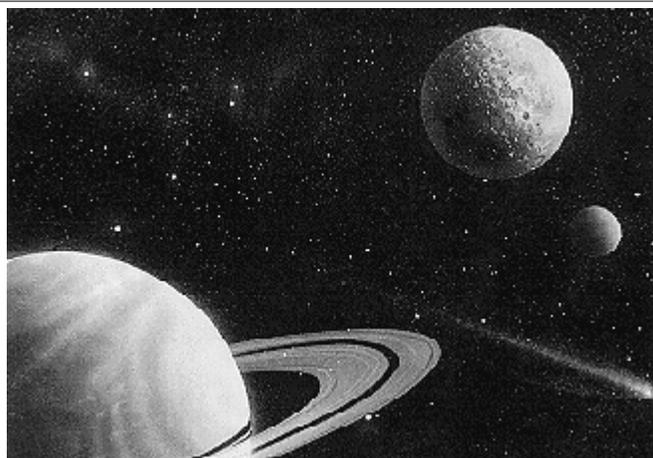


FIGURE 5

# Cyclical analysis of stock prices with astrology

*by Robert S. Kimball*



Over the past four years I have participated in a research project that has sought to test the validity of a rather controversial and unorthodox approach to cyclical analysis. The primary objective of this project was to test some of the more obscure elements of W.D. Gann's effort to establish correlations between individual stock prices and planetary cycles.

Of course, a semantic roadblock immediately presents itself: to even suggest that planetary cycles could have a relationship to stock prices causes an audible shudder in the minds of many rational thinkers. For some, it is more respectable to use the word "astronomical" rather than "astrological." Whether we call it astrology, as Gann did, or something else, the practical question to ask is: Can the study of planetary cycles enable stock option traders to realize an increased profit advantage?

Unfortunately, very little is publicly available on how Gann utilized astrological principles. The sensible approach was to make a detailed comparison between short-term price moves of individual stocks and the more than 700 possible relationships between pairs of planetary cycles. Ironically, our findings suggest that the area of Gann's work that has received the least attention (astrology) may actually contain ideas of immense value to traders.

## **Methodology**

Many who read this article are likely to be familiar with Gann, but few have probably been exposed to astrological terminology. Disciplined astrological research starts with reliable birth data for the subjects being studied. In this case, we considered four birth dates for each of the 325 corporations tested: date of incorporation, date of first trade, date the stock went public and date of reincorporation.

To study planetary cycles that are alleged to have predictive value, we also must know the exact positions of the planets on corporate birth dates, positions on future dates when stock price movements are to be predicted and the angular relationships between those birth date and future positions. To fully grasp the magnitude of such research, you must know there are 10 astronomical bodies (Sun, Moon, Mercury, Venus, etc.), and each forms angular relationships, called "aspects," with the future positions of the

planets and Sun. That presents us with at least 720 possible aspects, and the primary research task is to determine which are "positive," that is, which tend to show up more strongly than random chance would suggest on dates when particular stocks peak quite independently of any move in the broad market. Equally important is to determine which aspects are "negative" or weaker at price peaks than chance distribution would suggest.

We concentrated on aspects which Gann and others consider significant—mainly those at 0, 30, 45, 60, 90, 120, 150 and 180 degrees although other minor aspects can merit some consideration. With a computer program, we began selecting the most appropriate birth dates for our test corporations.

The program measured the aspects between planetary positions on a particular birth date and dates in the future. Due to the rate of change of some planets, it was necessary to recalculate the ever-changing angular relationships for every 48-hour period and the computer tabulated hundreds of aspects for each of the 325 corporations under review.

Aspects considered beneficial for a stock price rise earned positive points while those judged detrimental to price increase were given negative points. This positive/negative assessment was derived from thousands of empirical observations of short-term stock price moves as well as ideas employed by Gann.

Very briefly, we started the process to determine whether an aspect for a birth date, such as first day of trade, is positive or negative by noting when test stocks had very powerful short-term moves of 10% or more. We selected only those dates that did not correspond to short-term peaks in the S&P 500 in order to research price moves that were independent of the market. Astrological software determined how often specific aspects occurred on the dates of stock peaks.

This information was then used to generate a line graph resembling an advance/decline line of optimism and pessimism. The X axis of this planetary graph is time and the Y axis is the "astrological strength" of the corporation, just as the Y axis of a stock graph indicates price movement. Thus, we could make a direct comparison between the fluctuating strength of the astrological optimism/pessimism ratio and actual price changes. When the peaks and troughs of the planetary graph were aligned with the actual stock price changes, we knew which birth chart, created for a particular birth date, was likely to have predictive value.

This method appears to be especially effective when a stock exhibits greater price volatility and has displayed an increased degree of independence from the trend of the broader market for several months. The major advantage of this system is that planetary positions are accurately known for years in the future.

It is possible to publish astrological projections of particular stocks months in advance. For six to eight weeks leading up to the predicted buy date, a trader can check for synchronization between the stock's price and astrological graphs.

### **Astrological charting**

Figures 1 and 2 are astrological stock graphs. Lines C and D represent the number of negative and positive points for a particular date. Line E represents the percentage of positive points and is usually found at the top of the graph. The essential idea of this predictive study is that the stock price should form a short-term peak two to three days on either side of a peak in line D. Most importantly, line E, representing the percentage of positive points, should concur.

**This research rigorously tested more than 325 corporations and more than two-thirds of them have listed options. Most were tested for at least three years.**

The IBM graph ([Figure 1](#)) is especially interesting due to the strength of the wave of positive points cresting in early February 1985. A crest of positive points this strong (50 points or higher) has only been observed three times in the past three years for IBM's astrological graph and all three predictions proved to be very accurate. The IBM price chart suggests a high level of prior synchronization with the astrological waves from K to Y and from X to A.

The astrological graph of Financial Corporation of America ([Figure 2](#)) is a classic case of a stock exhibiting increased volatility and concurrent synchronization with its astrological graph. Volatility began to flare up around November 1985 and our astrological graph proved to be an accurate map of the future from the first price peak in early December 1985 until volatility began to subside in May 1986.

The synchronization of the astrological wave and price from J to L gave us the green light to trust the more powerful move from L to Q. After Q, the stock continued to move in rhythm with my planetary projection for at least six more weeks before the synchronization began to fade. This particular projection was made available to some stock traders in December 1985.

## Results

This research rigorously tested more than 325 corporations and more than two-thirds of them have listed options. Most were tested for at least three years. Thousands of computer runs strongly suggest the predictive value of this procedure is especially suitable for short-term stock price moves.

When this procedure was strictly applied to more than 150 stocks with listed options for all of 1985, the results were as follows: 104 stock option buying opportunities (puts & calls) were identified; 82% of the time the stock moved in the predicted direction and the predictive "wave" of positive points correctly indicated the price peak or turning point within two to four days.

After four years of testing we have reached the following conclusions:

- Some corporations exhibit a much higher degree of correlation with this predictive tool than others. One broker with whom we shared our research results observed that stocks which historically exhibited the highest degree of market sensitivity were seldom in synchronization with the planetary graphs. However, stocks that exhibited greater volatility relatively stronger independent price swings could be predicted more reliably. Some of the 40-plus stocks that have exhibited a high degree of synchronization are: American Cyanamid, General Dynamics, General Motors, IBM, Union Pacific, Foster Wheeler and American Brands.
- The higher the number of positive points reached at the peak of a wave, the more likely the predicted price move will be dynamic.
- The correspondence between a planetary graph and the stock price movement tends to persist for two to three months at a time. In some cases it may last as long as six months. There does not seem to be an obvious explanation why such correspondence comes into focus for a period and then, weeks later, disappears.

- The planetary cycles we have tracked for the past several years may have some connection with stock price cycles that can be detected with spectral analysis. It is important to keep in mind that astrology is based on the harmonics of the circle. What may be occurring here is another type of mathematical analysis (quite different from Fourier or spectral analysis) that can highlight similar short-term cycles. Of course, there is at least one difference: whereas spectral analysis can give us a probable glimpse of the next three weeks, cycles based on planetary positions can be accurately calculated to give projections that often extend two or more months into the future.

**As with any trading plan, the objective is to use tools that will stack the odds in your favor as much as possible.**

Over the next four to six months we expect to launch a research project that will examine the possible connections between astrologically based projections for price cycles and cycles derived from spectral analysis.

Four years of research and thousands of computer printouts have convinced us that W.D. Gann and other researchers had good reason to make use of astrological cycles for predicting stock price moves.

Our experience suggests standard methods of technical analysis such as support and resistance levels, overbought and oversold indicators, and price pattern analysis should be applied to information generated from our computer analysis.

Nothing in the research suggests this type of analysis should be your primary tool. For example, a stock that has been in a long-term downtrend for the last eight months is not likely to suddenly reverse direction just because a strong wave of positive points is forecast for the next four weeks. It is more likely that the downtrend in price will stall out for that four-week period.

As with any trading plan, the objective is to use tools that will stack the odds in your favor as much as possible. Our findings suggest we have "re-discovered" a forecasting technique that can be beneficial to disciplined stock traders.

*Robert Kimball has participated in cyclical research for the past 12 years in New England and California. In addition to his career as a counselor, Mr. Kimball has given workshops, private consultations and lectures throughout the U.S. and Europe. For additional information on his current research write or call him at 78 Walnut Street, Natick, MA 01760 (617) 6554988.*

*Editor's Note: Books and software using W.D. Gann methods are available from Gannsoft Publishing Co., 11670 Riverbend Dr., Leavenworth, WA 98826, (506) 548-5990.*

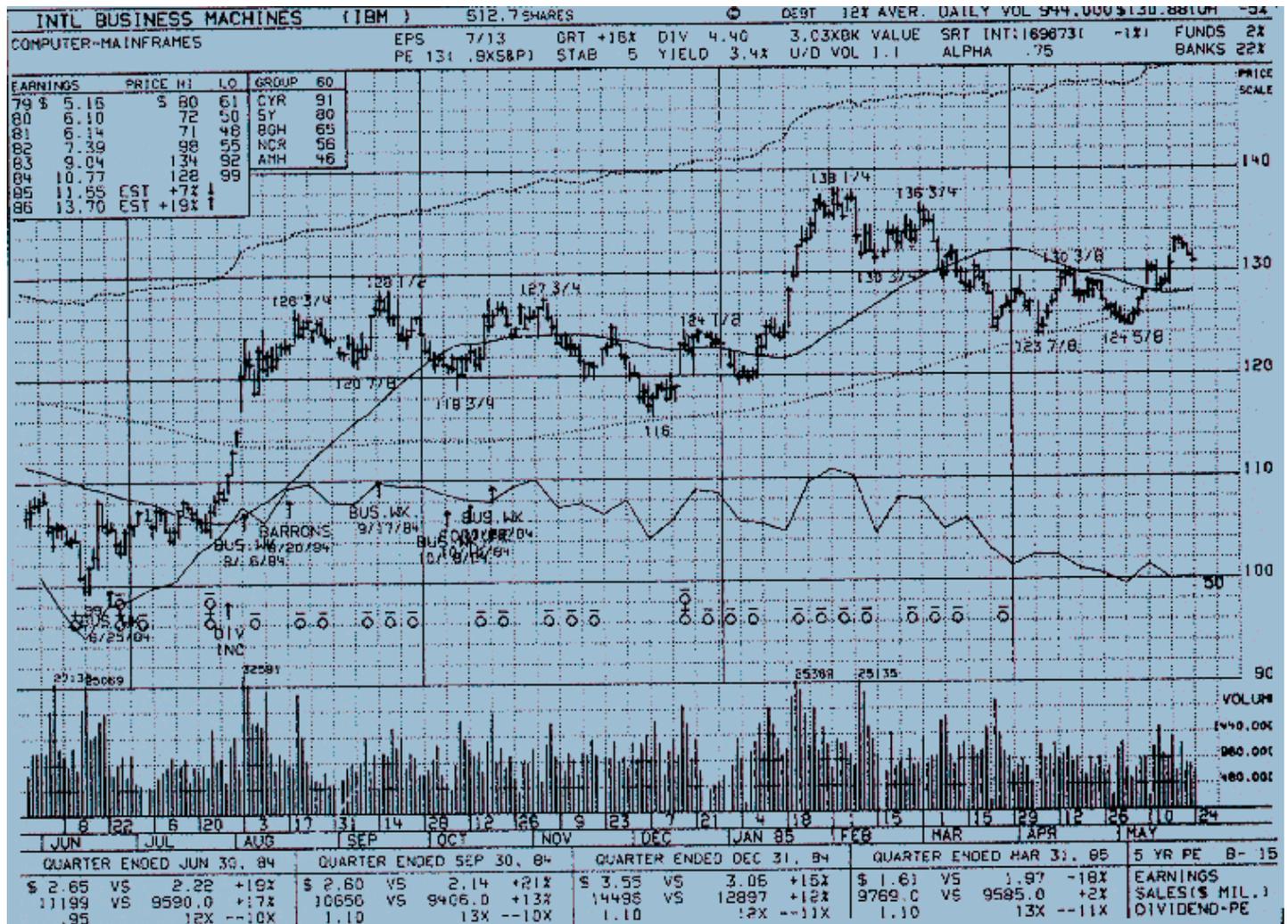


FIGURE 1A

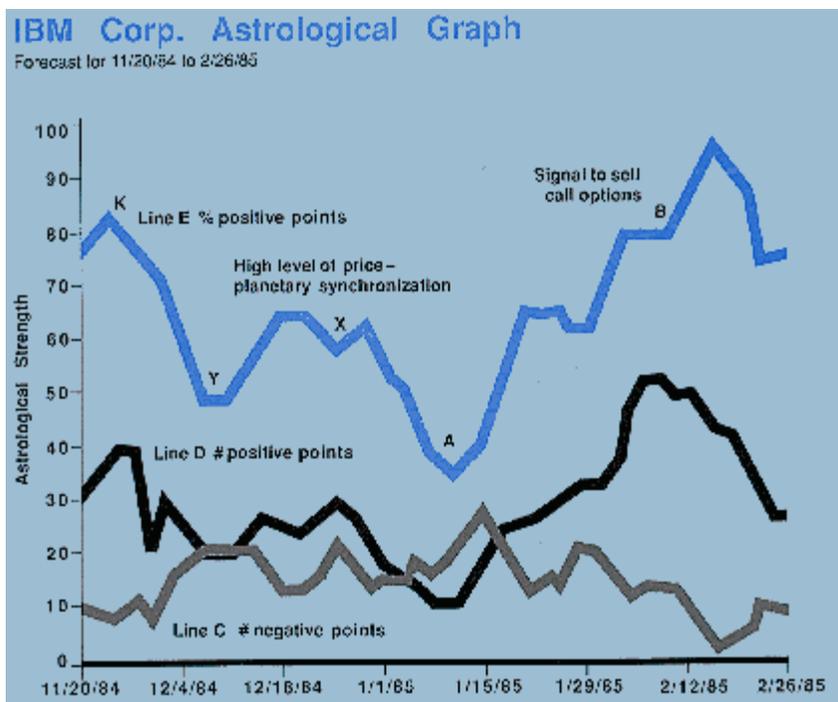


FIGURE 1B

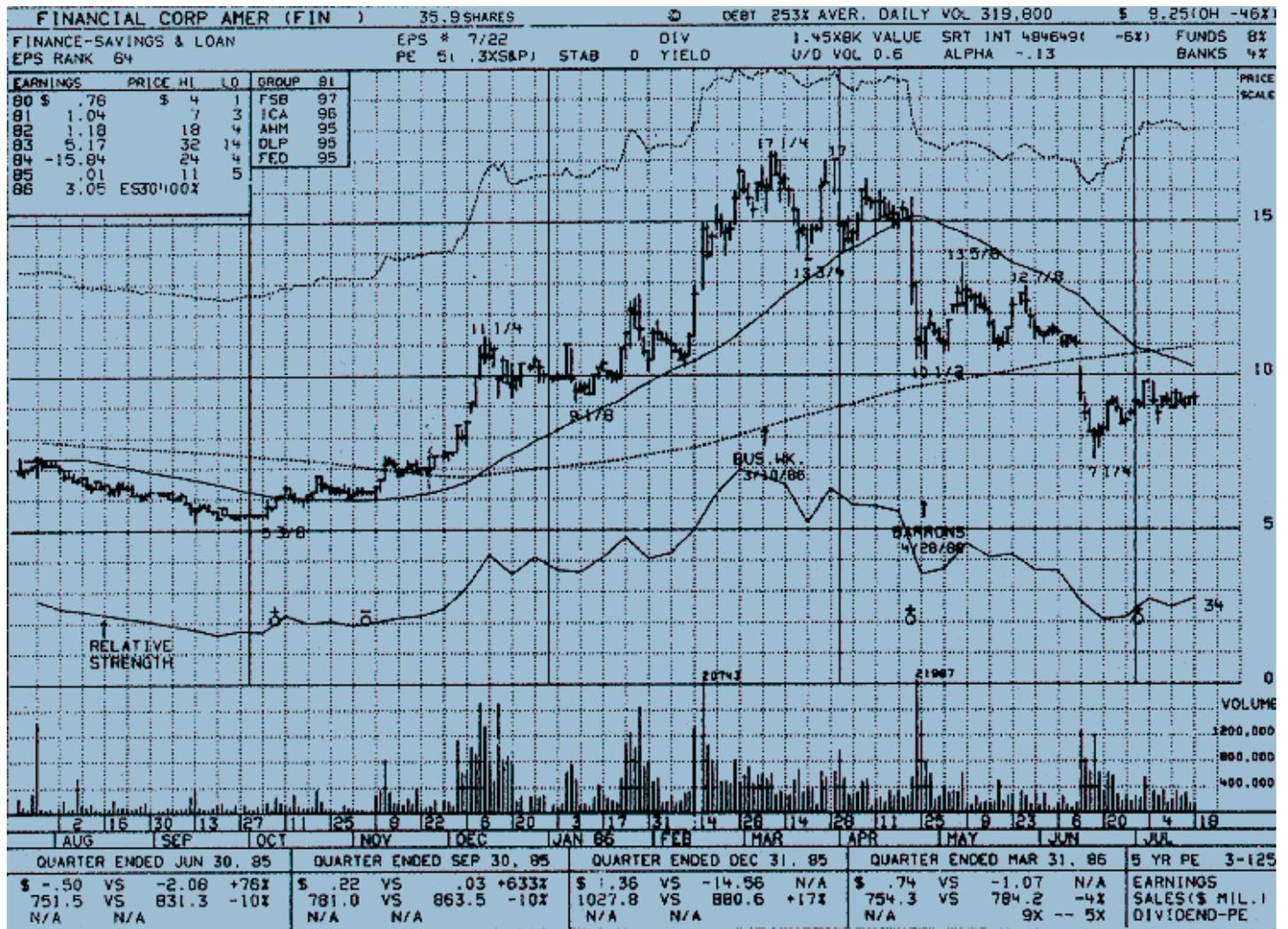


FIGURE 2A

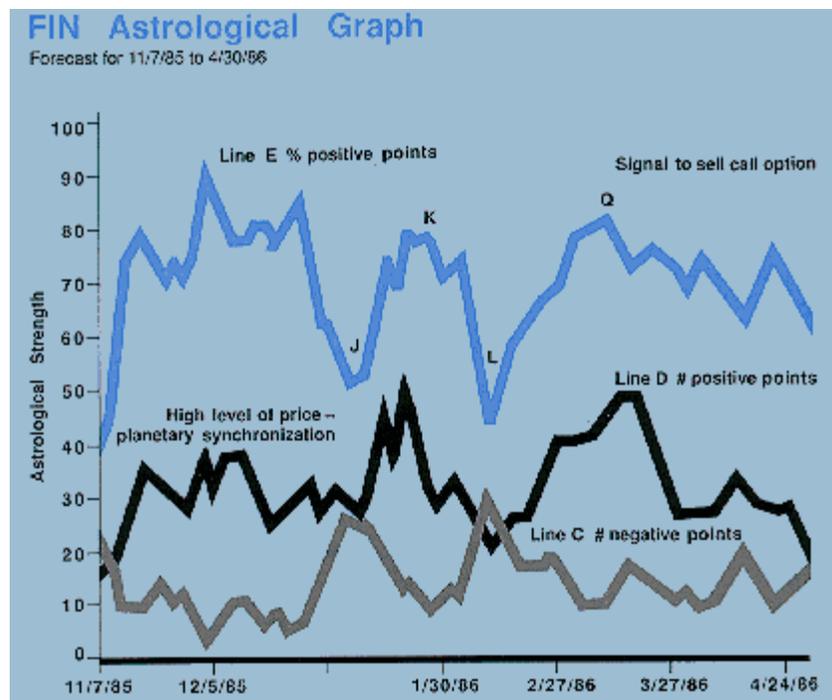


FIGURE 2B

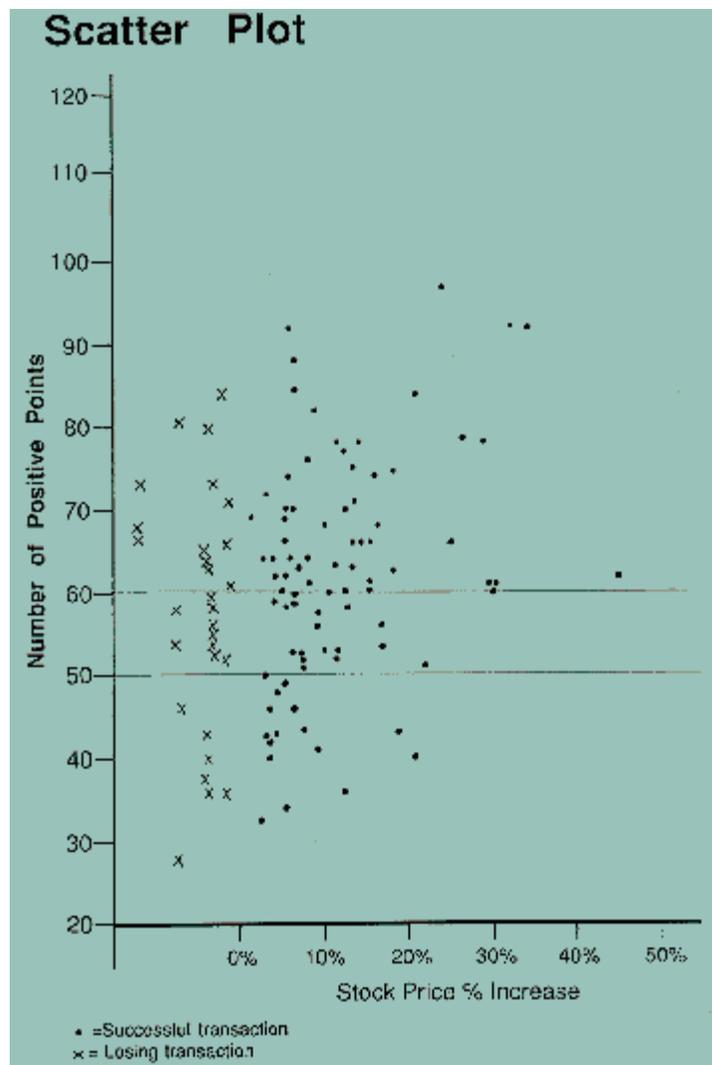


FIGURE 3

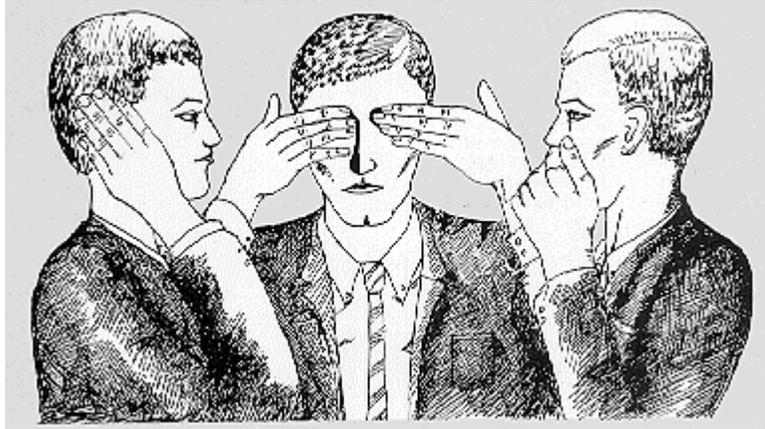
# Developing a personal trading style

## *The Wyckoff method of trading*

### *Part 14*

*by Jack K. Hutson*

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*"A stock market operator must be as hard-boiled as a five-minute egg; cold-blooded as a fish; deaf to all gossip; blind to news, and dumb as a door knob when it comes to discussing the market with others."*

—Richard D. Wyckoff

**T**rading the stock market with the Wyckoff Method is as much a test of personality and personal perseverance as it is a test of analytic education. Wyckoff was strictly a loner when it came to studying and trading the stock market. He believed the best way, the only way, his students would become profitable technical analysts was to rely on their own intelligence and to develop an inner fortitude against inevitable mistakes.

To his way of thinking, mastering the technical aspects of his method was only half the battle of working the stock market. Controlling emotional fervor and keeping a clear head when actually applying the technical know-how in a not-so-perfect market was the other half. Traders or investors wouldn't be able to do that, he felt, if they were continually looking for advice from others or if their technical reasoning was poisoned with rumors and news reports.

Brokerage houses, especially, were his bane. He warned against eavesdropping on the gossip, taking quick looks at the ticker or listening to unsolicited recommendations from brokers. "Be self-reliant," he advised. "Never ask your broker or anyone else what they think of the market. Make it a rule that your broker only quotes prices when you specifically ask for them. Make it a rule that the broker does nothing more than take the order and confirm its execution. Form your own opinion and try to make it so accurate that you gain confidence in yourself."

Wyckoff was quite intent on his students developing their own judgment, self-reliance, courage, prudence, pliability and patience. "We can train you to develop good judgment," he said, "but you must train yourself to act upon your decisions and to carry them to a successful conclusion." Success, he said, requires that "you operate with no emotions whatever. Be as indifferent, hard-boiled and level-headed in opening and closing actual commitments as you would if they were merely paper trades. You'll be surprised to find how greatly (complete emotional control) strengthens your judgment."

As a start, he recommended that each student "make a searching analysis of your own mental processes. Study your psychological shortcomings To know them is to beat them." Above all, he admonished against wasting time regretting losses or lost opportunities. "The only value of a mistake is the lesson it may teach; the only thought you will give to your errors will be studying the reasons for them."

Wyckoff was a firm believer in "playing a lone hand" and drawing conclusions without the consultation of "experts" because every person views the market from a slightly different vantage point. One expert may interpret price and volume movements from an investor's standpoint and another from a day-to-day trading outlook. The trader who is dependent on another person's opinions will not only fail to understand the market, he felt, but could very well be thrown off a proper course by offhand and conflicting opinions.

**If at any time, you find yourself powerless to move because you haven't the nerve to trade, he advised making trades on paper until confidence returns.**

Realistically, though, Wyckoff did acknowledge the existence and lure of advisory services even in the 1930s. It went against his grain, but he said, "If you must use an advisory service, check up on their recommendations. . .and don't hesitate to disagree."

He was a prudent market player, too. He believed that staying out of the market was as much a strategic move as being in it. "Never get the idea you must be in the market all the time," he counseled. "In fact, plan to be completely liquid at intervals to prevent yourself from going stale, and to keep a fresh, clear perspective."

He taught several clear signals that warn to pull out of the market. The first is a technical warning—the situation in which the trader's analysis gives unclear, confused signals. The other two are emotional warnings—relying on "instinct" rather than research and a growing or chronic indecisiveness about executing trades.

His advice was to never go into a stock because you *think* it may do well and never make a commitment until you've thoroughly studied its position, background and present behavior.

If at any time, you find yourself powerless to move because you haven't the nerve to trade, he advised making trades on paper until confidence returns. Better still, he said, "take a vacation from the market. Do nothing for some days or weeks. When you return to it, you will find your judgment improved."

He especially advocated stringent measures "whenever you find hope or fear warping judgment. Close out all positions at the market price regardless of profit or loss. Stay out of the market for a few days, a week or longer until these two emotions that cause so many failures subside."

Wyckoff's experience led him to the conclusion that being in the market at all times is not the key to

profits. Being in the market when there is a clear, unconfused technical signal and the trader's judgment is not swayed by emotion was his rule for success.

The first emotional juggernaut traders or investors must deal with is the matter of risking capital. Working the stock market requires the courage to lose money, but risking more than you can afford to lose will warp judgment. Equally destructive and ill-fated, as Wyckoff points out, is an obsession with amassing a fortune overnight.



*"Just one more thing Mr. Arnheim - sign where it says "Government by consent of the Governed."*

For both these reasons, Wyckoff counseled his students to first venture a fraction of their capital—say \$1,000 out of a total \$10,000 trading fund—in a series of trades in small amounts of stock. Learn to play the game professionally instead of trying to make an instant killing, he told them. Don't allow actual or potential success in the early stages to lure you into trading too large a proportion of capital. And, he reiterated, until you can be calm and collected with the amount of capital at risk, continue to practice on paper and hone your skills for the real campaign.

Flexibility is another essential skill Wyckoff felt anyone in the stock market should develop. "Don't get fixed on a certain amount of profit you hope to make on any commitment. The charts will indicate the possibilities. . .but the market situation can change in 24 hours."

Once you've made up your mind the market is topping out, he added, don't be in a hurry to climb back into a stock out of which you have just taken a substantial profit. "Let the other guy gamble for the last eighth of a point," he advised.

In Wyckoff's mind, patience equals greater profits. This is the patience to wait for opportunities to develop and to wait for clear signals from the charts. "Don't be in a hurry to get into the market simply because you have surplus cash," he advised.

**Wyckoff believed in committing capital to the market when stocks were ready to make their swiftest and furthest moves.**

"Wait until you see a real opportunity. One good commitment a year will make profits of many times the interest you could earn on your money for a few months outside the market. . .but one hasty trade can set you back an entire year's interest plus the shock to your confidence."

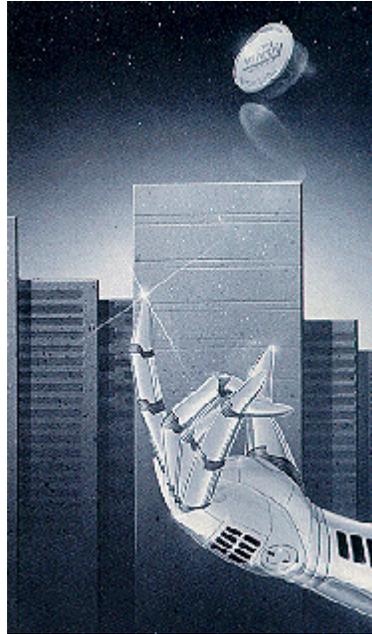
Wyckoff believed in committing capital to the market when stocks were ready to make their swiftest and furthest moves. The patience to wait for these situations, however, didn't demand 100% certainty before taking action. "By that time," he said, "your move will have started and the opportunity slipped away. Don't run after the move that has escaped— your judgment will be biased by your first error and chances are you won't act with a clear mind. Look around for the next opportunity."

He also cautioned against mixing technical methods. If a trade is made based on ticker tape indications, close the trade on that basis. If a chart is the basis for taking a position, the chart should be the reason for finishing out the position. Don't confuse the techniques of short-swing trading with intermediate-trend trading. And don't, he warned, drop by the broker's office at lunch to see how the market's behaving. It will be just one paragraph, not the whole story that your analysis will show.

Wyckoff, likewise, believed in one trading method—his method. He saw no reason to clutter it up with other ideas and theories (especially the Dow Theory). "Our instruction is practical, founded on principles employed by real operators and not beautiful theories. It is complete in itself, it covers all requirements in all phases of the market. It has been tested in all kinds of markets for more than 25 years and the underlying principles are as old as the market itself."

# How to use Maximum Entropy

by John F. Ehlers



**M**ESA is an acronym for Maximum Entropy Spectrum Analysis, a forecasting method that filters the "noise" from time series data and can uncover useful cycles. The advantages of the maximum entropy method over Fourier analysis is that high-resolution identification of cycles is possible using an extremely short database. This is important for short-term trading because cycles can fade or change before they are recognized by more conventional approaches. Maximum entropy also is not subject to the windowing or end-effect distortions that Fourier transforms suffer because it extracts nearly all the coherent cycle "energy" in a set of data. The noise or useless information ("entropy") that clutters up data and hides cycles is filtered out like so much chaff.

## Cycles are related to random walk

The reason the short-term cycles appear, fade and alter is that they arise as solutions to a class of random walk problems. Though it may seem so, random walk does not necessarily mean chaos. Mathematicians call the problem class in which we are interested the "drunkard's walk." The problem is formulated by allowing the drunkard to step either to the right or to the left as he steps forward. To ensure randomness, the drunkard must flip a fair coin to determine the direction of his next step. The differential equation that results from this formulation is called the diffusion equation ([Figure 1](#)). The diffusion equation is useful for describing physical phenomena like the plume of smoke leaving a smokestack.

We can draw analogies between the smoke plume and trading. For example, assume the smoke plume represents the random distribution of prices. The prevailing wind determines the average drift of the plume just as a trendline can be established for prices. In addition, the widening of the plume is analogous to having less reliable estimates of price the further into the future we attempt to predict.

Returning to the formulation of the drunkard's walk, if we now cause the coin flip to determine whether the direction will be changed rather than the direction itself, the random variable becomes momentum rather than direction. This formulation of the problem results in the differential equation known as the telegrapher's equation (Figure 1). The solution to the telegrapher's equation is used, among other things, to describe electronic waves propagating down the wires. In the case of the drunkard, he follows a decidedly cyclic path as he reels back and forth overcorrecting around a general direction and trying to reach an objective. If the paths were repeated a number of times the probability distribution would still be random. However, each path has a cyclic component in the short term.

**In Figure 2A, the optimized moving average is calculated as a half-dominant cycle moving average with the amplitude variation from the trendline multiplied by  $\pi/2$**

Every river in the world meanders. The rivers are sinuous not because of inhomogeneities in the soil, but because they contain constants applicable to the telegrapher's equation. That is, the momentum of the water is the random variable rather than the direction of flow. Momentum is the random variable because the river is attempting to find the path of least resistance by keeping the rate of drop of the water surface as nearly constant as possible as it flows downstream. In much the same way, markets seek the path of least resistance when they are stressed by realized losses, anticipated profits—in short, fear and greed.

Since short-term cycles arise from the solution of the random walk, the cycles can appear, change periodically and disappear relatively quickly. It is my experience that short-term cycles suitable for trading are present only about 20% of the time. A computerized analysis program is required that will recognize these cycles using a short database if the cycles are to be exploited profitably.

### Graphic displays of maximum entropy

My computer implementation of the maximum entropy method, called MESA, uses three interrelated graphic outputs to display results on either IBM or Apple II computers. The first of these is a 12-week history bar chart overlaid with an "optimized" moving average (Figure 2A). The second graphic output is a spectrum display where the relative amplitudes of the cycles can be compared (Figure 2B). The third synthesizes the prediction of prices in the future by combining all the cycles present in the data in their proper phase and amplitude, and allowing the time variable to extend into the future (Figure 2C).

In Figure 2A, the optimized moving average is calculated as a half-dominant cycle moving average with the amplitude variation from the trendline multiplied by  $\pi/2$  (see "Understanding Cycles," *Stocks & Commodities*, December 1985.) The historical entry and exit points occurred when the closing price crossed the optimized moving average.

The characteristics of the spectrum for Delta Airlines are shown in Figure 2B. The vertical scale of this chart is in decibels, a logarithmic measure of relative strength. The chart shows a well-defined 21-day cycle and a less well-defined, lower amplitude 9-day cycle. This 9-day cycle is 10 decibels (dB) down, relative to the dominant cycle. This means its wave amplitude is about one-third that of the dominant cycle. Cycle content is an important measure of the strength of the dominant cycle relative to a noise threshold level.

The cycle content is 6 dB greater than a threshold of zero. This means the cycle strength is four times greater than is necessary to have an absolute cycle content sufficiently great to be useful for trading (a ratio of four is 6 dB on the logarithmic scale). Thirty-seven days of data were used to identify the 21-day dominant cycle. I selected 37 days because this uses all the data after the downtrend (see [Figure 2A](#)).

Future prices for August 30, 1981 are predicted in [Figure 2C](#). The price chart is automatically scaled. However, the scaling is changed from that of [Figure 2A](#) to obtain the most informative picture. [Figure 2C](#) shows 15 days of history in the form of a bar chart and 15 days of price predictions as a continuous line extending from the last day of data. The prediction is formed by recombining all of the cycles present in the data in their proper amplitude and phase, and extending the time variable into the future. In this case, the prediction has Delta Airlines at a bottom.

### Daily use

I use maximum entropy to examine the prediction as a key timing indicator. In general, it is a better predictor of timing rather than of value. Being forewarned, I then carefully watch the history chart for an imminent crossing of the price and the optimized moving average. Actually, I extrapolate the potential crossing by one day to place a stop order. In this case, for example, I would place a stop order to buy Delta Airlines at about 31.75 "tomorrow," if I ran the study tonight. If I didn't get a fill I would repeat the study again tomorrow night. This would probably lower the value of my stop order because the optimized moving average would be continuing its decline. I would continue the procedure until I got fill or until I got warning messages that cycle analysis was not appropriate.

## **MEM works off any historical price data—open, close, high, low—and slips right into the CompuTrac Apple system or trader-designed Apple-based System.**

For those who use an Apple-based trading system, especially CompuTrac, another alternative for calculating and graphically displaying maximum entropy forecasts is a series of subroutines known as MEM developed by Dr. Anthony Warren and published by *Stocks & Commodities*. With MEM, a trader can take either a subjective approach to spectral analysis by hand-picking the three parameters on which MEM forecasts are based or take an objective approach by allowing MEM to automatically optimize the forecast based on the number of days of data to be considered.

MEM works off any historical price data—open, close, high, low—and slips right into the CompuTrac Apple system or an Apple-based system designed by a trader. MEM uses the graphics capabilities of CompuTrac or home-grown systems to plot a forecast line ([Figure 3](#)) along with upper and lower probability boundaries. These boundaries encompass the entire daily price range from high to low and can represent either a 95% or 99.5% confidence level. The forecast in [Figure 3](#) is based on closing prices for 50 trading days and a 95% confidence level.

### Resolution with short data lengths

A scientifically designed computer program should be validated theoretically before undergoing real-world tests of effectiveness. In particular, the ability to predict the future can be tested with deterministic waveforms. Just as we can analyze the cycles present in a wave shape, we can synthesize a

wave shape by adding component cycles together. If we do this synthesis, we have precise control of the cycle components and can check the effectiveness of a program's analysis against the input components.

**The dominant cycle of this sawtooth waveform is correctly identified in Figure 4A and the entry/exit signals would produce profits.**

As an example of the synthesis/analysis approach, we can generate a sawtooth waveform from a fundamental 15-day cycle, subtracting its second harmonic (7.5-day cycle) at half amplitude and subtracting its third harmonic (5-day cycle) at one-third amplitude. Mathematically, the equation looks like:

$$E = 5 + \text{SIN}(F) - \frac{\text{SIN}(2F)}{2} - \frac{\text{SIN}(3F)}{3} - \dots$$

where

$$F = \frac{2\pi I}{15}$$

15 = period of the fundamental frequency and I = incrementing variable (1, 2, 3 etc.).

The dominant cycle of this sawtooth waveform is correctly identified in Figure 4A and the entry/exit signals would produce profits. More importantly, all three of the component cycles were correctly identified with high resolution in Figure 4B. Resolution means that you can independently identify the 5- and 7.5-day cycles without them being mashed together in a glob. Moreover, this high-resolution identification was done using only two cycles (30 days) of the dominant cycle as a data length. Resolution performance like this is not available with Fourier analysis. When the analyzed components are added together again in the future, the prediction of Figure 4C results. This prediction of the wave shape is nearly perfect.

The implications of the predictions are clear. If there has been a cycle present for a short period of time and this cycle has sufficient amplitude and can be identified with good resolution, the presumption is that the cycle will continue into the future for a short while. If this is true, the prediction formed by maximum entropy synthesis can aid in making an entry or exit decision.

Although maximum entropy can yield high resolution with very short databases, there is a minimum data requirement. This requirement is that at least one dominant cycle's worth of data must be used for analysis. For example, if a 33-day dominant cycle was calculated using 20 days of data, MESA will deliver a "data too short" error message. I seldom like to use more than two dominant cycles of data for analysis because the older data may not be relevant to current trading. Although a cycle is present, we are dealing with a random variable.

### Real world operation

One of the most disconcerting aspects of maximum entropy is that it only works about 20% of the time. On the other hand, MESA gives error messages to warn when cycle analysis is not appropriate. If you

heed these messages you can save a lot of money by standing-aside until the cycles become favorable.

A typical example of a MESA chart is shown in [Figure 5A](#), which was current data for the S&P 500 as this article was written. This history chart apparently has given some good advice, but there were no good cycles present at the time those entries were current. The difficulties are apparent in [Figure 5B](#). The cycle content is low, there are three nearly equal amplitude cycles present, and the 22-day dominant cycle is spread very wide without a clear resolution.

The "tail" of the spectrum is trying to tell you that there is a very long cycle present. This is the only way the cycle program can tell you that the trend (the very long cycle) is swamping the cycle content. Since the cycle content is negative and there is poor resolution of the dominant cycle, the price peak in [Figure 5C](#) should be all but ignored.

MESA can be used with different sample periods. Some people run MESA using weekly and daily data simultaneously and correlate the results. The downturn on Nov. 12, 1986 was predicted by several people using weekly data for the S&P 500. MESA can be used for intraday analysis. I have seen a 44 dominant cycle on the 15-minute chart, 22 dominant cycle on the 30-minute chart and 11 dominant cycle on the hourly chart. Intraday operation has given some people the ability to precisely anticipate the highs and lows for the day. Maximum entropy is a scientific approach with a performance that has been proven using theoretical cyclic data, unlike other cycle analysis approaches, high resolution identification of cycles can be made with very short data lengths. The use of these short data lengths enable the capture of cycles for trading although the cycles are formed from a random variable. That is, the cycle is captured before it changes or disappears.

It is the author's experience that short-term trading using cycles is feasible only about 20% of the time. MESA provides error flags to advise you when cycle analysis is not appropriate, allowing you to save money by standing aside or to shift to another analysis approach.

*John F. Ehlers, Box 1801, Goleta, CA 93116, (805) 962-9477, is an electrical engineer working in electronic research and development and has been a private trader for about 10 years. He discovered the Maximum Entropy method in his work and is a pioneer in introducing it to trading analysis by writing the MESA computer program. He has written a variety of other programs to optimize technical analysis methods with the aid of cycles.*

*Stocks & Commodities' implementation of the Maximum Entropy method by Dr. Anthony Warren is on Volume 2 (\$99.95) of the Applell disk of technical analysis software and requires S&C's Volume 2 book (\$45) for documentation.*

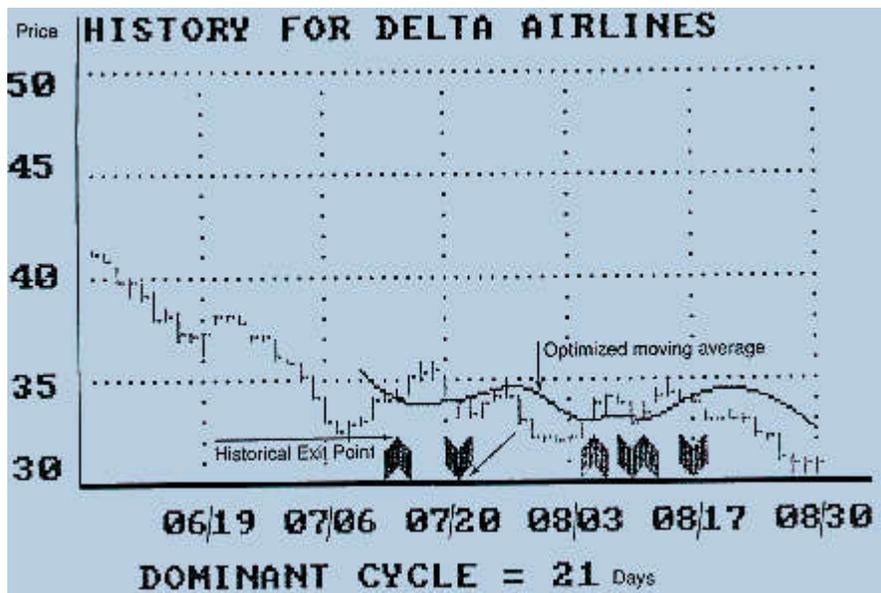
**FIGURE 1**

Telegrapher's Equation: 
$$\frac{\partial^2 P}{\partial t^2} + \frac{1}{T} \frac{\partial P}{\partial t} = c^2 \frac{\partial^2 P}{\partial x^2}$$

where T and c<sup>2</sup> are constants that determine wavelength and wave damping.

Diffusion Equation: 
$$\frac{\partial P}{\partial t} = D \frac{\partial^2 P}{\partial x^2}$$

where P(x,t) is the probability distribution or concentration of matter as a function of x and t, D is the diffusion constant, x is position, and t is time.



**FIGURE 2A** History bar chart and optimized moving average

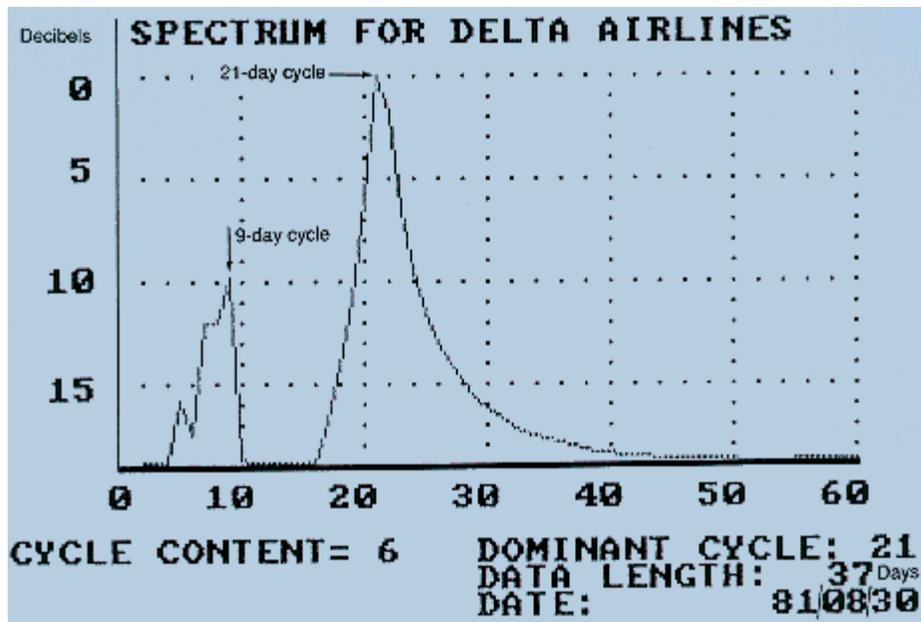


FIGURE 2B Spectrum display

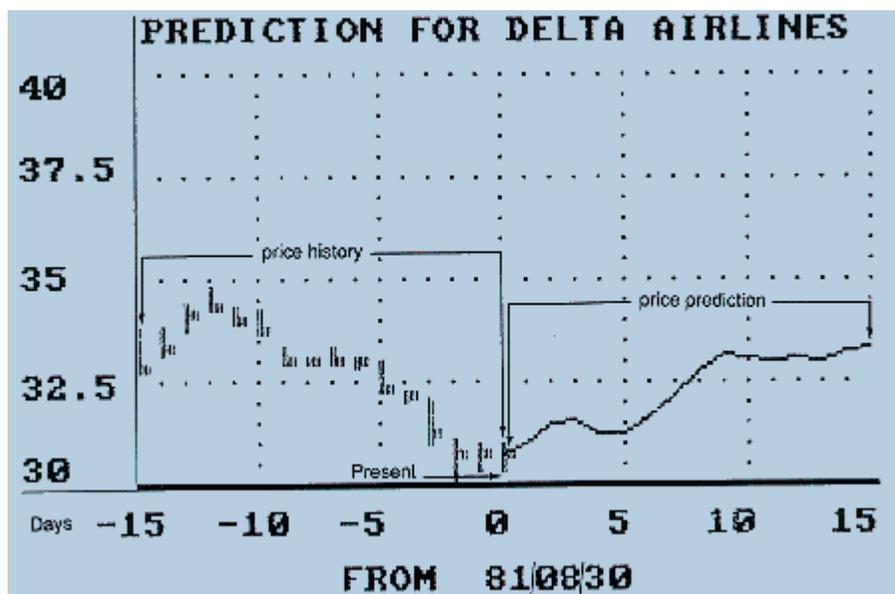
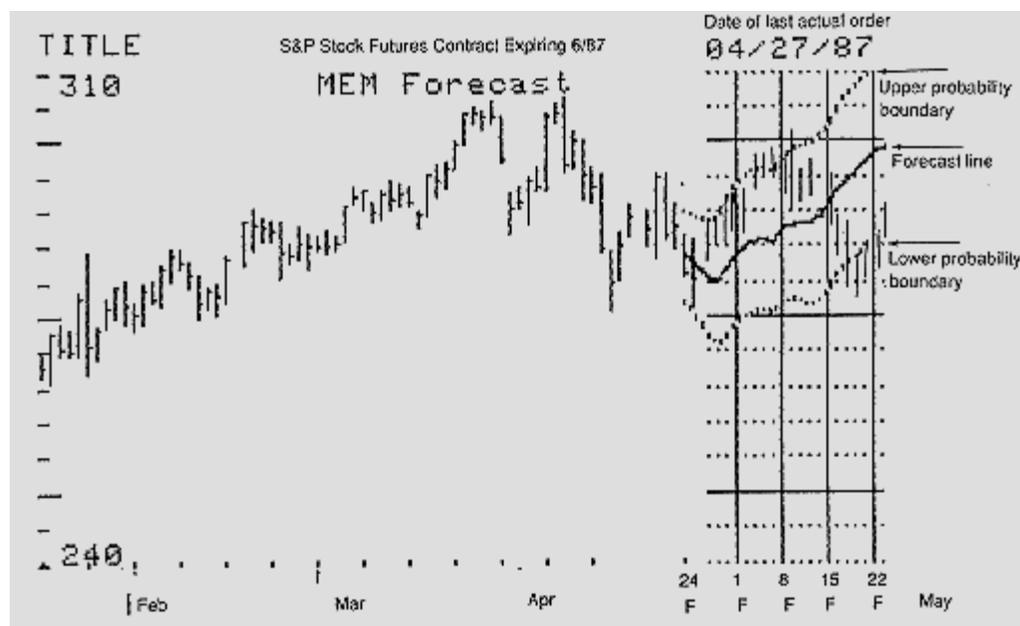
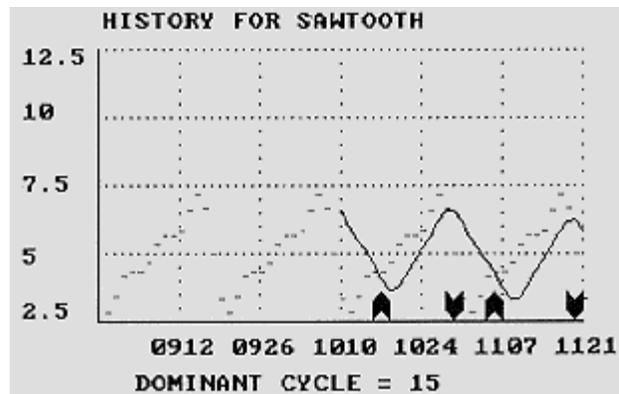


FIGURE 2C Cycle combination price prediction



**FIGURE 3** Maximum entropy method forecast line with 95% confidence interval based on the last 50 trading days closes.



**FIGURE 4A**

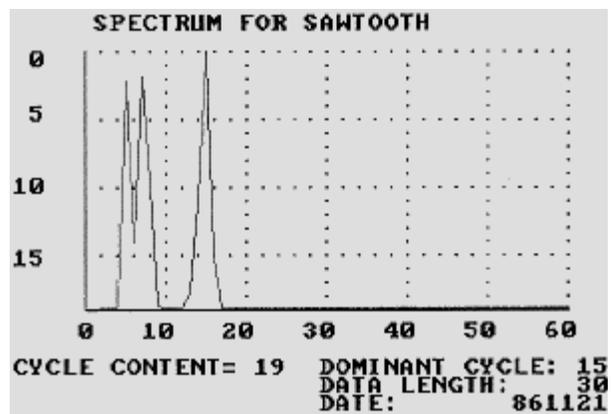


FIGURE 4B

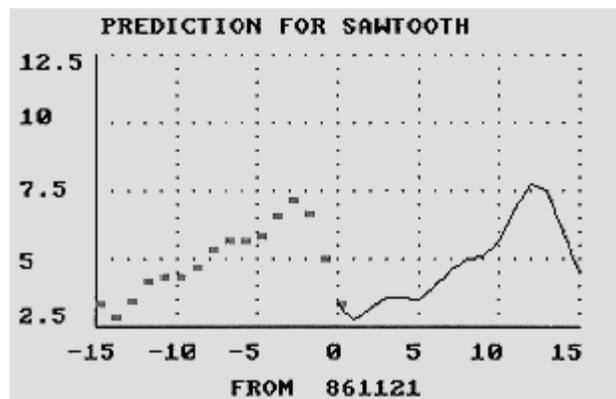


FIGURE 4C

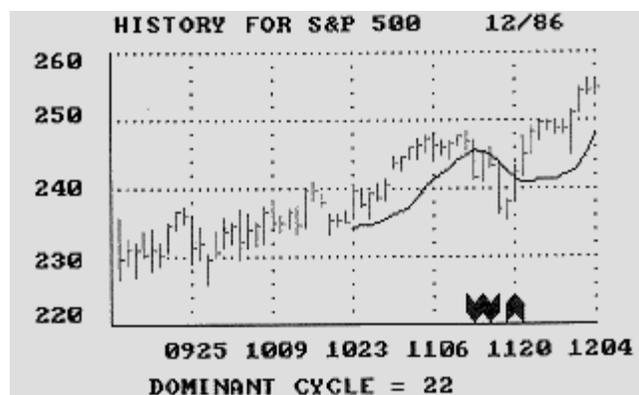


FIGURE 5A

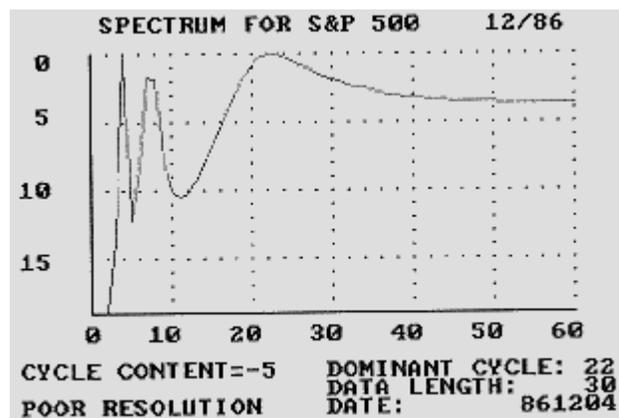


FIGURE 5B

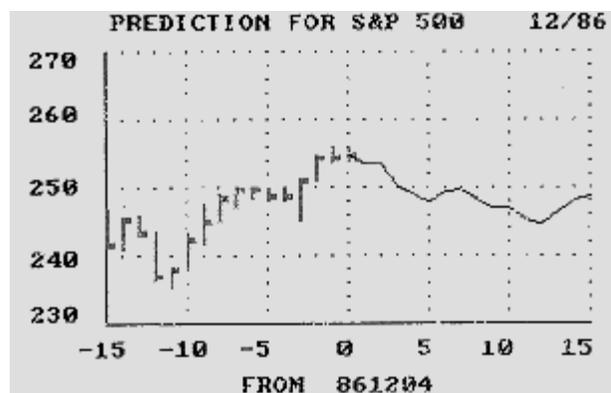


FIGURE 5C

## IN THIS ISSUE

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*John Sweeney, Editor*

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Looking at this issue, I have this recurrent, queasy feeling of being pulled in too many different directions. The interest in technical analysis is growing rapidly and its many different practitioners are harder and harder to reconcile. Our complete lack of a general theory of mass (market) behavior makes sifting through the many submissions we get very tough. What has substance? What is merely curious? What is just junk? What's completely new?

Herein is everything from astrology to charting techniques from the turn of the century to high-tech cyclical analysis to running an efficient spread trading program. Frankly, there are more ideas than any one person can possibly assimilate. My goal has been to have at least one idea in each issue that each person could use. That one idea should pay for not only this issue but the entire year and, most likely, several other years. For lack of theoretical guidance, I'm giving you the gamut: simple to complex. I genuinely hope it helps.

Trading is an opportunity to lead that examined life which the ancients felt was most worthwhile. When a trader sums up his experiences and reflections on what "it" may all mean, we should take notice, if only for the event's rarity.

Earl Hadady's book *How Sick is Uncle Sam* [Key Books (818)793-2645] deserves such treatment. Even though this isn't a book about trading, it's worth reading so that you know the general path our nation and government tread. Also, since it's from the man who brought us the art of "contrary opinion," we expect and get a stimulating presentation.

What raises Earl's eyebrows is the startling rise in U.S. public debt. Interest expense is now a budget item on the order of social security or defense outlays, clearly not a small program. Earl's conclusion is more alarming than many: "A fiscal crisis could occur as early as 1986 and is not likely to be postponed beyond 1990!" That puts us right in the middle of his target zone.

Frankly, his solutions to the U.S.'s profligacy are not new: government jawboning, limiting money supply growth to estimated productivity growth, more taxes and maybe a gold standard. Earl pretty much concedes the omnipotence of the today's vast array of parasitical special interest groups in getting the spending they want. (He thinks banning lobbying might help.) But he doesn't stop there. He's exhaustively analyzed everything from public education to crime and technology. If this were just another gloom and doom book, it would be worthless.

The plus to Hadady's outlook is that it's very practical and put forward by someone who is not (a) running for a public salary or (b) lobbying for public money. The footnotes and bibliographies alone are gold mines! Once you finish this book, you're ready for some coherent thought about problems we all perceive but with which we have few resources to deal. The facts you're likely to need to form your own opinions are all here. And from another trader, yet!

*Good Fortune!*

## Letters to S&C

### **Fraser Out**

Editor,

We talked today regarding the citation of Fraser Financial Publications in the August issue of *Stocks & Commodities*. This firm was stated as a source of books or pamphlets on the Wykcoff Method. However, no address or telephone number was given for Fraser Financial Publications. I would appreciate your sending me a card with this information when you locate it.

CHARLES MARCELLUS

*New York, NY*

*Apparently, Fraser is out of business! Our apologies to you!*

### **I'm Okay, You're Okay**

Editor,

Like most traders, I began by putting the cart in front of the horse, i.e., concentrating on analysis instead of getting my own personal act together first.

I then started trying to find information in the field of psychology that might be of some help. Because a trader's problems are unique I had trouble finding the right information.

Then your magazine started publishing articles by Dr. Van K. Tharp, which I read with great interest. I enjoyed them so much I sent off for his course and after much reading and studying the material I was able to correct my trading problems.

Thanks for publishing so many articles that have real practical value.

JOHN BAKER

*Tolar, TX*

### **Liquidity Explained**

Editor,

Will you please add a line of explanation to "Trading Liquidity: Stocks" and tell us how good is its record? Thank you.

R. CONRAD LESLIE

*Chicago, IL*

*Good question! The Stock Liquidity chart generally is a listing of very active stocks. This does not mean that they are all going up or all going down. It means that, based on our number crunching, they're all going through some great turnover or turmoil and therefore tend to go up or down quite a bit. The chart does not tell you the direction of the move; it just indicates that these stocks probably will have some price motion. Our observation has been that when stocks hit this chart they tend to have pretty good long or short action over the following few months and then fall off the chart, although some have stayed on the chart over a year.*

**Call Ron**

Editor,

I enjoy your publication. In your June 1987 *Letters to S&C*, Ron Jaenisch made reference to several books by Bandler and one by Robbins. Would you be able to tell me where these books might be ordered? Thanks.

DR. DOUGLAS D. HAGG

*Redwood Falls, MN*

*Call Ron at (408) 738-2311.*

**BackTrak Woes**

Editor,

I am a subscriber to your magazine for almost two years now. I learn a great deal from your articles and your past issues.

I am so shocked when I bought BackTrak from MicroVest after reading your article about it in the previous issue. It is the most poorly written program I have ever possessed. There are a lot of bugs and mistakes in that program. It is totally useless in trading because it doesn't trade according to the signal given. I have written to them but they are keeping very quiet about the whole thing. The manual accompanying it is also very ambiguous and doesn't explain clearly how to use it. I just hope that you shouldn't recommend such low quality or substandard programs in your magazine.

The articles you present in your magazine are becoming very relevant and interesting. It enriches my market knowledge and sharpens my trading skills. Keep up the good work!

BERNARD CHAI YOONG MENG

*Kuala Lumpur, Malaysia*

We do try to be careful about our reviews and we are sorry that this package didn't turn out well for you. We just haven't had the experience that you have with this product. However, the published reviews and

user comments have been uniformly positive. Therefore, we suggest that you try again. Give it another chance and try to get your money's worth!

### **A Good Ride**

Editor,

I am writing to congratulate you on your fine magazine. During the past few years, it has been fun to watch your "baby" develop into the best technical commodity magazine on the market. I also wanted to share with your readers some of the experiences I've gained over the years.

As you know, I've been involved with designing and testing commodity trading systems for about 10 years. During that time I have acquired about 1,000 trading systems in addition to the many hundreds that I have designed and tested. With rare exception, almost every trading system I have ever seen works only on a limited basis under limited market conditions, but then, why shouldn't it? Most systems on the market are nothing more than a set of trading rules set up to maximize profits on some set of historical data. It is very easy, with the benefit of hindsight, to come up with a set of trading rules that will show excellent profits on any past set of data. Of course it is presumed that these rules will produce similar profits in the future. This rarely happens.

The real problem is that we are all (about 100%), I will consider marketing the technique, however, in the meantime I believe the approach makes a lot of sense and recommend that your readers give it some thought.

Wishing you continued success,

BOB DENNIS

*East Bridgewater, MA*

*Bob is the developer of the RSI trading system favorably evaluated by Futures Truth Company.*

### **Babson Technique**

Editor,

A tip of the hat goes to Welles Wilder for his incredibly enticing advertising for his Adam book. It can be hard to resist buying something for only \$65 for which he paid \$ 1,000,000.

The book suggests using something that could be called a "flip flop technique." This could be quite cumbersome to chartists and almost impossible for those using computers.

Recently, I spoke to an exchange member who can explain most trading techniques to the finest detail and give the scientific logic behind them. He and I concur that the proper technical application of the Adam technique has a very strong similarity to, and may actually be, a technique developed and taught by Roger Babson in the 1920's. This is good news for commodity traders who use computers because a programmer from CompuTrac recently called me to find out how the software we sell draws Babson's lines, so that they can put it in their software.

For those traders who wish to draw them by hand on charts, it is suggested that they read the February

1986 issue of Stocks & Commodities and pay particular attention to pages 37 and 38, Figures 5, 7 and 10.  
Prosperous trading,

RON JAENISCH

*Sunnyvale, CA*

### **Moving Average**

Editor,

I have sent the following letter to Steven Achelis regarding his article' in the August 1987 issue of *Stocks & Commodities*:

Mr. Achelis,

Many thanks for your letter dated 21 July. It was unfortunate that "Technical Analysis of Stocks & Commodities" omitted the paragraph that explained how to calculate the OB/OS in detail.

However, I must confess that I was still not absolutely clear about some of the terminology used and so took the opportunity to show your article to an economist who is a far better mathematician than I am.

He did make two points. The first was, to be technically correct, he felt that you were not using an exponential moving average but an exponential weighted moving average. His second point was I think at the root of my initial difficulty in understanding the calculations. Your article and your letter both made specific reference to a "10-day moving average." As far as we can see, your calculations have nothing to do with a 10-day moving average. If it did, the Figure 10 would be in the calculation, but it is not. As you say it takes a little while for the OB/OS column to come up to speed, but I think you will agreed the 10-day aspect was a bit of a red herring which had us all in the office here desperately trying to find a relationship between it and 0.82 or 0.18!!

R. L.B. ANLEY

*Oxon, England*

*Mr. Anley,*

*Your confusion regarding exponential moving averages is understandable. Your friend is correct, exponential moving averages are weighted. I have enclosed several pages from The Technician's manual which explains the various types of moving averages, as well as the method used to convert "10-days" into 0.18 and 0.82.*

**Exponential:** *An exponential (or exponentially weighted) moving average is calculated by applying a percentage of today's value to yesterday's moving average value.*

*For example, to calculate a 9% exponential moving average of the DJIA: First, we would take today's closing price and multiply it by 9%. We would then add this product to the value of yesterday's moving*

average multiplied by 91% (100%-9%=91%). The moving average equals [(today's close) × .09] plus [(yesterday's close) × .91]

Because most people feel more comfortable working with days than with percentages, The Technician converts days into a percentage. If a 21-day exponential moving average is requested, a 9% moving average is calculated. The formula for converting days to exponential percentages is as follows:

$$\text{Exp\%} = 2 / (\text{days} + 1)$$

The method used to calculate an exponential moving average, means the average puts more weight toward recent data and less weight toward past data than does the simple moving average method.

**Weighted:** A weighted moving average is designed to put more weight on recent data and less weight on past data (similar to an exponential moving average). A weighted moving average is calculated by multiplying each of the previous day's data by a "weight."

**5-day Weighted Moving Average**

Day No.	Wgt	× Price	= Wgted Price
1	1	× 25	= 25
2	2	× 26	= 52
3	3	× 28	= 84
4	4	× 25	= 100
5	5	× 29	= 145
<hr/>			
15	\$133 =	\$406 / 15	= \$27.067

The table shows how a 5-day weighted moving average gives five times the weight to today's price as it does to the price five days ago.

STEVEN ACHELIS

Computer Asset Management, Inc.

(801) 974-5115

# Options-80A

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*by Hans Hannula, Ph.D.*

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**Price:** \$170 + \$5 **shipping**

**Equipment:** IBM PC, Wang PC, Tandy, TRS-80, TI PC and Apple II Plus families, Apple Macintosh and look-alikes, 48K memory, one disk drive

**S**ome people view options as a marvelous way to leverage their trading. Others view options as a tool for sophisticated investing. Whatever your view, analysis of the return you expect is very important to your success. Fortunately, such analysis is easily handled today by a personal computer, given the right software. One such software program is the Options-80A.

Options-80A is a useful options analysis program for options on stocks, indices or commodities. It is graphically oriented and straightforward to use. It takes the approach that the purchase of an option is an investment and should be examined for its return on investment vs. future share price.

## Program operation

To give you a feel for this program, let me run through a session with you. Options-80A is written in interpreted BASIC, so to run it you type "basica optiona" and the main menu appears as in [Figure 1](#). Let's select (9) **HELP**. The screen in [Figure 2](#) appears. A rather modest help facility, but adequate for this program.

After going back to the main menu, let's try (8) **ADJUSTMENTS**. This pops up the screen in [Figure 3](#). It's just a table of the parameters, such as the cost of money, needed by the program to do its calculations. Typing over any one of them changes the value to what you want. Even trading commissions are factored in, which is nice.

Once again to the main menu and let's select (7) **SCALE TABLE**. This brings up the screen in [Figure 4](#). These scale numbers are used to draw the return plots on the screen, so they don't make much sense yet, because we haven't drawn any plots. As it turned out, I never had to change these, but it was nice to know they could be adjusted.

Time for some analysis. Options-80A needs some market data before it can do anything, so let's go to the main menu and select (1) **CALL TABLE**. What pops up is a blank table with room to fill in six strike prices for three months. [Figure 5](#) is filled with data for the XMI index on 5/11/87. The data was taken right out of a newspaper and just typed in. There is a way to load data from Dow Jones' data service, but I didn't try it.

To do any analysis, you also may fill in a put table as well as the call table. So we jump back to the main menu and select **(2)PUT TABLE**. After entering data, it looks like [Figure 6](#).

Now let's look at some "what if" trades. I'll just go through calls, since the put side works the same way. From the main menu, we select **(3)CALL MENU** and [Figure 7](#) pops up. The call table has been calculated to show the time value (premium) on the options we entered in the columns labeled TV. The annualized percentage the XMI index would have to move for the option to break even at expiration is shown in the columns labeled BE. For example, the 460 June call would require a 37% annual growth rate to erase the \$11 premium by June 19, the assumed expiration date.

Now let's select **(1) BUY CALL** and look at some different purchases. We'll examine the three 445 calls. The program generates the plot shown in [Figure 8](#) (note that I added the arrows). As it draws the plot on the screen, it lists the options on the right with their cost, including commissions. In real time, it is easy to see which line is which plot.

As you can see, the plot is not high resolution, being drawn only with characters, using the screen in the text mode. This is a carry-over from the program's birth on the TRS-80, which only has a character screen. There is an option to select a screen display using IBM graphics characters which look somewhat better on screen, but I couldn't dump them to my Epson printer. To get hard copy, you just do a Shift-PrtSc key-stroke. This is an adequate graphic capability and makes the software easy to write and support. Personally, I think higher resolution is needed on the IBM, if not on the screen, at least on the dot matrix printer. I've written printer drivers (I do all my own graphics software) and it isn't that hard to do nice work on a dot matrix printer. I didn't like the lines not being labeled on the chart. I don't recall which came out first and shouldn't have to do so. Some improvement is called for here.

Anyway, the plot shows that if the XMI rose \$26 before it expired, the June call would generate a 240% per year profit. So, despite its graphic crudeness, the plot quickly tells you what the relationship is between the underlying vehicle's price movement and the trade's profit or loss.

Let's try another. Going back to the **CALL MENU** shown in [Figure 7](#), we select **(2) WRITE VS. STOCK** and, after selecting the July 460 call, we get [Figure 9](#) which shows the result of writing the call and buying the stock (I know you can't buy the XMI, but you could buy its underlying stocks). The curve shows that if the price changes anywhere from a \$3 drop to a \$30 rise that the trade would be profitable.

At this point, let's try a spread. Going back to the **CALL MENU**, we select **(3) OPEN SPREAD**, select to buy the June 450 call and sell the June 460 call. The result is shown in [Figure 10](#). Note I had to add the dark lines to the printer plot so you could see the steep line. This trade has action built into it. If the price moves up five points, we make a 300% return. If it moves up only one point, we lose 240% (annualized).

Next, I wanted to try a put-call spread, but I discovered that Option-80A can't handle that. I turned to the manual and found the following rather biased remarks in a section titled "Butterfly Spreads and Cocktail Parties:"

"We cut out the fancy stuff which detracts from the basic analysis of making money with options. These are complicated mixes of different transactions which are no more than the sum of the parts. If you want to consider them, merely add the curves of the separate transactions (suitably weighting them for the different investment amounts). By all means learn the fancy names so you can be erudite at cocktail parties."

Personally I find some of the "fancy stuff" profitable at times and expect my computer to add the curves

and suitably weight them. But that is my bias. If you don't need the fancy stuff, Options-80A does fine.

That's a run-down on trade analysis. If you can form an opinion about the direction of the vehicle you are working with, you can easily look at the potential gains and losses. I like that.

Now let's try some Black-Scholes analysis. This is a theoretical price model which let's you compute what an option should sell for, if you know some things like the cost of money and the volatility of the underlying vehicle. So from the main menu, let's select **(5) BLACK SCHOLES**. After selecting the next menu item to compute the implied volatility on the June 460 call, we have [Figure 11](#). What we have done here is assume that the call is priced exactly according to the Black-Scholes model and use the model to drive a volatility, which came out to .209.

Now, we select **(1) THEORETICAL PRICES** and up pops [Figure 12](#). This table is really handy during a trading day, because if you have a good calibration on the theoretical prices, you can sometimes spot bargains. If we go back to the prior menu and select **(3) EXCESS OVER THEORETICAL PRICES**, we can do our bargain hunting directly, as shown in [Figure 13](#). This shows that if our volatility is correct and if the cost of money is correct and if the other data is correct, several options are selling below the theoretical value. For example, the July 445 is \$3.04 below the expected value, so this could be a great one to look into with the analysis tools we used earlier.

Now you've seen almost all that Options-80A does, except for disk operations. From the main menu, let's select **(6) DISK MENU**. When I did this and then selected **(1) STORE OPTION PRICES** I got an error. I just wanted to save my put and call table to disk. I looked for help in the manual. None. I called for Patrick Everett, the program's author, and he was out (you are supposed to call during the evening). So I tried to read the BASIC code to see what was going on. I thought maybe it was looking for a disk drive I didn't have. I couldn't decipher it. (That doesn't mean it's bad code, just someone else's BASIC.) So I gave up. The function must work, since this program has been around several years, but something didn't work for me here. I'm sure that if I could have reached Mr. Everett he would have resolved the problem for me. This was the only real glitch I found in Options-80A, which otherwise ran perfectly.

### User survey

I usually try to interview at least five users of a program. I only got two out of a list of three provided me by Mr. Everett. He had a real bind in getting me names because he was leaving for a trip to Europe, but found three users who agreed to being interviewed. Of the three, one was always out. To compensate, I will give my scores as well. So this user survey is a bit limited, but still useful.

Area	User	Score	My Score
User	1	2	
Ease of Use	9	8	10
Reliability	10	9	7
Support	10	9	8
Functionality	8	7	9

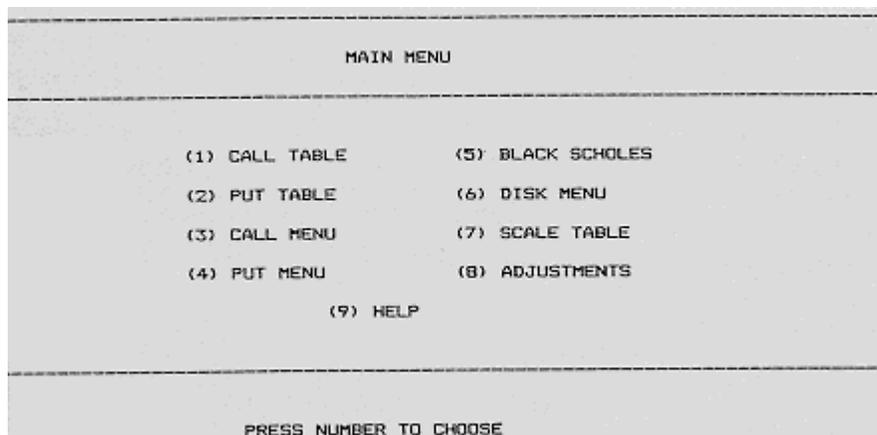
Neither user had any problems with the program and recommended it to others. One claimed it made him money, one wouldn't make that claim, saying that he did the money making. I down-graded reliability only because of the aforementioned disk problem. Without that, I would rate reliability a 10. Also, the

manual is well written. I down-graded support to an 8 because of the evening hours restriction, but I found Mr. Everett very courteous and knowledgeable. Both users spoke well of his help.

### **The bottom line**

Should you buy Options-80A? My overall rating on this program is three stars (see box). If you don't need that "fancy stuff" and if my "cook's tour" has shown you what you want, try it. It is cheap, has a 30-day money back guarantee and does the basics well. You can't go too far wrong.

*Hans Hannula is an engineer and programmer with more than 20 years experience in technical stock trading. He is an associate of MicroMedia, (303) 452-5566, a firm specializing in microcomputer analysis and trading software.*



**FIGURE 1. Main Menu**

```

HELPFUL HINTS
-----
THIS PROGRAM IS ERROR TRAPPED. DON'T BE AFRAID TO EXPERIMENT!
WHEN IN DOUBT, PRESS THE RETURN (OR ENTER) KEY.
IF YOU GET LOST, ENTER <M> TO GO TO A MENU.
TO ENTER <M>, HIT KEY M AND THEN <ENTER> (I.e. HIT THE RETURN KEY).
TO EXIT THE PROGRAM, PRESS THE <CONTROL> AND <BREAK> KEYS A FEW TIMES.
THIS WILL LEAVE YOU IN THE 'BASIC' MODE.
IF YOU SHOULD ACCIDENTLY EXIT THE PROGRAM, THEN RETURN BY ENTERING:GOTO 1200
THIS WILL PRESERVE YOUR DATA.
THE MANUAL ALSO HAS USEFUL INFORMATION, AND IS INDEXED.
-----
ENTER <M> FOR MENU:
    
```

FIGURE 2. The Help Screen

```

***** ADJUSTMENTS *****

```

PARAMETER	ALLOWED	NOW
ANNUAL COST OF MONEY %	0 TO 40	10
EXPIRATION DAY	1 TO 30	19
TRADING ADJUSTMENT \$	0 TO 1	.25
COMMISSION ADJUSTMENT \$	0 TO 1	.1
COMMISSION RATE %	0 TO 10	1

ENTER <M> FOR MENU

FIGURE 3. Fixed Parameters

```

***** SCALE TABLE *****

```

PARAMETER	ALLOWED	NOW
VERTICAL DIVISIONS		
HI LEVERAGE PLOTS, ANN.%	INTEGER	60
LO LEVERAGE PLOTS, ANN.%	INTEGER	15
HORIZONTAL DIVISIONS		
ANNUALIZED %	MULTIPLE OF 5	20
PRICE CHANGE (DOLLARS)	5 OR 10	5

ENTER <M> FOR MENU

FIGURE 4. Plotting Scale Parameters

```

STOCK NAME: XMI          PRICE: 453.19   DATE: 5 / 11 (MONTH/DAY)

          MONTH 5      MONTH 6      MONTH 7

SP 440      13.62      25          26.5
SP 445      10         19.25      22
SP 450      6          16          -----
SP 455      3.87      13.75      -----
SP 460      2.25      11          15.87
SP 465      1.37      9           14.25

DIVIDENDS      0          0          0

-----

ENTER <M> FOR MENU, <L> FOR LEAVE, <J> JUMP UP, <S> SAMPLE DATA

***** CALL OPTION TABLE *****
    
```

**FIGURE 5. The Call Option Table**

```

STOCK NAME: XMI          PRICE: 453.19   DATE: 5 / 11 (MONTH/DAY)

          MONTH 5      MONTH 6      MONTH 7

SP 440      1.25      8.25      10.62
SP 445      2.5       9.5       12
SP 450      4.25     11.25     -----
SP 455      7         14.25     -----
SP 460      9.5      17         19
SP 465      14       20        20.37

-----

ENTER <M> FOR MENU, <L> FOR LEAVE, <J> JUMP UP, <S> SAMPLE DATA

***** PUT OPTION TABLE *****
    
```

**FIGURE 6. The Put Option Table**

```

STOCK NAME: XMI          PRICE: 453.19  DATE: 5 / 11 (MONTH/DAY)

          MONTH 5          MONTH 6          MONTH 7
          TV  BE          TV  BE          TV  BE
SP 440    0.430  4%      11.810  25%      13.310  16%
SP 445    1.810  18%      11.060  23%      13.810  16%
SP 450    2.810  28%      12.810  27%      -----  ---
SP 455    3.870  57%      13.750  33%      -----  ---
SP 460    2.250  91%      11.000  37%      15.870  27%
SP 465    1.370  133%     9.000   44%      14.250  30%
    
```

---

```

***** CALL MENU *****

(1) BUY CALL           (5) LEAVE EARLY
(2) WRITE VS STOCK    (6) LEAVE EARLY
(3) OPEN SPREAD      (7) LEAVE EARLY
(4) CALL TABLE      (8) MAIN MENU

PRESS NUMBER TO CHOOSE
    
```

FIGURE 7. The Call Menu

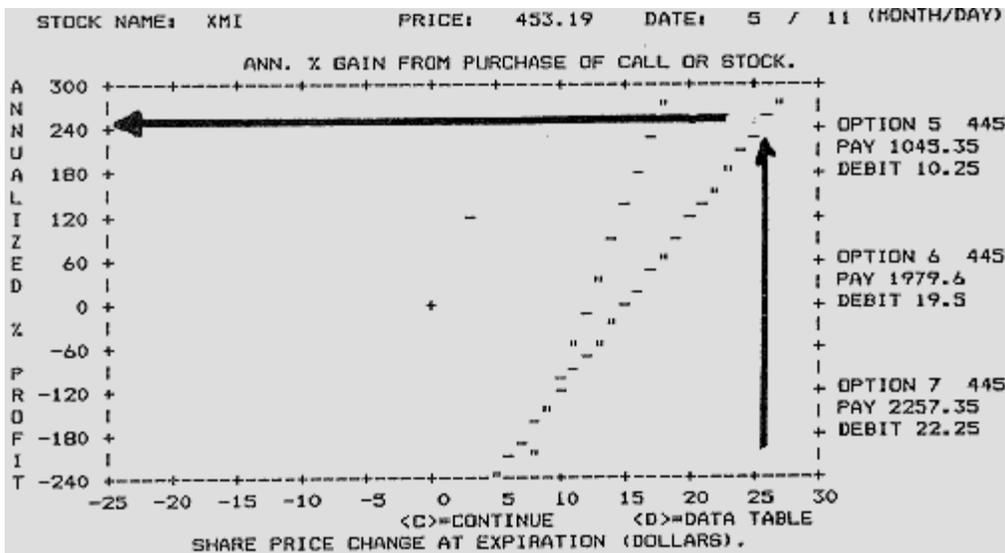


FIGURE 8. Comparison of Three Call Purchases



```

STOCK NAME: XMI      PRICE: 453.19  DATE: 5 / 11 (MONTH/DAY)

      MONTH 5      MONTH 6      MONTH 7

SP 440      13.62      25      26.5
SP 445      10      19.25      22
SP 450      6      16      -----
SP 455      3.87      13.75      -----
SP 460      2.25      11      15.87
SP 465      1.37      9      14.25

      IMPLIED VOLATILITY = .209

(1) THEORETICAL PRICES.      (2) EXCESS OVER THEORETICAL PRICES.
(3) EXCHANGE PRICES      (4) MENU.

      PRESS NUMBER TO CHOOSE
    
```

**FIGURE 11. Black-Scholes Theoretical Price Analysis**

```

STOCK NAME: XMI      PRICE: 453.19  DATE 5 / 11

      MONTH 5      MONTH 6      MONTH 7

      CALL  PUT      CALL  PUT      CALL  PUT
SP 440  15.25  1.09      22.95  5.13      28.95  7.46
SP 445  11.28  2.12      19.58  6.71      25.68  9.10
SP 450  7.90   3.73      16.51  8.58      22.65  10.97
SP 455  5.20   6.01      13.75  10.77     19.85  13.08
SP 460  3.20   9.00      11.31  13.28     17.27  15.41
SP 465  1.83  12.62      9.19   16.11     14.95  17.99

-----

** BLACK-SCHOLES THEORETICAL OPTION PRICES **

      VOLATILITY = .209

      (1) ANOTHER BLACK-SCHOLES.      (2) MENU.

      PRESS NUMBER TO CHOOSE
    
```

**FIGURE 12. Theoretical Prices**

STOCK NAME: XMI		PRICE: 453.19		DATE 5 / 11			
		MONTH 5		MONTH 6		MONTH 7	
		CALL	PUT	CALL	PUT	CALL	PUT
SP	440	-1.48	0.29	2.48	3.55	-1.84	3.76
SP	445	-1.08	0.57	0.15	3.27	-3.04	3.53
SP	450	-1.66	0.75	0.00	3.17	---	---
SP	455	-1.08	1.23	0.52	4.00	---	---
SP	460	-0.72	0.72	0.22	4.25	-0.70	4.29
SP	465	-0.27	1.54	0.33	4.41	0.01	3.09

---

**\*\* OPTION PRICE EXCESS OVER BLACK-SCHOLES THEORETICAL \*\***  
 VOLATILITY = .2  
 (1) ANOTHER BLACK-SCHOLES.      (2) MENU.  
 PRESS NUMBER TO CHOOSE

**FIGURE 13. Difference Between Theoretical and Actual Prices**

# Quick- Scans

## **MILLIONAIRE II**

### **Blue Chip Software**

(800) 572-2272

Millionaire II is a follow-on to the successful first version. It comes pleasantly packaged with a comic book for you or your child's guidance through an orientation to the stock exchange and a disk to pop in your machine (IBM, Apple Macintosh). Type "START" and you're in business.

The latest version of the game runs more quickly than the first and more levels of sophistication are involved. That is, you can go immediately to doing everything from selling short to buying puts and calls. In some past games you had to work your way up to that level using nothing but buy orders! Here, the only thing I couldn't figure out was how to sell options which is my preferred tactic.

I didn't bother to read the manual (the disk told me how to boot it), but found myself staving off a bear market quickly. After another 16 weeks I saved the game and signed off with only one complaint: "BUY" and "SELL" in the menus don't mean buy and sell. They mean "open a position" and "close a position," respectively. This confusion of terminology cost me a couple of margin calls on losers I thought I'd cleaned out with reversing orders.

Other than that, all went swimmingly. This is fun for both kids and adults, even regular traders would enjoy it for a while. It even has value as a training vehicle—you'll get more than your share of high-stress moments, especially if you're playing for money with your friends. One thing: there's a lot of reading on the screen, so a high-res, low-glare monitor is nice. Response is quick (with the exception of scrolling through your portfolio), so there's not much waiting. Graphics are O.K. and the numbers worked perfectly. It won't turn you into a market genius but it will be fun.

## **COMCALC**

### **The Commodity Option Calculator**

#### **Commodity Exchange, Inc.**

Four World Trade Center

New York, NY 10048

(212) 938-2900

This is a little premature but we've had a pre-publication copy of COMEX's new options calculator in the shop for a look-see and it's turned out to be pretty helpful. This 297,000-byte IBM-compatible set of programs will smoothly help you answer some questions that always come up for retail traders:

- What will my option be worth if the futures prices moves by X?
- When does my September option expire?
- What is the implied volatility of my option position?

- What is the margin requirement for my position?
- How many options will I need to cover my futures position?
- If volatility increases, how will the price of my option change?
- If nothing else changes, what will my option be worth in a week or a month?

COMCALC will do all of this for you in a completely "menuized" format. Just feed it the current data from today's *Wall Street Journal*. It will handle all contracts on all exchanges (not just COMEX); do longs, shorts, puts, calls, straddles, spreads, conversions, boxes and butterflies, and allow you to explore the sensitivity of the position.

This is not a graphics-based program and it doesn't portray the position's profitability in the the familiar charts used for options. But if you're a trader who wants the answers to the above questions for the next several days or weeks—not to the end of the option— this could be pretty handy.

The version we have is still in the rough and I suggested several improvements in the documentation and displays but I still have no problem recommending it, especially if the price comes in at the lower end of the \$50 to \$100 range COMEX is considering.

## **OPTION STRATEGIES**

by Courtney Smith

**John Wiley & Sons**

**Price:** \$24.95

Courtney Smith is an old favorite around our offices. He introduced futures spreads to many a soul and now he's got a similar practical book on the use of options.

This book is not in the exhaustive vein of Larry McMillan's *Options as a Strategic Investment*. Instead, it's a practical introduction to the tactics that McMillan details. It's going to be valuable for those who've gotten past buying options and now want to exploit their more refined views of the market with the more intricate strategies options make available. Of course, if your view of the market is confused, this book can't help you. You must know what you expect of the market to make these strategies pay off.

Once market view is in place, it's all here and, for once, the followup on the position is included as well. Most options books (except McMillan) don't touch this but here it's handled in a, straightforward, practical basis. The discussions cover the details as well as nuances valuable on a day-to-day basis.

As he did in his spreads book, Smith also provides the nuts and bolts background work traders need before market entry. Here it's labeled "decision structure" which seems to be upscale terminology for all the factors that influence the different dimensions of the options trading decision. Here they're all presented in a readable, sometimes intriguing paragraph or three.

Risk and return, investment required, ordering instructions, breakevens, alternative strategies, graphic display—it's all here in concise and usable form.

This book is an excellent adjunct to the McMillan book, which must still be regarded as the definitive text. New traders will want to start with Smith and graduate to McMillan. Experienced traders looking at

new strategies might also want to start with Smith and then double-check in McMillan.

**PRO PLUS SOFTWARE, INC.**

2830 E. Brown Road

Mesa, AZ 85203

(602) 830-8835

**Price:** \$395.00 + data charges

**Computer:** Macintosh with 512K or more and modem, hard disk and printer (Imagewriter or LaserWriter)

Market Pro is a package for fundamental analysis/screening and graphically oriented technical analysis. It's inextricably linked to the I.P. Sharp database although manual data entry is possible.

Fundamental screening can be done using fields in the database or formulae generated by the user (four functions). Output is graphic or tabular or down-loadable to SYLK files for spreadsheet review. Full fundamental analysis of 160 fields of over 11,000 companies is possible. The database also allows access to data on corporate bonds, U.S. government issues, mutual funds, options and commodities. In fact, the listing of the database items runs over 200 pages and is larger than the user manual!

Technically speaking, the analytical capabilities are straightforward and combined on a standard price/volume chart: moving averages, Wilder's relative strength, an advance/decline line, an undefined "resistance index," overbought/oversold, average daily volume and on-balance volume. The unique addition is performance compared to an index for a commodities capability. Specify your comparative contract and the software will plot your next contract in comparison to it. In the stock world, another indicator is momentum rate of change.

This package competes with vendors such as Dow Jones but with a much larger and more flexible database. On the other hand, access to everything from baseball scores to current news isn't available from this package. Portfolio management capabilities look to be comparable and the use of the Macintosh environment improves graphics and "learnability" immensely. Indicators available are on a par with Dow's but screening capability, while more flexible with the formulary, doesn't have Dow's nifty momentum capability.

**SCIX CORPORATION**

2010 Lacomie Street

P.O. Box 3244

Williamsport, PA 17701-0244

(800) 228-6655

(717) 323-3276 in Pennsylvania

**Price:** \$49

This is a nifty little teaching tool that not only takes you through option basics and advanced strategies

but allows you to stick in your own strategies and see the results both tabularly and graphically.

The program runs on IBM compatibles and consists of a flexible arrangement of menus, discussions and illustrative graphs which you browse through to pick up what you're after. A quick test here showed it to be generally bomb-proof and fairly easy to navigate.

The discussion of options was solid, although weak in followup of a position once initiated (no rolling up, locking in, adjusting ratios or other means of modifying your position once taken). It's ideal for someone who knows nothing about options or who knows just the basics

# Prices and Cycles

There appears to be a correlation between the magnitude of a stock price move and the strength of the planetary cycle.

[Article Figure 3](#) is a scatter plot on which the vertical scale denotes the number of positive points for a given corporation at the crest of a wave. The horizontal scale indicates the percentage the stock price increased between the predicted buy date and the predicted sell date. Each dot represents one successful transaction and each x represents a losing transaction.

Only cases that showed four to six weeks prior synchronization were used in this study. In cases where the number of positive points at the crest was 59.9 or less, the percentage of successful trades was only 67.3%. However, where the crest of positive astrological points equaled 60 or more, the success level became 79.4%. This is without adjustment for fees and commissions.

Of successful trades, we observed that when:

The peak is 50 points or less—20% of the trades resulted in a stock price increase of 10% or more.

The peak is 50 to 59.9 points—42% of the trades resulted in a price increase in the stock of 10% or more.

The peak is 60 points or higher—58.8% of the trades resulted in a price increase in the stock of 10% or more.

Additional research was planned to confirm the reliability of these observations.

# Hannula Scale

This is my fourth software review for *Stocks & Commodities* and to make software comparisons more relevant, I've developed a rating scale. My scale is zero to five stars, with five being the best.

For the record, my past reviews would be rated as follows:

<b>Profit Stalker</b>	<b>5</b>
<b>Gann Trader</b>	<b>5</b>
<b>Personal Option Advisor</b>	<b>4</b>

# Spread investing—Advanced concepts

## Part 3

by Frank Taucher



In the previous installment of this series, I discussed the two tools I use in my seasonal spread investment program to locate trades that are profitable, reliable and consistent. The objective of the program is to develop a diversified portfolio of many energized spread trades that can be used throughout the year for investment purposes.

Now we will discuss some more advanced concepts. We will review money management concepts, the purpose and use of trading filters, "legging" techniques and stop payment. Again, it will help if we use, as an example, an actual spread shown in [Figure 1](#). This spread is comprised of long December oats/short December Chicago Board of Trade wheat (OZ/WZ). For the quarter-month analysis see [Figure 2](#). The entry date is October 31 with an exit date of November 30. The trade has been analyzed over the past thirteen years, and has been 77% reliable. The worst loss and the worst drawdown of the trade have each been \$1,450. The average drawdown is \$367. The trade has made an average profit of \$667 each year, and as of this writing, the current margin is \$500. Inspection of each year's trading history, as described in part two of this article, suggests a stop of \$700.

Our first money management principle is really common sense more than anything else. Before you begin your spread program (or any other commodity program), decide in advance how much you can afford to lose without the loss affecting your lifestyle, sleep at night, family relations and so on. Then deposit twice that amount in your commodity account. *Should you ever lose half your deposit, you have reach your predetermined risk level.* It is either time to quit or, at the very least, to stop and reassess your risk tolerance level.

The second money management principle in this program concerns individual trades and relation to the size of the entire account. We have already reviewed the importance of having a diversified portfolio of many spreads in order to cover inherent risk and secure maximum profit. Here is how each individual

trade fits into that portfolio using the OZ/WZ trade and assuming a \$15,000 account:

Note the \$500 margin and \$700 stop in our sample spread. If we add these two items, the total of \$1,200 becomes the amount needed to finance (or capitalize or carry) this trade. This is an important concept. Even if we are stopped out, the loss incurred will theoretically be equal to our stop level. Thus, our margin will be free for use in another spread and we will have no margin call on our account.

Note, too, that once we open this spread and have backed the spread with \$1,200, our account will have \$13,800 (\$15,000—\$1,200) left for other spreads. These other trades will be approached with the same money management technique. This approach automatically controls the number of positions and they will contract during periods when our account is not doing so well and expand when we are hot. The main benefit will be to prevent account overtrading, one of the major causes of failure among commodity traders.

Another item we calculate in this program is the expected return on investment (ROI) by dividing the average profit by our capitalization amount. In our example, the numbers work out as  $\$677 / (\text{stop} + \text{margin of } \$1,200) = 55.6\%$ , which annualizes to over 600%.

Once we have annualized the expected ROI for this spread, we can compare it against other spreads to determine where our investable funds are likely to be most productive. We can then allow our funds to gravitate to those spreads that have the higher annualized rates of return. This process thus allows spreads of different time periods (some short, some long), different levels of probability, different margin requirements and different stop levels to be ranked in order of their annualized rates of return.

Upon identifying a specific spread to trade, we are still faced with the problem of timing our entry and exit. For instance, although we can state exactly that, from October 31 to November 30, December oats gained an average of \$667 on December wheat over each of the past 13 years, when we actually attempt to profit from this information, sometimes the seasonal starts a little early, sometimes a little late and sometimes, in the case of a contra-seasonal move, the seasonal does not appear at all.

**Traditional techniques ... generate buy and sell signals on the spread in the same way one obtains signals on the individual contracts.**

### **Fundamentals**

Although many traders both enter and exit their spread on the close of business of the specified date (or, if on a weekend or a holiday, the next trading day), results can be considerably improved by using a trading system overlay. For instance, in the introductory article, we discussed four ways of analyzing spreads: fundamental, technical, historical range and seasonal. If a trader recognized the fundamental reason why a spread should work at a particular time every year and were able to apply the fundamentals of the current year to the seasonal, then results could be significantly enhanced by filtering out trades not supported by the industry fundamentals.

As an example, you may not be able to come up with a reason for oats gaining on wheat in October, but maybe you can understand heating oil gaining on gasoline each year as the weather gets cold in the Northeast and people are not driving their cars on snowy Montana vacations while the kids are in school.

Perhaps you would want to study the supply/demand characteristics of the oil industry this year in order to determine whether or not the fundamentals favor heating oil gaining on gasoline. If so, you may want to do a spread as the fundamentals and the seasonals line up.

### Technicals

You might find it more interesting to use a technical trading system to signal early or late entry into the spread. Some traders who trade spreads will graph the spread just like the closing prices on individual contracts. Such traditional techniques as Elliott Wave analysis, charting, trendlines, stochastics, RSI, cycles and moving averages generate buy and sell signals on the spread in the same way that one would obtain signals on the individual contracts. Accept trades in the direction of the seasonal and exit trades and go flat when the signals are contrary to the seasonal.

By using such "filters," one is able to participate in the spread should early strength be shown. Also, if the seasonal is delayed, entry is theoretically delayed until the seasonal begins to assert itself. In the case of a contra-seasonal move, entry would, hopefully, be prevented totally, thereby protecting from the loss that might otherwise occur if the spread was simply opened on entry date and closed on exit date.

In using such overlays or filters, I suggest that the spreads be tracked beginning two weeks prior to the scheduled entry date and that entry signals *in the direction of the seasonal* be accepted beginning one week prior to that date.

The systems do not have to be especially complicated (a statement that many successful traders, I am sure, will confirm). In fact, one of the systems I use simply requires two consecutive closes in the direction of the seasonal anytime within the week prior to the normal entry date in order to effect early entry.

Once entry is obtained, one should stay with the spread so long as the buy signal and the seasonal line up. However, what actually happens in practice is that during the course of the seasonal, the trader may experience more than one trade as the trading system filter generates buy and sell signals. I attempt to compensate for this by continuing to accept trading signals in the direction of the seasonal until the trade either reaches my stop or the exit date, whichever comes first.

We obviously want to stay with those spreads that are in strong uptrends at the entry date, even though that may necessitate exiting the spread *beyond* our normal exit date. The reason is that spreads will trend just as individual commodity contracts do, and, once we have set our exit date, the only other way we have of participating in a major trend that goes beyond that date is by overriding the seasonal exit date and staying with the position until the trading system filter says sell.

**One of the problems in trading spreads is that stops cannot be officially entered on the spread (although some brokers will take the order on a "not held" basis).**

### Legging in and out

For the more adventurous, the concept of "legging" into and out of spreads may be more appealing. Suppose you wanted to trade bonds and the spread analysis called for the December bond to gain on the

March bond by \$500 during October. If one were using a trading system to overlay the individual contracts of this seasonal spread, it would make sense to trade the December bond from the long side only and to trade the March bond from the short side only. There would be times the trader would be long the December bond, other times the trader would be short the March bond, and still other times the trader would be both long the December contract and short the March contract. The benefit of this legging concept is that, during major moves in a market, the trader benefits from the contract that has historically best profited from the move, be that move up or down.

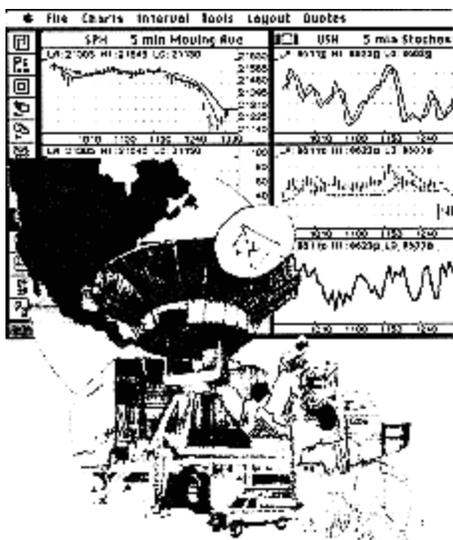
One of the problems in trading spreads is that stops cannot be officially entered on the spread (although some brokers will take the order on a "not held" basis). You can use stops in one of three ways. First, some traders who have access to quotes during the day use intraday stops. Second, traders who have limited access to prices during the day use close-only stops. Third, those who do not have access to prices during the day and make their decisions after the market has closed will use close-only stops but exit on the opening the next morning.

The difference in the stop can be dramatic. I ran a study earlier this year and discovered that, in most cases, the best technique to follow is the first methodÑ to exit the position as soon as the stop is hit. This makes sense, since the idea of a stop is to cut losses as quickly as possible. Perhaps a brief example indicative of many trades will best illustrate this concept.

In June of this year, I had a trade that called for the establishment of a long bond/short bill position the day before Paul Volker resigned. The trade was stopped out the following day. Those who observed the intraday stop lost \$500 on this trade, those who observed the close-only stop lost \$ 1,331, and those who observed the close-only stop but exited the following morning lost \$1,950.

Of course, if you are using a trading system to filter trades, the stop will only tell you when to stop trading the seasonal and not enter trades anymore in that particular spread. The system overlay provides the actual *trading* signals and, therefore, exit points on individual trades.

In conclusion, by using these techniques, you may not achieve perfection in your commodities trading activity, but you will know exactly when during the year you should be exposing your money to a particular spread, how much your expected profit should be if the averages are attained, which specific contracts to trade to best take advantage of the move, and the risk level needed to sustain the trade. Additionally, if the money management principles discussed in this article are used, you will further increase your chances of long-term success. And if you are willing to trade the spread or the individual legs of the spread, you can further enhance results by avoiding the contra-seasonal moves that all commodity spreads sooner or later experience.



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# Spread history printout

## Price Dollar Value

Spread (buy-sell)		DTD	Bght Sold	Sold Bght	Spd Spd	Bght Sold	Sold Bght	Spd Spd	Cum Prfts	Wrst Draw	Hst Prft	Rng (Points)	
												L	H
07412-W7412	OPENED	741031	185.75	520.75	-335.00	9288	26038	-16750					
	CLOSED	741202	180.50	479.50	-299.00	9025	23975	-14950					
					<b>PROFITS</b>	-263	2063	1800	1800	0	1825	-335.00	-298.50
07512-W7512	OPENED	751031	152.50	386.25	-233.75	7625	19313	-11688					
	CLOSED	751201	161.75	341.50	-179.75	8088	17075	-8988					
					<b>PROFITS</b>	463	2238	2700	4500	0	3013	-233.75	-173.50
07612-W7612	OPENED	761101	161.75	277.00	-115.25	8088	13850	-5763					
	CLOSED	761130	152.50	254.25	-101.75	7625	12713	-5088					
					<b>PROFITS</b>	-463	1138	675	5175	0	713	-115.25	-101.00
07712-W7712	OPENED	771031	125.50	259.00	-133.50	6275	12950	-6675					
	CLOSED	771130	133.50	263.75	-130.25	6675	13188	-6513					
					<b>PROFITS</b>	400	-238	163	5338	-338	163	-140.25	-130.25
07812-W7812	OPENED	781031	141.25	361.50	-220.25	7063	18075	-11013					
	CLOSED	781130	128.75	378.00	-249.25	6438	18900	-12463					
					<b>PROFITS</b>	-625	-825	-1450	3888	-1450	88	-249.25	-218.50
07912-W7912	OPENED	791031	143.25	421.25	-278.00	7163	21063	-13900					
	CLOSED	791130	143.50	436.25	-292.75	7175	21813	-14638					
					<b>PROFITS</b>	13	-750	-738	3150	-775	500	-293.50	-268.00
08012-W8012	OPENED	801031	210.00	528.75	-318.75	10500	26438	-15938					
	CLOSED	801201	223.50	495.25	-271.75	11175	24763	13588					
					<b>PROFITS</b>	675	1675	2350	5500	-238	2350	-323.50	-280.75
08112-W8112	OPENED	811102	217.00	441.75	-224.75	10850	22088	-11238					
	CLOSED	811130	226.00	416.50	-190.50	11300	20825	-9525					
					<b>PROFITS</b>	450	1263	1713	7213	0	1888	-224.75	-187.00
08212-W8212	OPENED	821101	151.50	326.50	-175.00	7575	16325	-8750					
	CLOSED	821130	159.25	327.75	-168.50	7963	16388	-8425					
					<b>PROFITS</b>	388	-63	325	7538	-675	425	-188.50	-166.50
08312-W8312	OPENED	831031	181.75	354.50	-172.75	9088	17725	-8638					
	CLOSED	831130	174.00	343.25	-169.25	8700	17163	-8463					
					<b>PROFITS</b>	-388	563	175	7713	-25	900	-173.25	-154.75
08412-W8412	OPENED	841031	183.25	362.50	-179.25	9163	18125	-8963					
	CLOSED	841130	187.75	353.25	-165.50	9388	17663	-8275					
					<b>PROFITS</b>	225	463	688	8400	-88	688	-181.00	-165.50
08512-W8512	OPENED	851031	125.50	323.75	-198.25	6275	16188	-9913					
	CLOSED	851202	119.50	337.75	-218.25	5975	16888	-10913					
					<b>PROFITS</b>	-300	-700	-1000	7400	-1100	63	-220.25	-197.00
08612-W8612	OPENED	861031	133.00	287.00	-154.00	6650	14350	-7700					
	CLOSED	861201	165.00	293.50	-128.50	8250	14675	-6425					
					<b>PROFITS</b>	1600	-325	1275	8675	-88	1775	-155.75	-118.50

### SUMMARY

13 = Total Years	11863 = \$ Won	1186 = Avg Win	-1450 = Worst Loss
10 = No. Won	-3188 = \$ Lost	-1063 = Avg Loss	-1450 = Worst Drawdown
3 = No. Lost	3.72 = \$ Won/Lost	500 = Margin	-367 = Average Drawdown
77 = Percent	8675 = Total Profit	667 = Avg Profit	646 = Avg Monthly Profit

Avg Spread Entry (Price):	-210.6539	Range: -335.00	to -115.25
Avg Spread Exit (Price) :	-197.3077	Range: -299.00	to -101.75
Avg Spread Entry (\$)	-10532.69	Range: -16750.00	to -5762.50
Avg Spread Exit(\$)	-9865.39	Range: -14950.00	to -5087.50

FIGURE 1

FIGURE 2

## Quarter-month seasonal spread trade analysis

Spread: Buy December Oats/Sell December CBT Wheat Years Analyzed : 1974 through 1985 (13 years) Last Spread Analyzed : 08612

	Exit dates													
	815	822	831	907	915	922	930	1007	1015	1022	1031	1107	1115	1122
807	-139/46	-210/62	61/62	124/77	185/69	47/54	20/54	-3/54	16/46	-147/38	-127/46	83/54	265/54	483/54
815	..	-70/69	200/62	263/69	324/62	187/54	160/54	137/46	156/54	-8/46	13/64	222/54	405/62	622/54
822	..	..	270/69	334/69	394/62	257/62	230/46	207/38	225/54	63/46	83/54	292/54	475/62	692/62
831	..	..	..	63/54	124/69	-13/38	-40/31	-63/31	-44/46	-208/38	-188/38	22/46	205/62	422/54
907	..	..	..	..	61/54	-77/38	-104/38	-127/38	-108/46	-271/46	-251/46	-41/46	141/54	359/54
915	..	..	..	..	..	-138/38	-164/31	-188/31	-168/54	-332/38	-312/46	-102/46	81/54	298/54
922	..	..	..	..	..	..	-27/46	-50/54	-31/54	-194/38	-174/46	36/46	218/62	436/54
930	..	..	..	..	..	..	..	-23/38	-4/62	-167/62	-147/38	63/38	245/54	463/54
1007	..	..	..	..	..	..	..	..	19/54	-144/46	-124/38	86/46	268/62	486/62
1015	..	..	..	..	..	..	..	..	..	-163/46	-143/38	66/46	249/54	466/54
1022	..	..	..	..	..	..	..	..	..	..	20/62	230/69	413/69	630/62
1031	..	..	..	..	..	..	..	..	..	..	..	210/62	392/62	610/62
1107	..	..	..	..	..	..	..	..	..	..	..	..	183/54	400/69
1115	..	..	..	..	..	..	..	..	..	..	..	..	..	217/69
1122	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1130	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1207	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>SPRD</b>	-210.90	-212.31	-206.90	-205.63	-204.42	-207.17	-207.71	-208.17	-207.79	-211.06	-210.65	-206.46	-202.81	-198.46
<b>DLRS</b>	-10545	-10615	-10345	-10282	-10221	-10359	-10386	-10409	-10389	-10553	-10533	-10323	-10140	-9923

The figure left of the slash mark (/) indicates the GROSS PROFIT that this spread has averaged over the last 13 years, if bought on the dates shown in the left-hand column and top row, respectively. The figure to the right of the slash mark indicates the RELIABILITY (% profit) is indicated by two underscores (\_\_\_).

The spread (SPRD) row lists the average spread for the quarter-month dates shown at the top, and the dollars (DLRS) row indicates the difference between any two quarter-month dates in the

W8612

	1130	1207	1215
540/62	1060/62	1197/69	
680/62	1199/69	1337/69	
750/62	1269/77	1407/77	
480/69	999/69	1137/77	
416/62	936/69	1073/69	
356/69	875/69	1013/69	
493/69	1013/77	1150/77	
520/69	1039/85	1177/85	
543/77	1063/77	1200/77	
524/62	1043/69	1181/77	
688/69	1207/77	1344/85	
667/77	1187/77	1324/77	
458/77	977/85	1114/77	
275/62	794/92	932/92	
58/54	577/85	714/85	
..	519/___	657/___	
..	..	138/69	
-197.31	-186.92	-184.17	
-9865	-9346	-9209	

held on the dates (years). Note that 100% is indicated by two underscores (\_\_\_).

average DOLLAR values (DLRS" row).

# The loss trap

by Van K. Tharp, Ph.D.



**D**o you remember playing with a toy called the Chinese Finger Trap when you were a child? This toy is a woven straw cylinder with an opening at each end just large enough for a finger. Once you insert a finger in each end, you are in the trap. You pull to get out and the trap closes around your fingers. The harder you pull to get out, the tighter the cylinder compresses around your fingers. The more you struggle with the trap, the more ensnared you become. Only when you let go and relax does the trap let go of you.

Investment losses form a similar trap for most people—the Loss Trap. The more an investor resists losses, the more ensnared the investor becomes in the Loss Trap—a psychological snare with numerous hidden factors that keep people locked into it. The more the investor struggles with losses, the worse the losses become.

Consider the case of Brad, an investor who wants to make a killing in a speculative stock. First, he pays \$5,000 for a stock, including nearly \$200 in expenses. These transaction costs start the investment off at a loss, so Brad is already in the trap. He has passed a critical point in time, the point of no return, where thinking often becomes irrational and risk takes on its real meaning.

Soon, the stock goes down in value to \$4,300. Brad thinks to himself, "I have a loss, but it will turn around." These are normal thoughts, resulting from his natural inclination to justify his stock purchase. As a result, he reasons, "I can afford to lose a few hundred dollars more to make a nice profit." When people are in the Loss Trap, they avoid the sure loss and take an unwise gamble which often leads to greater losses.

The stock goes down further, so that it is only worth \$3,800. Somehow, Brad reasons, the stock has gone down so far that it cannot possibly go down any more. He can afford to risk a few hundred dollars more to make back his stake. Brad has now lost sight of his original profit goal, if he had one, and just wants to break even on this trade.

What happens next? The stock goes down to \$2,500. Our investor cannot give up now. His stock hasn't been priced this low in years. Besides, he has "spent" \$2,500 on it at this point. His stock must have bottomed, so the risk of holding onto it is minimal—he thinks. He holds onto his investment and soon only has \$500 left.

Each possible loss that our investor envisions is compared against what has already been lost. Each time he imagines that his investment has reached rock bottom, he can envision no further risk. The stock can only go up. He already has so much at stake that he might as well continue holding the investment. And with each loss the trap gets tighter. Unfortunately, the only way to get out of such a trap is to let go of the trade, but the investor often is financially exhausted by that time trap.

### How do you view losses?

Various hidden factors are involved in the Loss Trap. These factors include a person's perspective on the loss, inability to accept the possibility of being wrong and misjudgment of extreme probability levels. Take a look at the following choices and determine which decision you find more acceptable:

- Would you find a \$200 expense acceptable if it gave you a 60% chance to win \$350 and a 40% chance of no gain?

-or-

- Would you take a risk that gave you a 60% chance to win \$150 and a 40% chance to lose \$200?

If you are like most people, you probably decided that the first risk was acceptable. After all, you could win \$350 and not risk anything except expenses.

How did you feel about the second decision? Perhaps it did not seem as good. You only have the opportunity to win \$150 and you could lose even more. Losing more than you can win is not as acceptable to most people.

But look at the two decisions again. Mathematically, they are equivalent, working out to an expected value of  $(\$150 \times 60\%) - (\$200 \times 40\%) = \$10$ . The apparent difference is that a loss is viewed as an expense in the first decision, while it is presented as a loss—which it is—in the second one. If you realized the two decisions were the same, congratulations. Hopefully, you are just as perceptive when real money is at stake.



Investors have a tendency to view losses as something other than losses and that keeps us from seeing the Loss Trap for what it really is. For example, virtually every investment you purchase will start out at a loss because of the transaction costs. If you are like most people, that money is an expense, not a loss, which puts you in the Loss Trap as soon as you enter the market.

Many investors, in fact, keep up-to-date records of their investment activity, but they do not include transaction costs in those records. They keep a separate record of their expenses. As a result, they allow themselves to lose money each year, because they view those losses as expenses.

## **People tend to deceive themselves the most. Self-deception occurs each time a person clings to a false belief, and everyone holds many false beliefs.**

Other investors continue to lose money every year because they view losses as tax write-offs. Investors frequently boast that they limit their speculative losses to \$3,000 each year, because that is the maximum allowed as a tax write-off. Somehow, tax write-offs justify the continual loss of money in speculative investments. Those cannot be bad, can they? They put you in a lower tax bracket and allow you to get money back from the government.

Both of these examples illustrate how your perspective can influence your bottom line, namely: If what you see differs from "what is," you will have difficulty making a profit.

### **Being right or making money**

People tend to deceive themselves the most. Self-deception occurs each time a person clings to a false belief, and everyone holds many false beliefs. Self-deception greatly increases the risk of failure since we really do not know what we are confronting. When we fail because of self-deception, we continually face the same problem over and over again because it has not been resolved.

Again, look at the example of Brad, the stock market investor. When he first fell behind by \$700, he could not admit he was wrong and take the loss. When his stock continued to fall, he could not admit the possibility it would fall any farther. In fact, the more the price fell, the more difficult it was to admit that it would go down any more.

Once people commit to something, they become extremely confident about their decisions. For example, psychological researchers taught a group of people to read stock charts and then asked them to predict from another set of charts whether prices would be higher or lower a month later. These trained forecasters were correct on 47% of their stock predictions—around chance levels—but their confidence in the accuracy of their predictions was much higher than chance—at around 65%. In fact, they were no more correct when their confidence was high than when their confidence was low.

How about extreme confidence—those times when people are really sure they are correct? Research has shown that when people give odds of 100-to-1 that they are correct, they actually are right only 75%-80% of the time. So, although they rate their confidence at 100-to-1, the actual odds should have been about 3.5-to-1.

Once people commit themselves to a position, even if it goes strongly against them, they become fully ensnared in the Loss Trap. They are so confident they are right, that they are willing to bet more and more money in their misplaced confidence. Thus, Brad was able to lose \$700, \$1,200, \$2,500 and eventually \$4,500 to prove that he could not be wrong.

### **Judging extreme probabilities**

Suppose you have a lottery ticket that gives you a chance to win a \$50,000 prize. How much is the lottery ticket worth to you if the odds are 1 million-to-1 of winning? Actually, the ticket is worth five cents in terms of the probability of winning \$50,000, but people all over the country are paying \$1 for it. The reason is people rate probability changes as more significant at the extremes. In particular, an increase

from 0% to 5% and an increase from 95% to 100% each have more impact on people than a change from 30% to 35%. This is why people have a tendency to "go for the big one" even though the odds are extremely small.

Suppose you are Brad and you have a \$4,500 loss on your stock. Let's further suppose that you are given two choices about the future. You are told that you have a 95% chance of losing your entire \$5,000 and a 5% chance of getting all your money back if you hang onto the stock. Which would you do?

Most people would hang on, hoping to get all of their money back. The increased value associated with moving from sure loss (a zero chance of winning) to the improbable (a 5% chance of getting your money back) increases the attractiveness of taking a chance.

Mathematically, your chances in this same situation are not good. If you made this decision 100 times, you would lose \$5,000 an average 95 times for a total loss of \$475,000. In contrast, if you took the sure loss of \$4,500 each of the 100 times, then you would lose a total of \$450,000. Thus, you would save \$25,000 or an average of \$250 each time you took the sure loss.

**They are so confident they are right, that they are willing to bet more and more money in their misplaced confidence.**

Taking the sure loss frees an investor from the Loss Trap, but the more attractive option is to stay deep within its jaws. Taking the sure loss seems less attractive than the hope that one's fortune might turn around by holding onto the position. And as you have already learned, people in the Loss Trap tend to overestimate the odds of "lady luck" suddenly turning in their favor.

The solution to avoiding the Loss Trap is simple. It constitutes a fundamental law of speculative investing: Cut your losses short!

But simple solutions are often difficult to follow. That is why those who follow them make large profits from the many who do not. In fact, many successful speculators lose money 60%-70% of the time, but their losses are generally small and their profits are generally large.

Unfortunately, most people have trouble turning small profits into large ones. Instead, they cash in-their profits quickly and do not allow them to grow. Next, we shall see why it is so difficult to let your profits run, the other half of the law of speculation.

*Van K. Tharp is a research psychologist and the founder of Investment Psychology Consulting, 1410 E. Glenoaks Blvd., Glendale, CA 91206, (818) 241-8165. This article is condensed from How to Use Risk to Become a More Successful Investor.*

# Understanding Randomness

## *Exercises For Statisticians*

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*by Clifford J. Sherry, Ph.D.*

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**Author:** David Salsburg

**Publisher:** Marcel Dekker, NY, 1983

If you are an investor, whether you believe in the efficient market hypothesis or not, it important for you to understand how a random process works. This book consists of a series of exercises that are designed to help the reader distinguish between patterns that occur in a series of numbers (stock prices, etc.) as a result of random noise and those that occur because of some underlying structure.

Some understanding of elementary statistics (chi-square, etc.) is helpful, but a strong mathematical background is not required to understand the text or the exercises. The exercises in the book are designed to be played with using simple statistics and seeing how various manipulations of the sample data affect the ultimate results. The reader is encouraged to create graphical displays, so as to examine the patterns in different ways.

For technicians, it might be interesting to create various types of moving averages to see how varying the degree of randomness affects the plots.

Various forms of simulated data are provided: 1) a series of purely random numbers and a series of numbers that are mildly and strongly correlated; 2) a set of numbers that is symmetrical around their mean and sets of numbers that are increasingly skewed; 3) groups of pairs of numbers that show a variety of relationships and interrelationships; and 4) a set of numbers that are related to each other in a linear fashion and a set that is non-linear. The book also contains "worked" examples using common statistics.

If you are interested in random processes, then this book is an excellent resource and aid to help you understand this complex topic.

*Dr. Sherry is a neurobiologist and free lance writer with advanced degrees in psychology from the Illinois Institute of Technology. He has spent most of the last 20 years trying to understand how the nervous system processes information. He has developed a number of statistical techniques to deal with complex time series. He is not an active trader, but continues to spend his time developing new methods to detect a signal in noise.*



*"I used to be a white collar worker like you, Parsons, until studies showed workers in bib overalls were less threatening and got more promotions"*

# Black Monday Postscript

The record plunge that took the Dow Jones Industrial Average to 1738.7 on Monday, October 19, 1987 will replay itself in the nightmares of traders for many years to come. However, most technicians saw it coming and followed their indicators onto the sidelines well before the carnage started.

On the day after the fall, when volatility was extraordinary and the trading floor was still bloody, we called some of the top technical analysts to inquire after their financial health. They were, without exception, watching the Exchange from a safe distance.

**"A speculator who dies rich, dies before his time. After the past few days some speculators can finally pass on to the Great Beyond."**

***John Hill***

Peter Eliades, publisher of *Stockmarket Cycles*, managed a few points on the downside, but got out before the trading became too volatile. "On October 5th, we had upside projections that the Dow could close at 2700," he said. "It had closed at 2640 just before that. All we needed was 10 points up to have significantly higher projections, but these points never came. When we reach projections and have no higher projections, technically that's a turning point. But we were so close to getting upside projections, I wanted to wait an extra day."

Eliades started to get downside projections as the market stumbled in the following days. "I got an initial downside projection calling for the Dow to close at 2375, plus or minus 30 points," he said. "On Thursday the 15th, I called my people and told them that all downside projections had been met and that I wanted to attempt going into the market on the next day. So we went in on Friday. We took 6 or 8 points on the short side, and we were out by the end of the day."

Other traders did not play so near the abyss. John Hill, of Commodity Research Institute, was recommending against stocks as early as July 1987. "There were a lot of storm clouds flying," he explained, "People told me how ridiculous I was when the stock market continued to go up from July. But when they tried to get out the gate when everyone else was there it got a little bit crowded."

Several weeks later Hill tracked the first signs of the supply overload. "We saw a sharp drop in early September," he said. "It was deeper than anything we had seen in a long time, and it was followed by a five-wave Elliott-type movement up, which failed to go to new highs. The thrusts became shorter and then, on October 5th, we had a widespread down day. It was an indication of heavy supply jumping into the market. That was the day Bob Prechter told his people to come out."

During the next three days Hill noted that the market was unable to rally. "This is basic supply and demand, or Wyckoff technique, or whatever you want to call it," he exclaimed. "There was absolutely no buying power in the market for the next several days. To us, that was an indication of weakness." He watched from the sidelines as the bears ran wild and the Dow tumbled 508 points.

Bob Prechter, publisher of *The Elliott Wave Theorist*, saw patterns emerging from the market that he had not seen since analyzing the Crash of 1929 in *Elliott Wave Principle*, the book he co-authored in 1978 with A.J. Frost.

"We had a 165-point rally from the September low until October 2, which was Friday," said Prechter. "That weekend I wrote to recommend that everyone get out. It was the first time in 13 months I had put out a sell recommendation."

Prechter said that he was considering three main indicators when he decided to bail out:

"First, I looked at the price pattern of the wave structure in that two-week rally (September 20 to October 2) leading up to the high of 2640. It had taken the shape of a rebound in a larger decline, rather than the start of a new advancing wave. It was typical of a bear market rally, not the start of a new bull leg.

"Second, there was a distinct lessening in upside momentum, as made very clear during that rally in late September. Specifically, the trading index got extremely overbought very quickly, indicating the wasting of a lot of buying power and a poor rally. By 'poor' I mean in terms of advance/decline figures, which were the worst of the year. Even including a record up day, the Dow had less than a 2-to-1 breadth in terms of points.

"Third, the state of investor psychology shifted. Specifically, the premium on stock index futures contracts suddenly shot up during that September rally to their highest levels in a year and a half."

At that point, Prechter decided to retreat. "The three main areas of analysis that I use turned quickly and rather emphatically negative at Dow 2640," he explained. "However, I did not forecast the extent of the Crash. I was looking for about a 16% decline." On October 16th he issued a buyback strategy with specific stops, but the volatility was such that he stayed throughout the panic.

On reflection, Prechter felt that his earlier analytical work was perhaps more accurate than his recent calculations. "When I go back and read *Elliott Wave Principle*, I begin to think that the book was much more intelligent than I was," he said. "The book had called for a turning point in 1987 at the upper 2000's. I had since modified that. I thought for a while that we would be well into the upper 3000's before the market peaked. In retrospect, maybe Frost and Prechter did a better job than Prechter alone. But it was the Elliott Wave that got me out (of the market). For that I will be eternally grateful."

In light of the events of Black Monday, a review of *Elliott Wave Principle* provides renewed confidence in the technical approach. Here the authors cite the Benner-Fibonacci Cycle, Nicolai Kondratieff's 54-year economic cycle, and the Elliott Wave—all pointing to a stock market crash in 1987.

# Cycles without tears

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by Hans Hannula, Ph.D.

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No doubt you have seen the ad in *The Wall Street Journal* for the book *Math Without Tears*. Well, this is how to find cycles without math and, therefore, without tears. Even though I have done a lot of technical work on cycles (See *Stocks & Commodities*, "In Search of the Cause of Cycles," March 1987), I still find the required mathematical skills are difficult for many people. Further, a lot of the mathematical techniques used to find cycles are tricky in that they require a great deal of care to produce valid results. Most techniques also cannot tell you that a cycle bottomed today, due to delay effects inherent in the calculations.

But there is a simple, easy way to find repeated event patterns in the market. If you can use grid paper, a pencil and a straightedge, you can master this technique in five minutes.

Figure 1 shows the XMI major market index closes for a five-month period. To find cycles, we first mark the significant bottoms, as shown with the arrows. I chose bottoms that moved at least .5% from the previous high as the most important, except for the January 12 bottom which just looked important.

The next step is to make up what I call a cycle grid, as shown in Figure 2. Overlay the chart with a transparent piece of paper. Place a column of dots through the date of each significant bottom found in Figure 1. The dots in each column are evenly spaced at convenient distance to form horizontal rows.

Now, to find cycles, you simply lay a straightedge at any angle on the grid and slowly slide it horizontally. When you find a line of dots that fall on a sloping line, you have found a cycle—provided the dots are the same number of rows apart (Figure 3). Try various angles and grid positions until you find the cycles. For example, Figure 3 shows two sloping lines. Line 1 has five dots, two rows apart. Line 2, with a steeper slope, finds a shorter cycle of seven dots, also two rows apart. These points, then, are the evenly spaced points in two different cycles in the XMI.

Figure 4 shows these points drawn as the bottoms of two idealized cycles numbered 1 and 2. Looking at this figure, you can easily visualize the cycles in the XMI.

You can even go a step further. Since we know the exact dates of the lows, we can compute the average cycle length. For example, cycle 1 has four cycles in 139 days, for an average length of 34.750 days. Cycle 2 has six cycles in 127 days, for an average length of 21.167 days. These average lengths can then be used to project the cycles forward into the future.

Be especially alert for two or more cycles converging at the same time. For example, I was able to anticipate a market low near May 20, 1987 based on a projection of Cycle 1 and Cycle 2. Of course, I used other techniques to support this analysis, but the cycle analysis was done with this simple technique.

A couple of final points: in this example, I used only closing prices to keep the graphics crisp. In practice, I use high/low/close charts. For market indices and stocks, I normally use lows. Commodities tend to give better results using highs. You can use either highs or low, or both.

Secondly, my work on market astrophysics has convinced me that one should always use calendar days rather than trading days to find cycles. The universe keeps working even when we humans quit trading.

This conviction has been strengthened by tracing several average cycles found with the above procedure back to astrophysical causes, such as solar flares. But you don't need to buy any of this. Just use this simple procedure to find cycles in whatever you trade. I'm sure you will find it easy and profitable.

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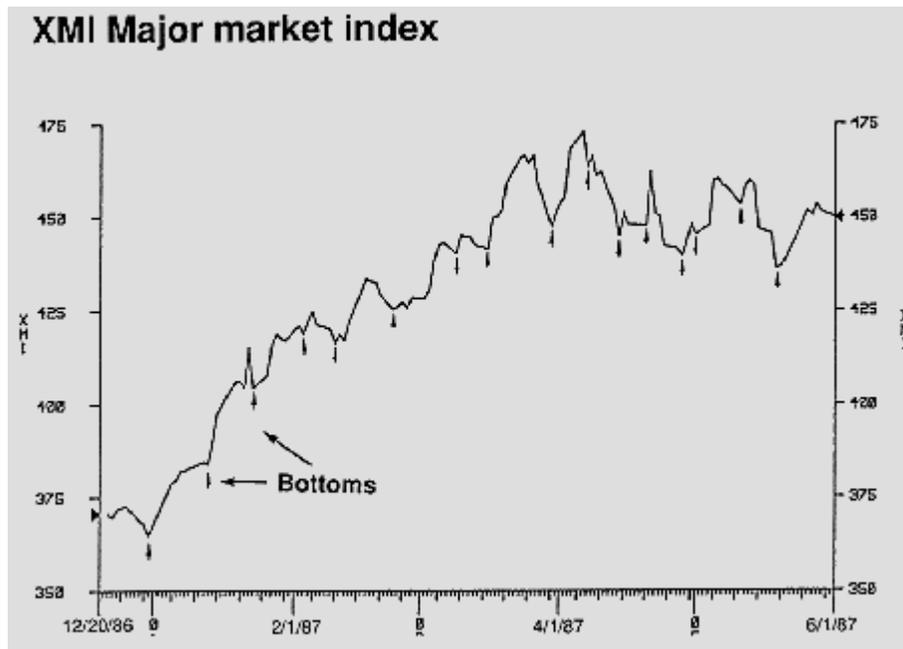


FIGURE 1.

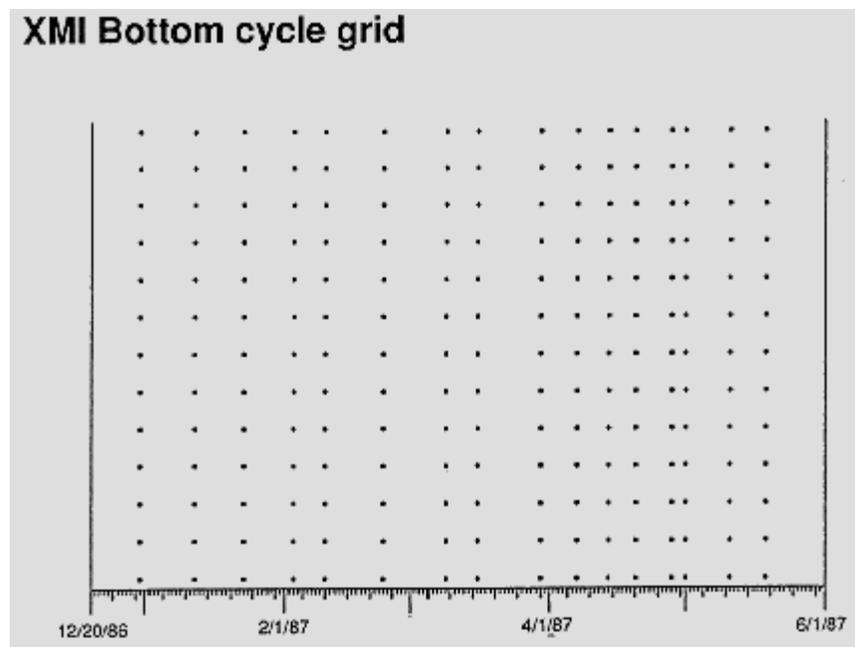


FIGURE 2.

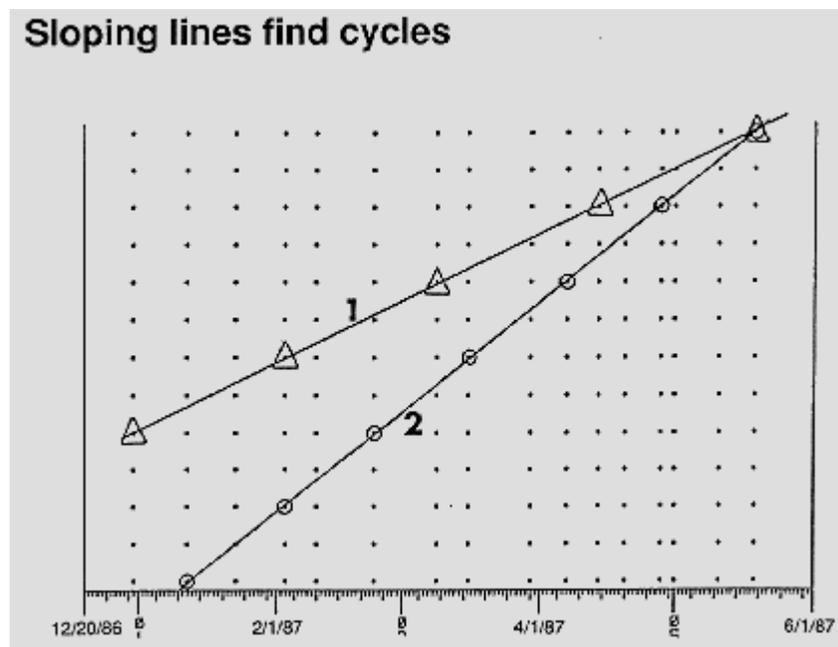


FIGURE 3.

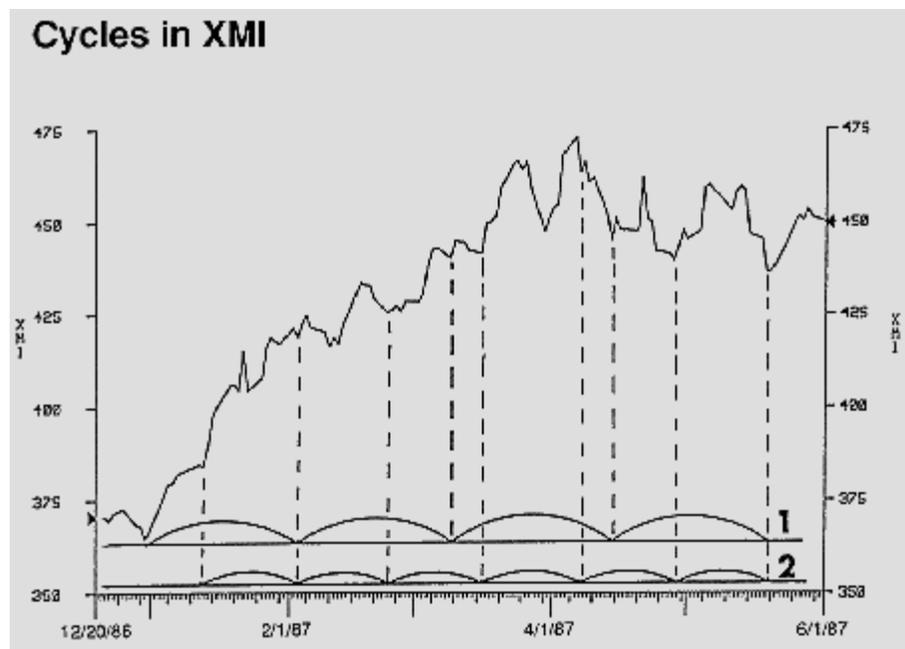


FIGURE 4.

# The danger in profits

by Van K. Tharp, PhD.



**H**ave you ever wondered why you can paper trade successfully, but fail miserably when real money is at stake? The reason is simple. The trader who concentrates on profits will have difficulty winning, as will the investor who concentrates on losses.

Frank, for example, wants to make a killing in a speculative stock. He pays \$5,000 for the stock. It immediately goes to \$5,900, so he sells it. His profit of about \$800 after commissions is a nice return for a few days work. A week later the stock is worth \$6,500 and within six weeks it doubles. Frank can neither congratulate himself on his nice profit nor get back into the stock. He prefers to berate himself for getting out so soon. He also is afraid to get back into the market because it is now "too high." Does this scenario seem familiar?

Suppose you are Frank and have a profit of \$900. You calculate that, if you keep the stock, you have a 95% chance of making a \$1,000 profit and a 5% chance of making no gain at all. Most people do exactly what Frank did. They take the sure profit. Chances are you would have made the same choice. Mathematically, however, the odds are in your favor when you keep the stock. For example, if you decided to keep the stock 100 times, you would gain the extra \$100 an average of 95 times for a gain of \$9,500. You also would lose \$900 an average of five times for a loss of \$4,500. Thus, your expected net profit is \$5,000—a net gain of \$50 for each decision.

When investors have a profit, they become more conservative. They avoid new risk, even wise gambles such as the one in our example. The possible, but unlikely, \$900 loss always seems more significant than the highly probable \$100 gain. As a result, most traders follow Frank's footsteps—continually getting out too soon.

Notice that when you avoid the small risk with a high probability of gain, you are violating part of the fundamental rule of speculative success: let your profits run!

Also, when investors concentrate on the rewards of what they are doing, their behavior becomes rigid and less accurate. They become result oriented rather than solution oriented, which means they are more active and more careless.

In fact, many traders, when reflecting on their previous trading activity, realize they would have become better traders sooner without the hindrance of early success. Early profits teach bad habits that are extremely difficult to unlearn. These bad habits tend to be rigid and persistent—superstitions, in fact—that cause needless headaches.

Many investors practice superstitious behavior to reduce the anxiety involved with the uncertainty of their game. An investor might believe, because of some initial success, that trades executed at 11:47 a.m. have a greater chance of being successful than trades made at any other time. As a result, that investor may make all his trades at 11:47 a.m.—a superstitious behavior.

Psychologists who first studied superstition in pigeons found that birds given food randomly would develop strange and repetitive behaviors. One pigeon might make a complete circle and then bob its head once. Another might peck at a spot on the wall of its cage. A third bird might stretch its wings and flap them. If food delivery were stopped, the pigeon might repeat the same behavior pattern 10,000 times before stopping. Does any of your investment behavior resemble the activity of these pigeons? If you are a results-oriented investor, some of it probably does!

Superstition may reduce investor anxiety, but the rigid behavior produces losses. Investment success requires flexibility because the investor must adapt to different market conditions. The investor who buys at 11:47 a.m. is not very flexible. And, since the superstition reduces the investor's anxiety (i.e., he thinks it explains an uncertain investment situation), it is difficult for him to stop. The investor continues to trade at 11:47 a.m., but the initial success does not continue.

Superstitious behavior also may involve a rigid mental set rather than behavior pattern. Suppose, for example, you have a set of different sized water jars in front of you. Your task is to pour water from one jar to another until you end up with a certain amount of water in one of the jars. You solve nine different water-pouring tasks that involve a complicated three-jar solution, establishing a mental set for doing all such problems with three-jar solutions. The 10th problem, however, only requires a simple two-jar solution, a change in mental set.

Research has shown that when people are given a monetary incentive to obtain a correct solution, they require 50% more time to reach the solution on the final two-jar problem than people who were not given the incentive. The incentive also causes people to attempt to solve the two-jar problem with their old mental set, the three-jar solution.

The first nine problems might be equivalent to day-to-day trades you attempt in the market, each resulting in a profit or a loss of less than \$1,000. The 10th problem with the simple solution is equivalent to the trade that comes along once or twice each year which might make the whole year profitable. It is an obvious trade, but many speculators miss it because their everyday trading behaviors do not apply. They either miss the trade completely or just take the first \$1,000 profit and get out.

Newsletter flyers or brokers trying to get you to open an account over the telephone frequently get your attention by emphasizing high profits: "We made 400% for our clients last year." Such claims get people's attention and arouse them. You want that kind of profit for yourself! Similarly, when you think about the profits of your own investment activity, you also tend to become more aroused. A highly

successful person tends to work faster, but less accurately. The ultimate result is fewer and smaller profits.

## **Concentrate on doing your best, not on your immediate profit and loss.**

If trading were a dull, monotonous activity, then profits would help you do better because incentives arouse people and counteract the dullness. But an interesting and complex task like investing automatically produces arousal. By adding the extra arousal of potentially large profits, the investor becomes distressed and performs poorly. How does this occur?

One measure of your performance is its speed and its accuracy. How fast are you? How accurate are you? Overall, accuracy is much more important to investors than speed since another good trade is always around the corner if you miss one.

When some people have monetary incentives they become results oriented. Investors trade more and are less successful because incentives increase their speed at the expense of accuracy. Hasty, undisciplined action in the market usually results in losses.

### **A solution**

Although investors may need to make quick decisions, they frequently must wait a long time between decisions. Waiting inevitably leads to watching profits and losses and, as you have learned from this series of articles, a results orientation for an investor can be disastrous. People are afraid to take losses, so they watch them grow until they are forced to take them. In addition, people take profits too early, because profits are stressful. What can you do to overcome these problems?

The solution to this problem is simple, but not easy to follow: concentrate on doing your best, not on your immediate profit and loss. Have a set of rules to guide you in the market and concentrate on following those rules. Test those rules and be sure they work before you trade them. When you are certain they work, write them down and put them in a place where you will see them often.

Once you start trading, concentrate on following your rules. At the end of each day ask yourself whether or not you followed your rules. *If you followed them, even if you lost money, then congratulate yourself.* If you didn't follow them, then ask yourself how you can do better and pay attention to the answer you get.



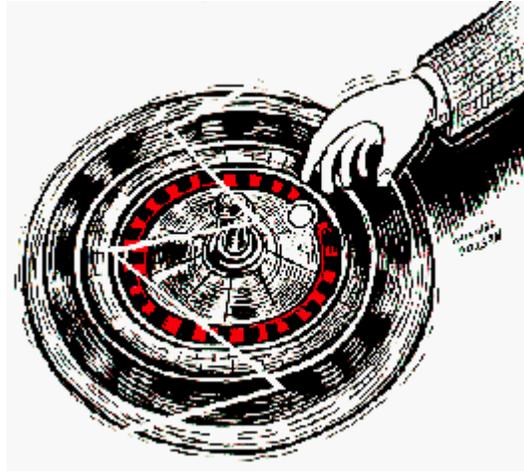
*"Faulkner, if you really believe--as stated in your resume--that life is just a tale told by an idiot, full of sound and fury, signifying nothing, then there is probably not much of a future for you here at Washburn Screw and Bolt Works."*

Making money in the markets is important, however, so periodically assess how you are doing. If you are doing well, then stick with your rules. If you are not doing well, change those rules. Follow this simple procedure, and you will probably be amazed at the results. Making a habit out of "not thinking about profits or losses" can increase your success dramatically.

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# Flaws in the roulette wheel

by Curtis McKallip, Jr.



Few games of chance are perfectly random. To the extent they are NOT, profit may be made by betting on those states which occur with greater than random frequency and against those which occur with less than random frequency. In the late 19th century, William Jagers, a British engineer, hired six men to write down the winning numbers on a roulette wheel for a month of play. By identifying the numbers which came up with greater-than-random frequency and then betting on them, he earned a profit of 1.5 million francs. The anomalous numbers were created by a roulette wheel which was poorly balanced. What happens if Jagers' method is applied to commodity trading?

Jagers' source data was a roulette wheel, ours is the marketplace. Ideal sources should be "ergodic" and "stationary." Briefly, an ergodic source produces a time series which, given an interval of sufficient duration, will return to states which are closely similar to previous states. A stationary source produces a time series whose statistical properties do not vary with the choice of time origin. All ergodic sources are stationary but not all stationary sources (for example, one that gets "stuck" in a certain state) are ergodic.

Jagers assumed stationarity and bet the balance of the roulette wheel would not change (until the casino found out why he was winning) and the winning numbers would remain the same as they were during his observational period. The ergodic assumption he made was that even when the wheel produced a string of losses, it would eventually return to the pattern which produced winning trades.

Whether or not price series are truly ergodic and stationary is beyond the scope of this article. One hypothesis is that they are for certain profit-producing conditions. When the conditions are discovered and used by a significant portion of market players the nature of the source (market) is changed. This is the equivalent of Jagers' roulette wheel being put back in balance by the casino managers.

The casino managers want the roulette wheel to produce an equal distribution of "states," i.e., possible positions of the wheel in relation to a pointer at the time it stops. Similarly, the states of a market are defined by the conditions of price, open interest, and volume in relation to their values at other time periods. The market source is like a roulette wheel with several platters stacked on a common spindle but

free to rotate independently of each other within certain limits. Since there are more conditions in a commodity market than are generated by a roulette wheel, there are also more ways to define states.

If we limit the data set to the closing price each day, there are only three ways in which the price may relate to the price the day before. It may be higher, lower or the same as the price on the previous day. The number of possible states increases rapidly as the number of conditions by which a state may be defined increases. States also may be defined in terms of other states by grouping them together. In the previous example, groups of two together produce nine states with names like lower+lower, higher+higher and higher+equal.

The more states you have information about, the better predictions become. The French mathematician Henri Poincare' said that if we knew the laws of nature and all the states in the universe at an initial moment, we could predict exactly the situation of the universe at a succeeding moment. Since we can only hope to approximate the state of the universe, our accuracy of prediction is usually proportionate to the degree of approximation.

### Study design

This study uses six states. More could have been used. These six states uncover a greater range of winning patterns than three states can. They also uncover patterns which are probable to develop in a certain way. The patterns which the study covers are technically termed second order, double dependence Markov chains. (For a brief overview of Markov analysis, see "Investigating Chart Patterns Using Markov Analysis," *S&C*, December 1986.) They are doubly dependent because each state is examined in terms of the two states preceding it. And second order because the pattern involves the last two days. Even with this limitation, there are still 36 possible (6 x 6) patterns to analyze.

The six states are UN-up, normal days, DN-down, normal days, UG-up gap days, DG-down gap days, IN-inside days, and OD-outside days. (Equal days where both high and low equal the previous day's high and low would be counted as outside days because they are rare. Actually, none were found in these data.)

Up normal and down normal days are non-gap days. Inside days have their high less than the high of the day before and their low greater than the low of the day before. Outside days have their high greater than the high of the day before and their low less than the low of the day before. Small three-bar diagrams above and below the large bars in [Figure 1](#) illustrate the different types of days examined. The first two bars of each diagram define the "given" day. The third bar illustrates the type of day following.

**The Probability Matrix is very helpful, but we would like to determine which of these probabilities is greater than would be expected if our "roulette wheels" were perfectly balanced.**

To remove the effects of general price trends, the study uses 16 unrelated commodities from different groups. This was because a commodity in a downtrend will show an anomalous tendency to transition to down days and conversely for an uptrending market. In essence, the study deals with 16 different roulette wheels, and results reflect their average performance. This assumes the marketplace source is the same in all markets. A better assumption perhaps, but one beyond the scope of this study, would be that each market has its own peculiarities. To study this, years of historical data are necessary.

Price data was collected from CSI, Inc., Boca Raton, FL, via telephone and stored in an IBM PC computer. The time period covered by the data begins in March 1986 and ends in November 1986—a period of approximately 180 days. A computer program written in Turbo Pascal tallied the transitions (totaling over 2,900) from one state to another and saved the results in a disk file. The transitions were then imported into Lotus 1-2-3, a spreadsheet. Six matrices were calculated with the spreadsheet and are shown in [Figure 2](#).

### **Probability matrices**

The Transitions Matrix shows the results of the tally program. Each cell in this matrix records the cumulative number of transitions from one state to another. The average number of transitions was not used since this introduces problems in the chi-square analysis. Chi-square tables are created for matrices with more than five transitions per cell and averaging (dividing by 16) would create cells with less than that number.

By dividing each cell in the Transitions Matrix by its row total, the Probability Matrix is produced. This matrix tells us the conditional probability that a given transition will occur. Each row adds up to 100%.

The Probability Matrix is very helpful, but we would still like to determine which of these probabilities is greater than would be expected if our "roulette wheels" were perfectly balanced. The first step towards that goal is to produce the Expected Transitions Matrix. It is produced by multiplying each column total of the Transitions Matrix by each row total, and dividing each result by the total number of transitions recorded. This matrix shows the expected number of transitions if our theoretical "roulette wheels" were in fact perfectly balanced.

Now we can take the "in balance" figures from the Expected Transitions Matrix and normalize them by dividing by their row totals just as we did in the Probability Matrix. This produces the Expected Probability Matrix. By subtracting the cells in this matrix from the cells in the Probability Matrix, which represent the observed transition probabilities, we produce a matrix which shows how much the observed probabilities of transition deviate from expected probabilities of transition. We call this the Difference Matrix.

The figures in the Probability Matrix are shown graphically in [Figure 3](#) as the larger bars which do not extend below zero. The Difference Matrix values are shown as smaller solid bars. The X axis indicates perfectly random behavior for the Difference Matrix bars (solid) and zero probability for the conditional Probability Matrix values. The closer the bars are to this axis, the less significant they are.

Note how plotting the difference values in descending order as we've done in [Figure 3](#), usually groups trades of similar direction. For example, look at the chart of down day transitions. If you had, instead, plotted the probability transitions in descending order, DN and UN would occur together. This is because DN and UN are more common (two to three times, in fact) than gap days. Plotting by difference values adjust for the relative popularity of day types so you can see which tendencies are less influenced by chance. If investors were perfectly rational, we could subtract the positive difference values from and add the negative difference values to their respective probabilities to create a new chart. Our real world chart, though, shows how the market was inhibited or exaggerated by traders' overreactions during the study period.

Finally, all of this work does not quite prove there is an "out-of-balance" condition in the markets. It is quite possible to get numbers besides zero in the Difference Matrix in a completely random system. After

a very large number of transitions, though, the sum of the difference numbers would get very close to zero. We need to know if the numbers in the Difference Matrix are different enough from zero to indicate an "out-of-balance" condition is causing them.

By squaring the difference between the observed and expected transitions and dividing by the expected transitions, the Chi-Square Matrix is created (Figure 2). Summing all the rows of this matrix yields a final chi-square value which is compared to a table from a statistics book. The tables require a figure called degrees of freedom to do the look up. In this case, the degrees of freedom are  $(6 - 1) \times (6 - 1) = 5 \times 5 = 25$ . (Six is the number of columns and number of rows we have.)

Our chi-square sum of 153.8 is greater than the cutoff value of 38 found in the table for 95% certainty. This tells us there is a 95% chance that the observed deviations from expected values are indeed due to an "out-of-balance" condition in the markets. This means we can view the figures in the Difference Matrix as being significant and make a meaningful statement about the collective habits of market participants.

### Trading

Using these findings intelligently takes careful interpretation. It would not be advisable to trade just on the basis of the figures in the Difference Matrix as Jagers did. He was able to do this because the Difference Matrix of the roulette wheel directly reflected anomalies in the Probability Matrix.

Things are not this simple in our case. For example, the IN to UG transition had a Difference Matrix value of 2.3% and a Probability Matrix value of 9.9%. However, the transition to DN had a much larger Probability Matrix value of 29.3% even though its Difference Matrix value was negative. This is a problem since betting long on the UG would create a loss if the DN occurred.

Limiting bets to those transitions with both HIGH Difference Matrix and HIGH Probability Matrix values solves this problem. For example, the DN to DN transition has the highest values in the DN row in both the Probability and the Difference matrices. An alternative is to bet against the low Difference Matrix and low Probability Matrix values.

To investigate the potential of these two strategies, let us use a hypothetical trader with a hypothetical market. The trader only takes a short position if there is a DG day. He waits till the close and makes the trade at the close. The average range of daily price variation in this market is enough to yield a \$200 profit if either a DN or DG day follow. If a UN or UG day follows, he loses \$200. The probability the next day is either DN or DG is  $35\% + 15\% = 50\%$ . The probability of the next day being either a UG or UN is  $23\% + 6\% = 29\%$ . On IN or OD days, the trader sells out with no profit or loss, on average. To adjust the success ratio to reflect this, add  $50 + 29 = 79$  and divide each probability by 79:

$$50/79 = 63\% \text{ chance of profit,}$$

$$29/79 = 37\% \text{ chance of loss.}$$

The expected value of this strategy, ignoring commissions, for 100 winning or losing trades is  $[(63 \times 200) - (37 \times 200)] = \$5,200$ . Since the profit per trade is only \$52, subtraction of commissions brings the expected value to about zero. Thus, this strategy might be useful to someone who could drastically reduce commission costs and reduce the \$200 per losing trade assumed above. Jagers did not have to pay commissions on each bet he made and his roulette wheel was probably more out of balance than the markets are.

Little interpretation is required for this method. Filters, stops, and further refinements can be added to it. The probability of success is well known beforehand and trading is frequent enough that adverse changes in success ratios are easily detected. Limiting its use to bear markets or bull markets (depending on the strategy chosen) potentially raises the success ratio. But even guessing wrong about market direction probably would not be disastrous.

Finally, this study is but the tip of an iceberg of possible studies involving multiple dependency and multiple states. Even some simple patterns such as the island reversal beg for this type of analysis. Perhaps if Jagers lived today, he would be searching the market for out-of-balance patterns with a personal computer.



**FIGURE 1:** *There are six possible combinations of price action*

<b>Transition matrix</b>							
	in	dn	dg	un	ug	od	sum
in	23	103	34	96	35	61	352
dn	112	295	86	268	51	82	894
dg	18	86	36	57	14	32	243
un	113	277	55	325	69	77	916
ug	19	47	11	80	35	34	226
od	67	92	21	89	21	15	305
Sum	352	900	243	915	225	301	2936

<b>Probability matrix</b> (6.5% = 23/352)							
	in	dn	dg	un	ug	od	sum
in	6.5%	29.3%	9.7%	27.3%	9.9%	17.3%	100.0%
dn	12.5%	33.0%	9.6%	30.0%	5.7%	9.2%	100.0%
dg	7.4%	35.4%	14.8%	23.5%	5.8%	13.2%	100.0%
un	12.3%	30.2%	6.0%	35.5%	7.5%	8.4%	100.0%
ug	8.4%	20.8%	4.9%	35.4%	15.5%	15.0%	100.0%
od	22.0%	30.2%	6.9%	29.2%	6.9%	4.9%	100.0%

<b>Expected transitions matrix</b> (107.9 = 900 x 352/2936)							
	in	dn	dg	un	ug	od	sum
in	42.2	107.9	29.1	109.7	27.0	36.1	352.0
dn	107.2	274.0	74.0	278.6	68.5	91.7	894.0
dg	29.1	74.5	20.1	75.7	18.6	24.9	243.0
un	109.8	280.8	75.8	285.5	70.2	93.9	916.0
ug	27.1	69.3	18.7	70.4	17.3	23.2	226.0
od	36.6	93.5	25.2	95.1	23.4	31.3	305.0

<b>Expected probability matrix</b> (2% = 42.2/352)							
	in	dn	dg	un	ug	od	sum
in	12.0%	30.7%	8.3%	31.2%	7.7%	10.3%	100.0%
dn	12.0%	30.7%	8.3%	31.2%	7.7%	10.3%	100.0%
dg	12.0%	30.7%	8.3%	31.2%	7.7%	10.3%	100.0%
un	12.0%	30.7%	8.3%	31.2%	7.7%	10.3%	100.0%
ug	12.0%	30.7%	8.3%	31.2%	7.7%	10.3%	100.0%
od	12.0%	30.7%	8.3%	31.2%	7.7%	10.3%	100.0%

<b>Difference matrix</b> (-5.5% = 6.5% - 12%)							
	in	dn	dg	un	ug	od	sum
in	-5.5%	-1.4%	1.4%	-3.9%	2.3%	7.1%	0
dn	0.5%	2.3%	1.3%	-1.2%	-2.0%	-1.1%	0
dg	-4.6%	4.7%	6.5%	-7.7%	-1.9%	2.9%	0
un	0.3%	-0.4%	-2.3%	4.3%	-0.1%	-1.8%	0
ug	-3.6%	-9.9%	-3.4%	4.2%	7.8%	4.8%	0
od	10.0%	-0.5%	-1.4%	-2.0%	-0.8%	-5.3%	0

<b>Chi-square matrix</b> (8.7 = (23 - 42.2)^2/42.2)							
	in	dn	dg	un	ug	od	sum
in	8.7	0.2	0.8	1.7	2.4	17.2	
dn	0.2	1.6	1.9	0.4	4.5	1.0	
dg	4.3	1.8	12.6	4.6	1.1	2.0	
un	0.1	0.1	5.7	5.5	0.0	3.0	
ug	2.4	7.2	3.2	1.3	18	5.1	
od	25.3	0.0	0.7	0.4	0.2	8.5	
							chi-square sum: 153.8

FIGURE 2

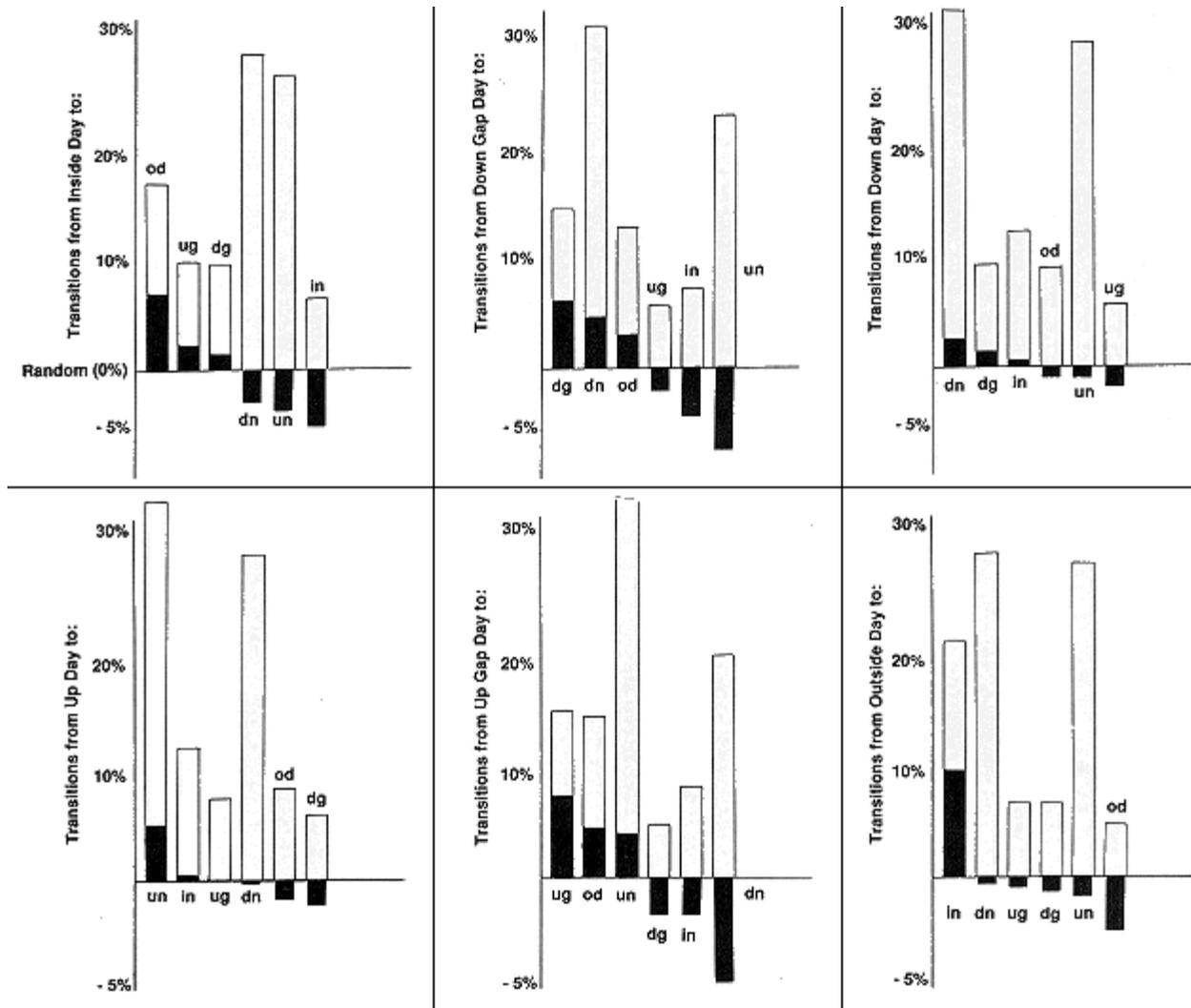


FIGURE 3

	<b>IN to UG</b>	<b>IN to DN</b>	
<b>Difference</b>	2.30%	-1.40%	The IN to UG transition is more significant, yet less probable than the IN to DN transition
<b>Probability</b>	9.90%	29.30%	

**FIGURE 4**

## IN THIS ISSUE

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*by John Sweeney, Editor*

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A subscriber sent us a note the other day, asking about mixed signals he was getting from us. Were we skeptical that an individual speculator could be successful or not? Every issue seemed to have articles with both points of view. Where did we stand?

Actually, you get both points of view in every issue because we seek out *all* points of view. We look for anything that's educational and informed. We try hard not to be judgemental.

As for my personal stand, I'm convinced that successful small-time speculation is possible, but I'm also skeptical that, in the near future, small speculators will generally be successful.

Successful speculation is contrary to human nature. It requires disciplined thought, hard work, and patience. People with those qualities are easily recruited into softer deals in our society. Those who don't join the boys in the corporate boxes often have an independent streak which slows their learning anything from anyone—except market experience, which, as we know, is a merciless teacher. Quite often, these independent souls don't survive until they flourish. Sometimes they get bored and quit when they discover that speculation isn't constant thrills.

The net result is that the best talent doesn't speculate because, very rationally, it doesn't need to do so. It learns to speculate with other people's money as in real estate, investment banking or corporate management.

Jack Hutson and I share the belief that the means exist to speculate successfully. We try to present them as tools you can fit to your capabilities. We don't present "The Answer" in every issue because we have no evidence that it exists. We don't do arbitrage articles involving 2 or 3 basis points on \$50 million—no individual trader messes with that. We don't breathlessly publish the phone numbers of arbitragers so you can get in on the takeover gossip circuit—that's inconceivable.

We do publish what we think can help the individual trader trying to turn an unimportant amount of money into a significant amount in the reasonably short period of time. We try to tell you about the concepts, the psychology, the tactics, the long-term strategy, the hardware and software. But we can't develop your idea, write your plan, wait for your opportunity, or execute your trade. We have faith that you, the reader, can do that successfully.

This issue has two articles I particularly commend. One is the conclusion to our series on Wyckoff. Long-time readers will recall that Wyckoff inspired me to write about trading with the example of his sheet, *The Ticker*. Jack Hutson turned out to be a kindred fan and has done quite a job in condensing years of Wyckoff writings into a series that every chartist should have. Wyckoff was one of the most prolific writers on the market of his day and much of his work is still perfectly *a/propos*. If you haven't followed the whole series, you might want to go back and check it out.

**Macro\*World Investor** is a review of, of all things, an econometric package. Clearly it's not a technically oriented program but the price is fantastic, the model robust, and the information on fundamental economic trends comprehensive. It could well be a useful tool in your understanding the world in which you trade.

Good Fortune!

# LETTERS TO S&C

## Real-time analysis

Editor,

As a reader, I've enjoyed many an article in *Stocks & Commodities*, but rarely so much as "War Stories From Commodex" by Philip Gotthelf in the September issue. For whatever it may be worth, I wanted you to know.

What sets it apart from so much trading literature is its tone of candor and reality. It seems to describe real-time analysis and the frustration in a less than perfect endeavor—one which any real trader recognizes as truth—as opposed to after-the-fact rationale.

Perhaps it is all the more meaningful because of how close to home it strikes me as a trader. The events concerning the peak in Silver and Gold in late April this year were events in which I was as deeply immersed as Mr. Gotthelf, so I well identify with the thought processes he describes.

I partially agree with his comments regarding the unreliability of certain oscillators during such moves and was extremely interested in what techniques he did employ to make that important decision to sell.

I only partially agree about the oscillators because the high line formed in them during such continuous market gains is not a totally insignificant pattern. That nearly straight, high line is pretty much telling you that you're on your own with regard to picking the exact top, but that you certainly have no signal to sell. It's also saying that it just isn't going to signal you in any definitive way until it's a little too late. So, as Mr. Gotthelf points out, indicators based on volume patterns (as well as recognition of patterns in similar circumstances) need to be consulted. (I hope you are planning to cover his very interesting Trend Index.)

My decision-making processes differed somewhat from his. It happens that I held a Silver position in a Swiss account. As the chart structure built its ever more vertical shape, the thought in my mind was how to effect a sale in what would probably have to be hasty, opportune circumstances. It seemed apparent that a phone call would be necessary in order to avoid any excuse based on factor delay. Consequently, I had previously checked on the Zurich time zone and had the bank phone number ready on my desk.

On the evening of the 24th, despite that massive break above 9, I decided to wait the weekend out—the close was so near the top on still good volume that I felt the momentum might carry another day. Exhaustion had to be near, so from a disciplinary standpoint, I recognize that decision might be considered a judgment error, though I'm obviously glad I made it.

As the charts show ([Figures 1-3](#)), the upward move continued virtually unabated on Monday. That night, after updating my Silver file, I was confronted by the massive bar to the \$10 level. The last two days' trading had completely repositioned the chart screen. With any kind of long position, it was astounding and exhilarating to behold such a phenomenon!

Such structures, being the result of extreme speculation, come undone as quickly as they are built. Whatever the actual top might be, with this kind of rise, the descent would be just as swiftly drawn, and very deep. There would probably be an immediate upward bounce as well. In any case, I decided I had stretched market fates far enough.

At midnight, as the Zurich exchanges were opening, I placed the call to my bank.

The conversation with the trading agent there was brief, but one I'll probably not soon forget. The price had closed near the top here. It was virtually at the top there, actually 9.98. "Is there much activity?" I asked, expecting to catch the Europeans in swift motion. I therefore was astonished at his reply. "Very quiet," he said, "almost nothing doing."

For a brief moment I hesitated. Perhaps I'll call back in a half hour just to see my decision confirmed. Then I heard myself saying calmly, "Please sell my entire position." He repeated the number of troy ounces in my account and I confirmed that I wished all to be sold. With that, the intercontinental call was cordially closed and I went to sleep.

As subsequent charting shows, I couldn't have timed it better with the help of a genie in a bottle. Knowing that going for extreme tops and bottoms can be a hazardous occupation, I'm still impressed that, with the help of a midnight phone call part way around the globe, I had executed my sale within pennies of the peak. In the Silver market. An exciting experience—one to recount to later generations like my weekend in La Jolla when I speared a 38-pound Yellowtail—but I don't expect to make a habit of it.

In any case, that's my "war story." Perhaps there's a series in this.

JULES BRENNER

*Los Angeles, CA*

## **Cancellation**

Editor,

In accordance with your trial offer, I am requesting cancellation of my subscription to your magazine, and I believe you deserve an explanation of my decision.

First let me apologize for my delay in writing. I had misplaced your original statement and letter of welcome that was written, I believe, by your circulation manager. At any rate, I wanted to write to a person, rather than to address my letter as I have done just now.

The fact is, that while your magazine is every bit as fine as I had hoped, I have just about become convinced that the individual, private investor no longer has much of a chance in today's stock market. The so-called "money managers" with their computer programs, indexes, options and similar devices have succeeded in turning the market into a shambles.

In one 5-minute period a week or two ago, I saw the Dow Jones Industrials plummet more than 20 points. And 30-40-50-point moves happen daily, as you know.

With more than 40 years of investing experience, I have concluded that anyone who attempts to make sense out of what's taking place on Wall Street these days must be a supreme optimist. Everything moves too fast. And the only solution I can see is for the SEC to get off its butt and do some regulating. It has been suggested that Congress place a 100% capital gains tax on profits taken in less than one year. That certainly ought to slow things down a bit!

Anyway, now you know why I'm canceling. Thank you for giving me the opportunity to sample *Stocks & Commodities*.

CHARLES R. FORCE

*Jackson, MS*

### **Not Ready for IBM**

Editor,

Do you know of any program for MACD, either in the conventional form or modified form (Gregory Morris, *Stocks & Commodities*, February 1987) that is available in BASIC for the IBM and is compatible with the program that you and John Ehlers have written? I want to be able to bring up the MACD in to do is to be able to bring up MACD in histogram form on a split screen with a standard bar chart above it, incorporated in Ehlers system.

I would also like to thank you for your kind suggestion that I get an IBM AT instead of an XT. I found a good used one, and it is quite the machine ! (Now, if I can just scrounge up enough money to buy an enhanced graphics color board and EGA monitor!)

ROSS W. CAMPBELL

*Ann Arbor, MI*

*Unfortunately, we do not, as yet, have any programs to run under the IBM PC DOS environment. We do, however, have programmers in Georgia and Seattle working on a BASIC language subsystem that will do most of what you ask as well as allow you to do your own BASIC programming if you would like. But, this routine will not come on the market until the beginning of 1988. We wish we could be of further assistance at this time. We are tied by not having an adequate product for you, to run our published subroutines under.*

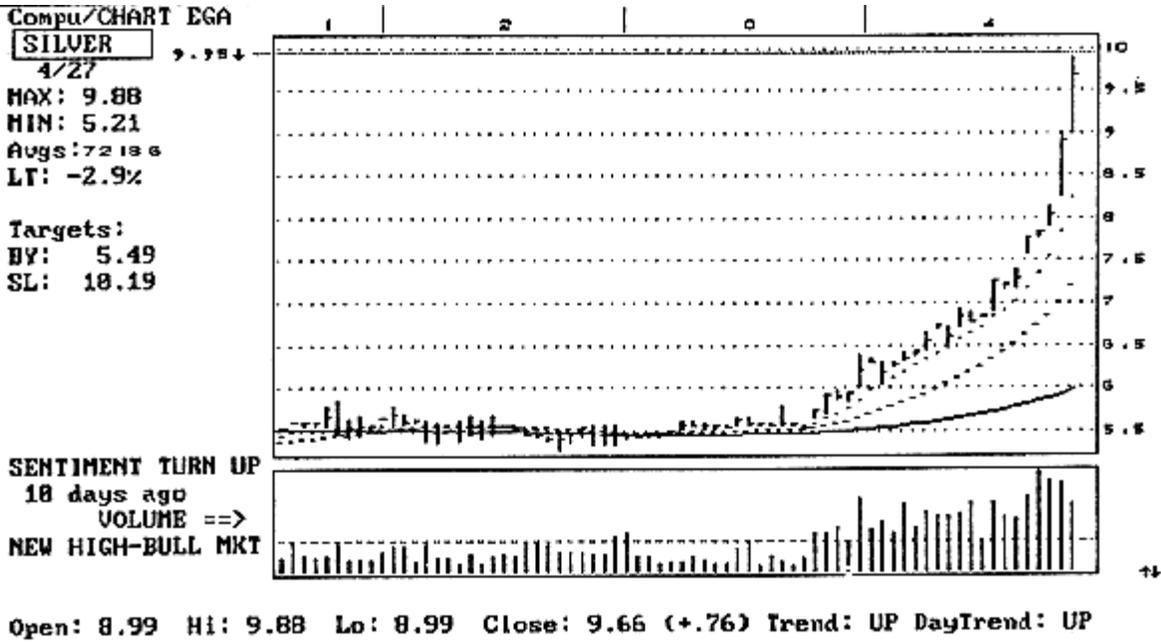


FIGURE 1

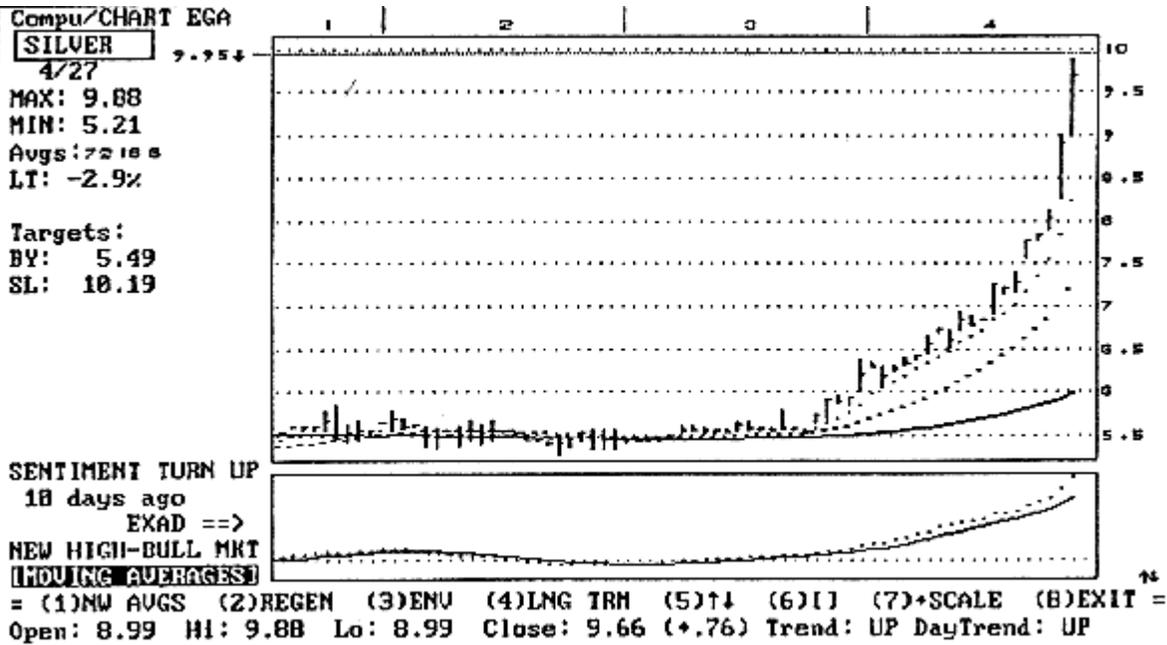


FIGURE 2

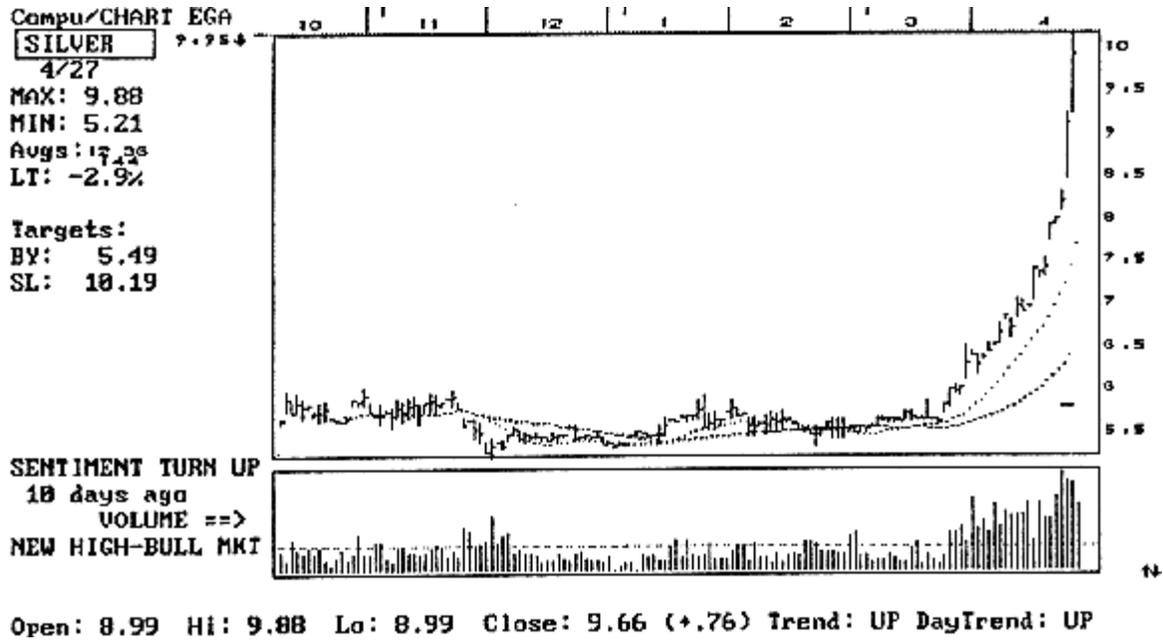


FIGURE 3

# Macro\*World Investor

## Black River Software

4680 Brownsboro Road, Building C

Winston-Salem, NC, 27106

(919) 721-0928

**Product:** Integrated business forecasting and investing package

**Price:** \$899.95 for program, database and 3 months update service, plus \$50 per month for program and database maintenance service. Can combine program, database and first 15 months service for \$1299.95

**Equipment:** IBM XT or AT with 512K, DOS 2.0 or higher, one floppy and one hard disk, color monitor with CGA or EGA, dot matrix or laser printer.

## Ratings:

Ease of Use: A

Error Handling: A

Customer Service: A

Documentation: B

Reliability: Unknown

Profitability: Unknown

Trading Track Record: None. However, users can run a simulation of forecasting and transaction results.

Drawdown: Unknown

**E**conometrics—i.e., the thrill of regression analysis—has generally been beyond the reach of individual investors, or even small institutions. No more. **Macro\*World Investor** brings these techniques to bear in a simple, but robust, analytical model at a very low price.

This package analyzes about 200 time series of economic data and security prices for interrelationships before forecasting what each will do during the next year. After that, it will take the portfolio you have specified and calculate the expected rates of return for the portfolio's securities. To each return is

assigned a probability that the return will exceed the risk-free (or T-Bill) rate. If this probability exceeds your hurdle, the security is accepted for your portfolio. That done, historical betas (vs. the S&P 500) for accepted securities are computed and an optimal portfolio with the highest return for your target beta is assembled for your use.

You can't say that about many packages short of *Barra's*, and this one is priced for individuals and small institutions. Even though **Macro\*World Investor** was designed for longer-term investors, I believe it has value for traders, so this review will take a private trader's look at the package.

**Macro\*World Investor** is the latest of four packages, which started with **Macro\*Track** (\$300), a basic data analysis program used on business indicators. That led to a version (**Macro\*Track Plus** \$500) which provided the econometrics big gun: complete regression analysis of the entire database, including leads and lags. This approach was popular before Reaganomics turned the tables on many historical relationships and destroyed the charisma of many an economist and his computer. Undaunted, Black River built **Macro\*World Forecaster** (\$700) which took all the above and added over 100 indicators for U.S. and foreign economies. Then they added prices, buy/sell signals and portfolio optimization to come up with today's package.

### Setup

Installing the package is simple: insert disk, type SETUP, and wait a while. Once installed, it will take up about one megabyte of space on your hard disk for all programs and data. By the way, despite the manufacturer's specs, I'd run this software on an AT level machine. My own mystery machine, an XT clone with a math coprocessor, sometimes took 20-90 seconds to crunch all the numbers involved.

The data included in the package ranges from domestic airline passenger miles to German T-Bill rates to Teledyne's stock price. You can add your own series as long as you have at least twelve data points of *quarterly* or *monthly* data—preferably ten years. (Weekly data is scheduled for the next version.) I could find no major economic indicator missing, except a good commodity index. Although the 100-stock universe included is well-selected, there isn't a lot of commodity data and no specific debt instruments. Traders curious to know how their favorite vehicle stacks up will probably have to enter the data.

Data update is available via monthly disks or you could go to the trouble of getting all the sources listed for the data series, making the adjustments, hand-entering the data, and precalculating the relationships. You will have to update any series you enter yourself.

### Use

The package is completely menu-driven and a good set of hints is usually on the screens, including references to explanatory pages in the manual. Step-by-step directions are included in the manual which I have downgraded in my ratings not for its instructions but for its paucity of explanation of "what's going on"—the theory and technique being employed. Black River told me that they would provide a methodology sheet to sophisticated users who request it. Institutional money managers *may* know what's being done and appreciate the techniques' strengths or weaknesses, but few individuals or traders will, at least initially.

If you just want reports, you select those ranking all the series for the immediate future ("Short Term Alert"), the One Year Outlook, expected Turning Points, and Exceptional Series (those at unusual cyclical highs or lows). Text will fill the screen or be printed out. These rapidly sift through the immense

pile of data to get directly to actionable items. The Short Term Alert is in [Figure 1](#).

If you should want to analyze a specific series, pull it out using the directory option. At that point, you'll be able to get the choices shown in [Figure 2](#). The quick answer to what's going to happen in the near future is given by selection "A> Forecast 70% Range." That gives you [Figure 3](#). All this takes three key strokes and typing in the name of the stock you want. Not shown are the other analyses which amplify Teledyne's situation. These give you the detail of the forecast (selection B>), allow you to modify the data and re-analyze (F>) or compare Teledyne to other indicators in the database (I>), to name only those choices I found interesting. Should you wish to know what leading indicators the system itself is using, select J>.

### **Portfolio optimization**

Often desired but little implemented by individual investors, **Investor** makes portfolio optimization a very smooth task. To give it a quick try, I took five minutes to fire up a small portfolio of my wife's IRA vehicles. She picks two and I pick two. (This recent compromise forced out Texas Instruments which was doing well but had the misfortune to sell Mary a bum calculator.) For what it's worth, **Investor** took only one of hers and one of mine (Cray) and projected a 34% return with a beta of 1, the limit we had set for the portfolio. For comparison, **Macro\*World's** model portfolio, included in the package, is projecting a 23% return on a beta of .84 which is slightly less favorable on a risk/return basis. You won't find an easier optimization facility based on expected returns.

Keep in mind that this is not a technician's package. There's no setting parameters, building models, adjusting the data, tweaking relationships, trying this or that. This is (or was) all done behind the screen in Winston-Salem. The model is in place already. So what you have is the latest report from this particular model—only it comes on a disk and allows you to relate your own indicators to its forecast.

One of its values to a trader—as opposed to the investor for whom it seems to have been designed—is the ability to put in his own series and have the analytical process compare it to the base's other time series for forecasting purposes. Of course, there is always the chance that there will be no relationships and you will discover that silver is best forecasted by drawing a straight line through ten years of monthly bars on a chart. (Actually, the line isn't straight. It's a faintly curving exponential.) On the other hand, the warning of a turning point in copper might have set you up for a good/bad short in September, 1987.

This facility could be improved by being able to specify the period over which analysis is to be done. Right now, the package uses all the data available to it.

### **Faith in the package**

To most traders, this will seem to be another package with an enviable track record, a smooth line ("expert systems") on the sales brochure and a black box on delivery. There's more value to it than that though. True it hasn't made \$58,237 on ten trades with a maximum of \$2,350 drawdown in three months (one recent claim we saw), but this is a completely different animal. Although I didn't have access to the code or even the thoughts of the author, this program is actually doing respectable work.

A test analysis of silver followed an impressive path while I sat watching. First, the program scanned the data I had entered for values that appeared erroneous. It checked for seasonality and promised to adjust the data if it found it. It tested for long-term trend but found no reason not to use the simple average of all the data: about \$9 per ounce. Then it tried a host of exponential smoothing constants over periods from

one to twelve months to minimize the standard error of its estimate.

It searched for a leading series in its existing database, unsuccessfully. Then it compared standard errors for the various methods and chose triple exponential smoothing to use for forecasting. That done, it checked for cyclicity, particularly that of the business cycle and predicted the next turning point (August, 1989) based on its estimate of where silver currently was.

With that, it added the series to its database and all the usual reports became available for silver as well as the other series.

I didn't touch the keyboard once during all this. Sure, I didn't get to play with the data either or even see graphics of the various techniques—regression lines, analysis of variance tables and so forth. This package is for the person who wants a respectable statistical analysis and forecast without the agony of generating it personally. Really, this is quite remarkable: an \$899 program that intelligently combines not just one technique but many to generate an integrated forecast with a respectable track record. You can pay IDS \$25,000+ a year for similar, albeit 1" thicker, results.

## Results

From the standpoint of an investor, not a trader, the package claims an outstanding track record for forecasting broad economic aggregates during the period 1983-1986. Similarly, 1983-1986 also showed excellent results for **MacroWorld's** model portfolio using 15 of the stocks in its universe—this with "less downside risk" than other major securities groups. Details of trades aren't supplied in the promotional literature and I couldn't replicate the results with the package itself because the forecast dates aren't disclosed. The package does allow you to simulate past portfolio performance so you can see what your own approach would have wrought so there is some historical testing capability. Still, investor or trader, the lack of verifiable track record should mean it will take a year or so's experience to burn in your faith in this product's predictions.

Four users to whom I spoke praised Black River Software for its service, pricing, convenience, and accuracy. Three pointed out that Black River is constantly upgrading the package, a service they appreciated. All four felt the data update service was a godsend: priced right, timely and clean. None were using the **Investor** for trading signals though, so none could say it made money all by itself. They took its input and then supplemented it with technical indicators for timing, a familiar approach. Overall grades given ranged from B+ to A with hardly any complaints.

Two people especially liked the "Situation" section. Here you can take the indicators you view as critical and set them up in a spreadsheet arrangement. Set it to show the historical values and then specify the periods to be forecasted as well as what's positive from your point of view and what's negative. After the program plugs in the forecast, you'll have a neat printout of historical and projected values that gives you a good sense of the momentum and interrelationships between the different series: an excellent roadmap. One person felt this was worth the price of admission alone, though I wouldn't go that far.

## Summary

Traders won't immediately like this package because econometrics is as black a box to them as the items touted in the junk mail they get. (Also, the program never goes short.) That's too bad. Knowing where they are in the business cycle should help traders significantly by altering their fundamental stance as the debt, equity and commodities markets shift phases. This package can raise the level of that effort from

scanning the *Journal* and thinking about it to a solid quantitative review without the agony of gathering data and learning statistics. Even if the forecasts were worthless, it's great to be comfortable with where you currently are. Black River could help this process along by including explanatory material for those who haven't been weaned on mainframe time series analysis or graduate economics.

This is a good value for investors and even for traders who want to deepen their knowledge of the trading environment. You get a smoothly implemented econometric analytical package, portfolio construction, price forecasting, and trading signals for about what a standard technical trading system goes for these days. True, it's something of a black box since the model is proprietary. Thus, it will take experience to develop faith, but I recommend it also for its educational value and ability to keep up with the business cycle, without "data agony."

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MACRO*WORLD INVESTOR (tm)
STOCKS & COMMODS. (4043).                               Wed 16 Sep 1987

SHORT-TERM ALERT
%Prob Dir'n Next Chg : Last Period :
Series
Direct: Stock Price:Russ Berrie 99.0 Up 46.41 5.78 : 40.63 Jul 87 :
Summar: Stock Price:Luby's Cafet. 96.1 Up 32.37 1.74 : 30.63 Jul 87 :
Next: Stock Price:Martin Mariet 94.6 Up 53.71 3.71 : 50.00 Jul 87 :
One-: Lumber:Shipments 93.9 Down 3492 -243 : 3735 Mar 87 :
Turn: Stock Price:Repub.Gypsum 90.1 Down 6.90 -0.85 : 7.75 Jul 87 :
Exce: Stock Price:CommunityPsy. 89.3 Down 42.63 -2.00 : 44.63 Jul 87 :
Portfo: Import:U.S. from Canada 88.7 Up 6120 305 : 5814 Apr 87 :
Situat: Stock Price:Telerate Inc. 88.4 Up 48.67 4.92 : 43.75 Jul 87 :
Bullet: Export:U.S. to Italy 87.8 Up 507.1 48.5 : 458.6 Apr 87 :
Housek: Stock Price:S.W.Energy 85.7 Up 27.86 2.48 : 25.38 Jul 87 :
: Export:U.S. to Canada 84.1 Up 4806 233 : 4573 Apr 87 :
Quit S: Stock Price:American Str. 83.1 Down 77.4 -3.1 : 80.5 Jul 87 :
: Airlines:Dom.Passenger Mi 78.9 Down 24.1 -1.5 : 25.6 Dec 86 :
: Price Change:CPI, Japan 77.6 Down 0.6 -4.0 : 4.6 Q2 87 :
: Stock Price:Tokyo Exchnge 77.2 Up 464.6 17.6 : 447.0 Jul 87 :
Pg1/14.
[Graphics:CGA, Printer:Epson FX/MX/RX, Update valid thru Sep 1987]
    
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FIGURE 1

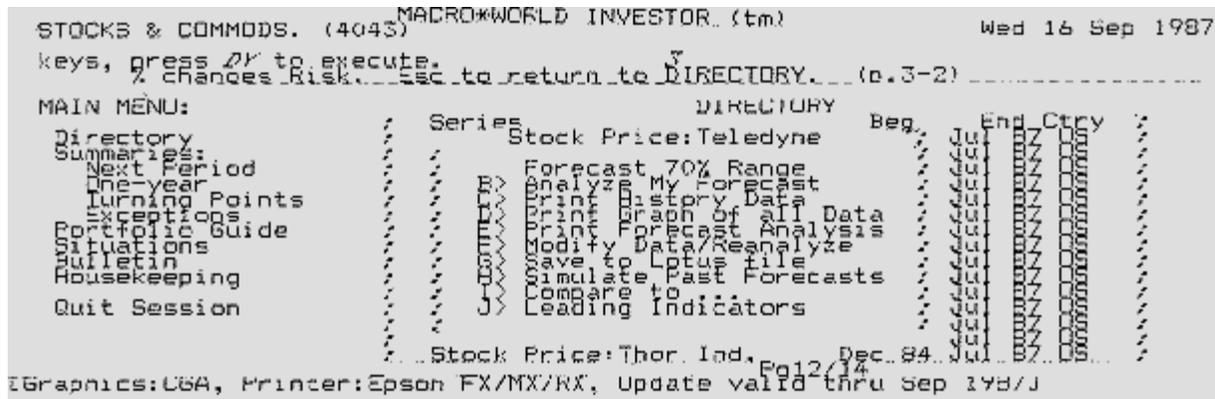


FIGURE 2

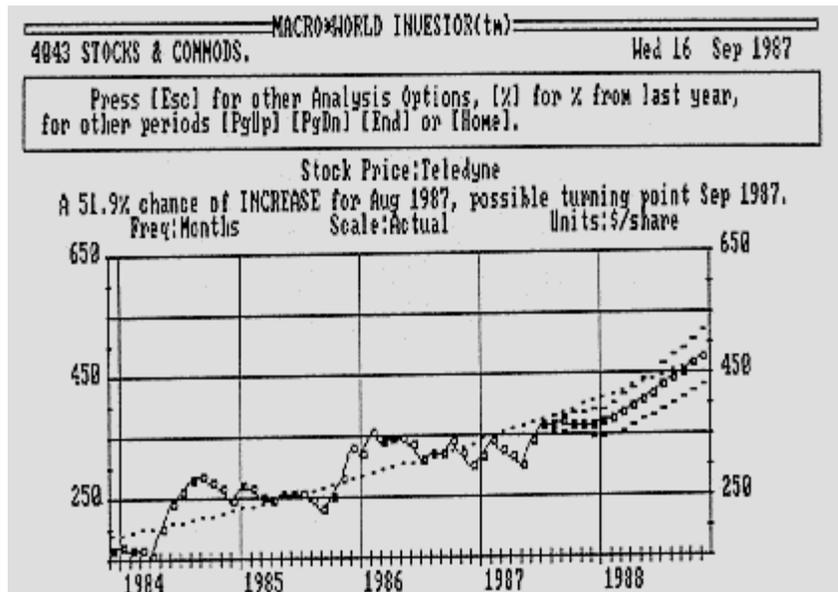


FIGURE 3

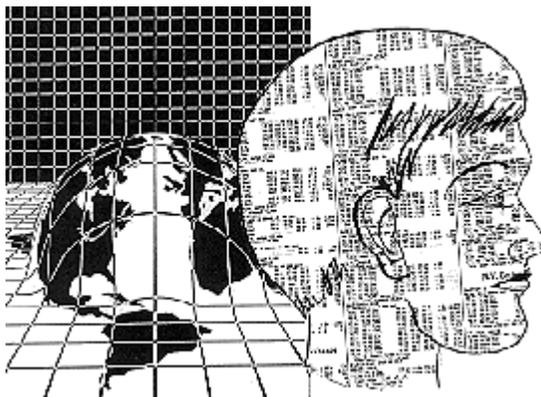
# Market Profile and market logic

## *Part 1*

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*by Thomas P. Drinka and Robert L. McNutt*

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Following more than four years of development by J. Peter Steidlmayer and the Chicago Board of Trade, the CBOT Market Profile and Liquidity Data Bank went online in 1985. With the availability of the real-time representation of market activity, the general public now has access to market-generated information which previously had been available only to individuals who traded on exchange floors. As a result, it is now possible to get the "feel of a market" without being in the trading pit.

The purpose of this article is to briefly explain the manner in which CBOT Market Profile portrays market activity. Many individuals strive to learn trading by following market fundamentals and/or by conducting technical analysis where the general intent may be to trade by some system or formula. The "market logic" approach, which is the foundation of the CBOT Market Profile and Liquidity Data Bank, entails understanding what is happening in the market, thinking about it logically and acting accordingly. Because activity is not random, it can be read and interpreted by using the CBOT Market Profile.

There are three principles underlying the Profile: the market's purpose, its operational procedures and the behavior of its participants. The purpose of a futures market (as of all markets) is to facilitate trade. This is accomplished by providing a location, market-imposed time frames (the trading session, the life of futures contracts, the timing of market reports) and the information that the Profile captures.

The market is self-regulating through the use of time and price, and market activity consists of "time/price opportunities" (hereinafter, TPOs) in which participants can trade at specific times at a specific price. Market activity is interpreted by the acceptance or rejection of TPOs by market participants .

Futures markets operate through a "dual auction" process. That is, as the market is attempting to facilitate trade, it seeks the activity of market participants through the use of price probes. These price probes move alternately too high and too low in order to create trading opportunities. The acceptance or rejection of these TPOs is a function of the needs and objectives of market participants.

Observing the behavior of market participants allows one to interpret market conditions. For example, it allows a trader to judge the profit potential of buying strength or selling weakness. Market participants can be categorized by their time frames. "Day-time-frame traders," as CBOT calls them, intend to conduct business in a specific trading session. Most of them are local scalpers who seek a "fair price" in order to facilitate trade. That is, they operate to buy the bid price or to sell the asking price.

"Other-time-frame traders," who initially may not intend to conduct business in a specific trading session, may assume a market position because of an attractive TPO. They seek an "advantageous price." They operate to buy at the low end of the price range or to sell at the high end of the price range.

### **CBOT Market Profile**

The left side of [Figure 1](#) is the CBOT Market Profile of CBOT June 1987 U.S. Treasury bond futures (BDM7) for May 15, 1987. The Figure also displays a 30-minute bar chart. The Profile is a real-time, time-and-sales quotation ticker that displays time/price relationships. The letters designate half-hour time periods: "A" represents 8:00-8:30 a.m., "B" represents 8:30-9:00 a.m., and so on. During the initial half-hour of trade, BDM7 ranged from 8908 to 9006; during the second half-hour interval, the contract ranged from 8910 to 8922, and so on.

As the day's trading progresses, a Profile develops that reflects the acceptance and/or rejection of TPOs by market participants, and allows a trader to judge market conditions. The Profile organizes seemingly chaotic market activity into a format that can be read and understood. At the time of this writing, Peter Steidlmayer had identified six general Profiles in which a day's trade can result: normal, normal-variation, trend, non-trend, neutral and running profile.

### **Normal day**

[Figure 2](#) is a Profile of a "normal day" of CBOT July 1987 soybean oil futures for May 15, 1987. A normal day occurs when the "pioneer range"—the first column in the graphic— consists of the first or the first two time periods of the trading day. In this case, the pioneer range consists of TPOs "D" and "E." Such a day also is characterized by brief time/price relationships (i.e., few TPOs) at the extremes of the daily price range and an extended time/price relationship within the daily price range. Price probes at the high side of the range are met with active selling which results in market consolidation, while price probes at the low side are met with active buying which also results in consolidation. As a result, the majority of trades occur within a "Value Area" where the majority of market participants repeatedly trade during the day.

### **Normal-variation day**

[Figure 3](#) is a "normal-variation of a normal day" Profile of CBOT July 1987 soybean meal futures for May 14, 1987. Such a day occurs when approximately 50%-60% of the pioneer range consists of the first time period or of the first two periods back-to-back. During such a day, "range extension" occurs. That is, market participants extend the price range beyond the Value Area established by the first one or two time periods.

As seen in [Figure 3](#), the market advertised for selling above the initial Value Area. Such a price move would be expected to produce sufficient selling to generate market consolidation. Instead, however, unexpected buying moved the price above the initial balance area and a normal-variation of a normal day resulted. Similarly, range extension could occur below the initial Value Area.

## **In Figure 6, a "non-trend day" is shown for CME June 1987 Eurodollar futures for May 14,1987.**

### **Trend days**

When trend days occur, the market is said to be "moving through time" and must be watched closely. Two examples of trend days are possible. An "elongated trend day" of Chicago Mercantile Exchange (CME) July 1987 pork bellies for April 29,1987 is shown in [Figure 4](#). During such a day, the market moves consistently in one direction, but not sufficiently far at any one time to elicit a consolidation-promoting reaction that would result in a Value Area. The result is a long, narrow profile, generally moving in one direction.

A "double-distribution trend day" occurs when price trends away from an initial, poorly developed Value Area and, subsequently, forms a second Value Area. [Figure 5](#) displays such a day for the New York Stock Exchange Dow Jones Industrials for May 15, 1987.

### **Non-trend day**

In [Figure 6](#), a "non-trend day" is shown for CME June 1987 Eurodollar futures for May 14,1987. (Note that futures which do not open on the hour or the half-hour do not adjust: "y" represents 7:20-7:50 a.m., "z" represents 7:50-8:20 a.m., "A" is 8:20-9:50 a.m., and so on.) Market participants are not reacting to higher or lower prices and the day's price range is narrow. The market is not facilitating trade. When such days occur, the market does *not* need to be monitored closely during the trading day, since it is not moving through time. However, a change in market conditions may be anticipated during subsequent trading days.

### **Neutral day**

A "neutral day" is chiefly characterized by range extension— both up and down—with little follow-through. In [Figure 7](#), the market for CBOT June 1987 gold futures for May 15, 1987 is facilitating trade and, in the "D" and "K" time frames, range extensions occurred which resulted in no net influence. Such days are confusing situations that need to be watched carefully. A change in market conditions may be imminent.

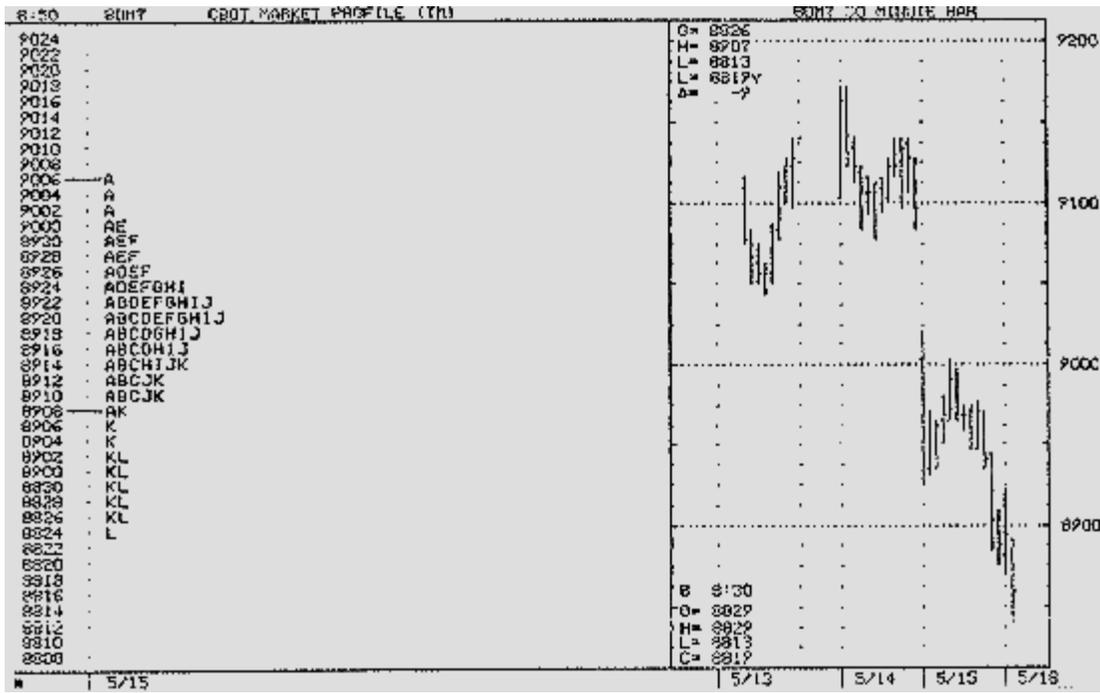
### **Running profile day**

A "running profile day" is one in which the condition of the market changes during the trading day. [Figures 8 and 9](#) present Profiles for CME June 1987 S&P 500 futures for May 15, 1987. When viewed in the context of [Figure 8](#), the market has the characteristics of a double-distribution trend day. But additional insight of market condition may be derived by shifting letters "I" through "J" to the right, as in [Figure 9](#), and considering it a running profile day.

In [Figure 9](#), the Profile for the day is stratified into two graphics: the "B" through "H" time frames and the "I" through "P" time frames. (Note that the Profile substitutes the letter "P" for the letter "O" to avoid confusion with the number zero.) In this case, the market develops as a normal day through the "H" time frame, but during the "I" and "J" time frames, the market condition changes from normal to trend.

*Thomas Drinka is an associate professor and Robert McNutt is a research assistant in the Department of Agriculture at Western Illinios University, Macomb, IL, 64550, (309) 298-1179. Western Illinios University is the first university to teach the CBOT Market Profile and Liquidity Data Bank as part of its curriculum.*

*The authors wish to thank the following organizations for assistance in the preparation of this article: Figures were generated by Commodity Quote-Graphics System One, which has been donated to the university; the Chicago Board of Trade and the Chicago Mercantile Exchange waived exchange fees associated with this price quotation service and The Market Logic School reviewed a preliminary draft of this article.*



**FIGURE 1: CBOT Market profile**

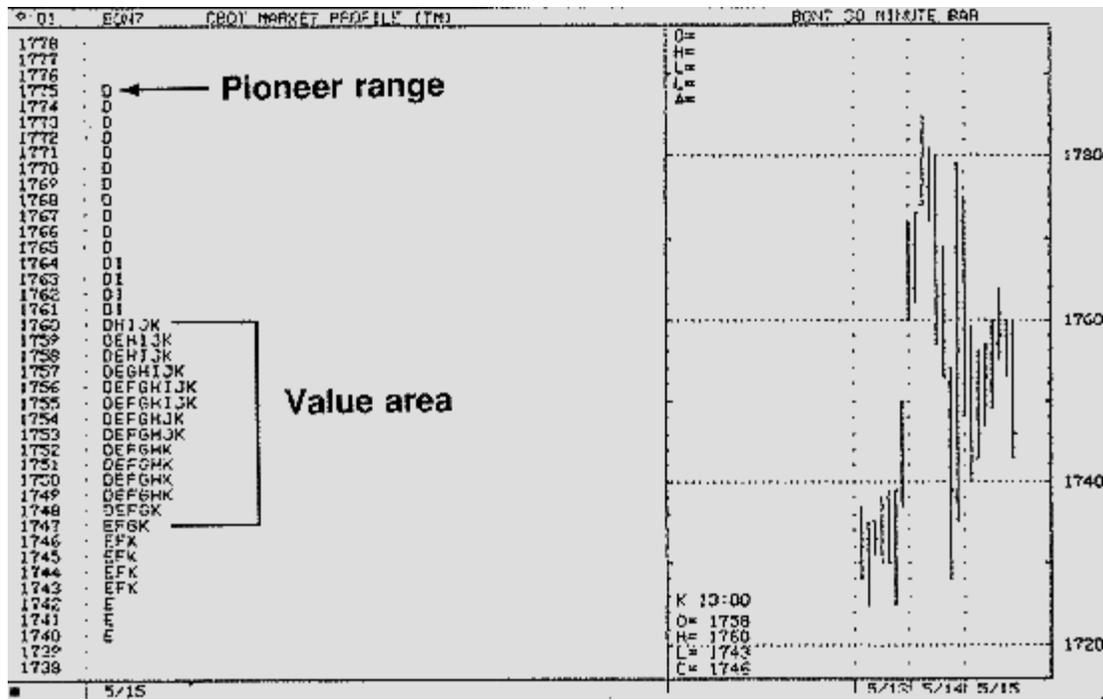


FIGURE 2: Normal day

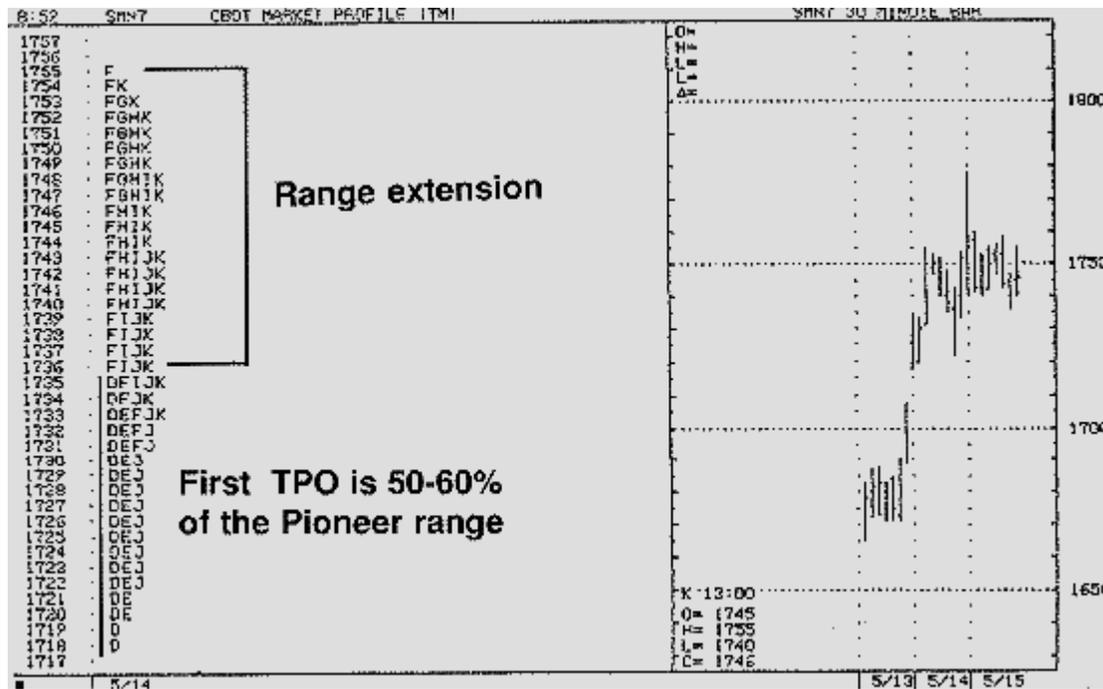


FIGURE 3: Normal variation day

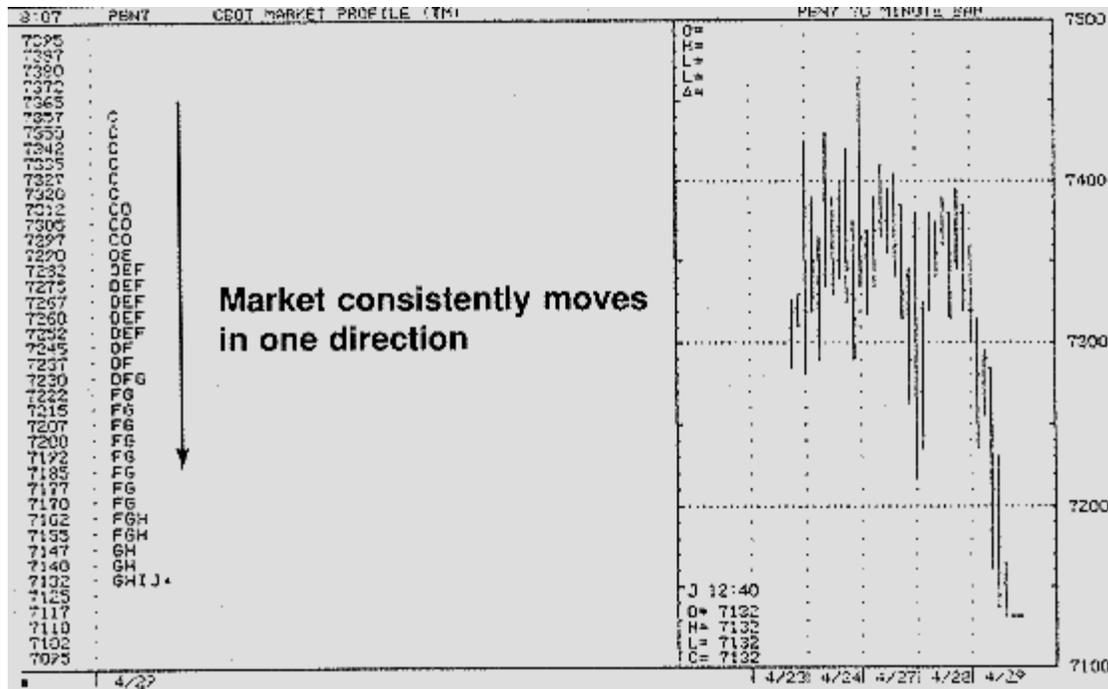


FIGURE 4: Elongated trend day

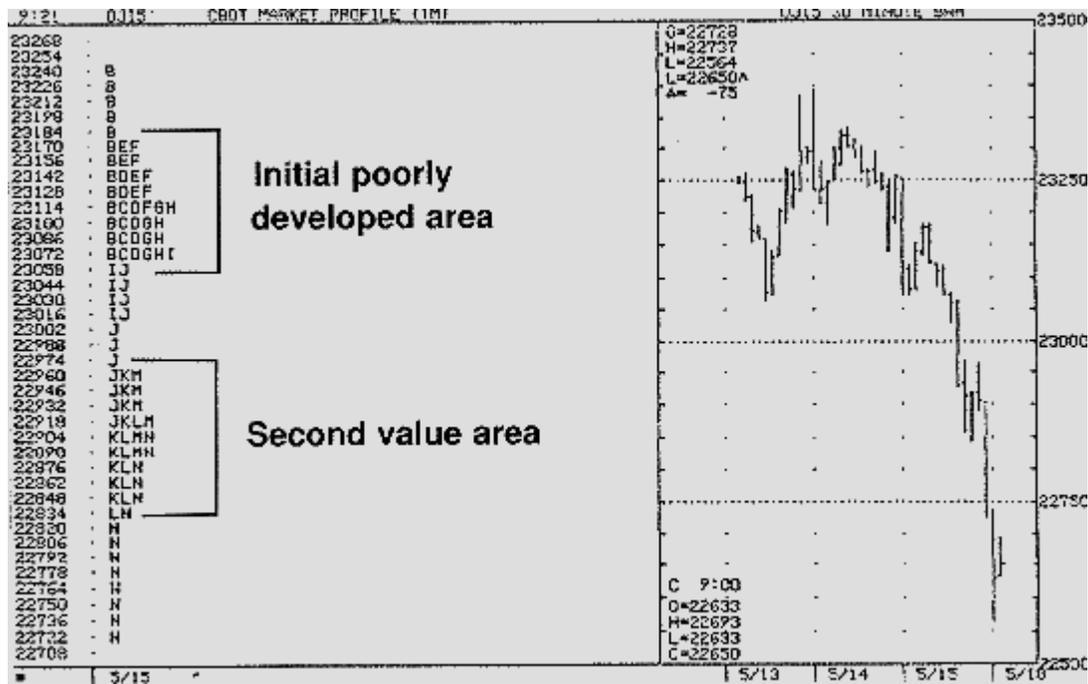


FIGURE 5: Double distribution day

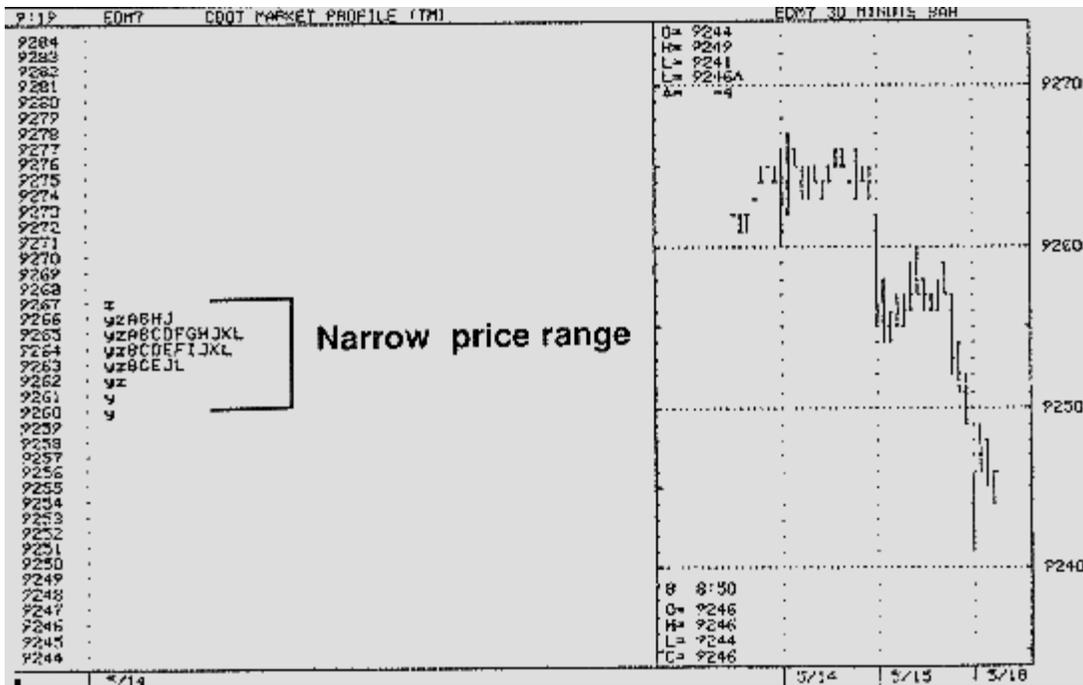


FIGURE 6: Non-trend day

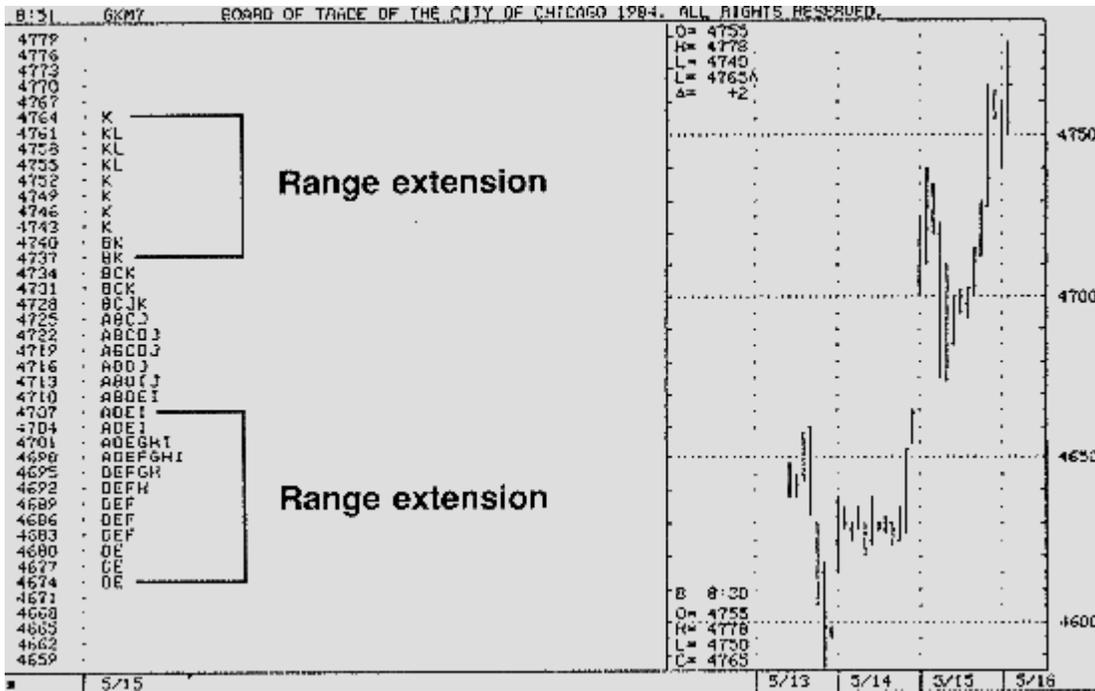


FIGURE 7: Neutral day

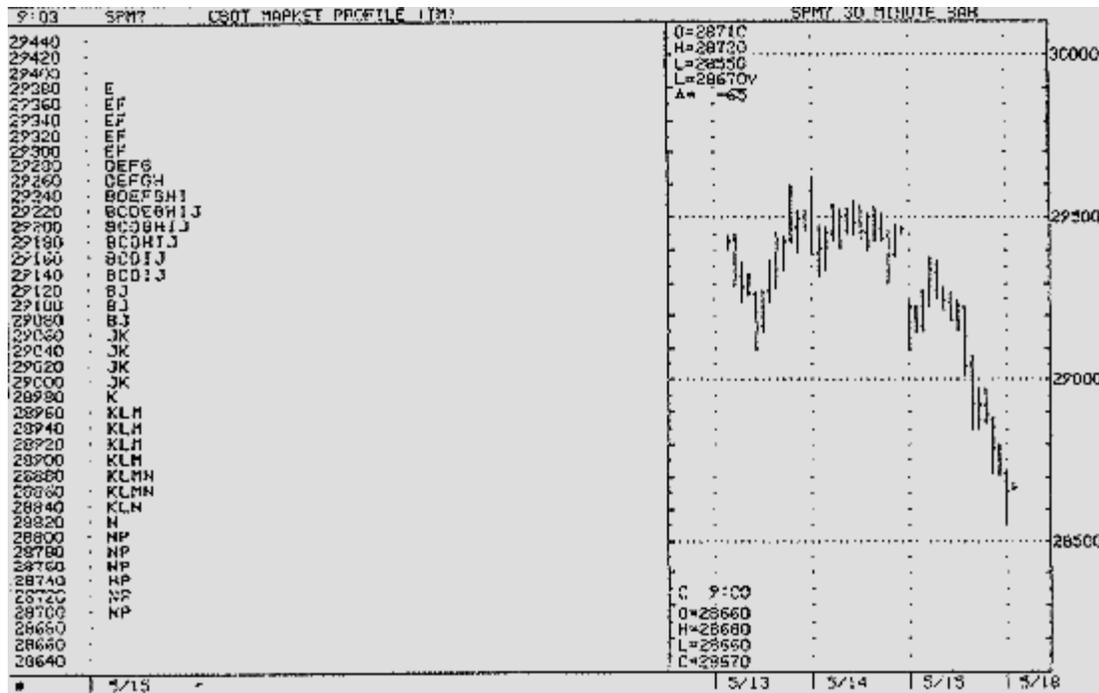


FIGURE 8: Running profile day



FIGURE 9: Running profile day

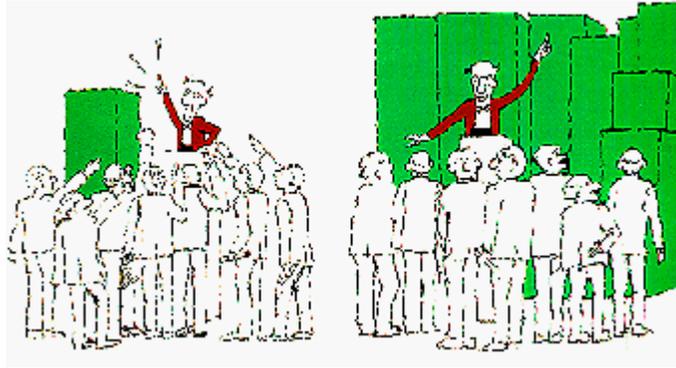
# Market strategy

## *The Wyckoff method of trading: Part 15*

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by Jack K. Hutson

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**T**he reasoning behind Richard D. Wyckoff's classic method of chart analysis is simple and straightforward: when demand for a stock exceeds supply, prices rise; when supply is greater than demand, prices decline. The goal of this method is to make the most efficient use of investment capital by selecting only issues that will move soonest, fastest and farthest in any market and by timing trades to capture those moves.

The Wyckoff Method accomplishes this by working in harmony with the market's buying and selling waves, not against them. The search is for turning points that an individual feels comfortable trading—anything from the final top of a bull market to the intraday peaks and valleys of buying and selling waves.

The system evolved during Wyckoff's years in the stock market, a time when experience was the only stock market teacher. As a broker, Wyckoff watched traders with financial clout make their behind-the-scenes plays and realized the market's future could be discerned from the price and volume that gave away the plans of those who dominated trading. He published his method, the first technical analysis of its kind, in 1908 and began publishing weekly forecasts based on his analysis in 1911.

Although the Wyckoff Method relies solely on price and volume charts, it is far from a purely mechanical or mathematical system. Wyckoff intended that his students use charts to gain a feel for the push and pull of supply and demand. He saw an analyst as someone who uncovered the human forces behind price and volume fluctuations, not a rote technician drawing lines and angles.

### **Manipulator campaigns**

In Wyckoff's view, all the activity that charts reveal is the product of market manipulation by knowledgeable and influential traders. A Wyckoff analyst, therefore, can look at any chart and visualize an "aggregate manipulator" who undertakes a four-phase campaign of market manipulation.

The first phase is "accumulation" where a large operator acquires a line of stock at the lowest possible

prices. Here, supply grows scarce and demand builds to give price the power to rise later. Accumulation is a lengthy process. It comes across on Vertical charts as sideways price movement, a "congestion area," that shows no tendency to take off in either direction and is accompanied by consistently low volume. This phase also may contain some drastic downturns to shake stock out of the hands of tenacious holders and into the operator's portfolio.

The next phase, "marking up," occurs when the operator has all the targeted stock in hand. The operator allows the price to rise or gives it a push with well-placed bids either gradually or swiftly. On the Vertical chart, marking up is a series of fast price upthrusts alternating with momentary plateaus or "resting spells," accompanied by rising volume.

The third phase is "distribution" where the operator buys and sells from the accumulated line to give it the appearance of strength and catch public attention. On the charts, this comes across as a "congestion area," a range where price seems to have settled. The stable trading range is intended to fool the public into thinking the stock is waiting to take off again. In actuality, the operator is unloading the stock, taking profits and ready to start "marking down," the last phase where price is allowed to fall naturally. Here, the operator takes a short position in preparation for a major decline.

## **The Wyckoff Method uses three types of charts—Vertical Line (Bar), Figure (Point & Figure) and a Wave chart Wyckoff developed to forewarn of turning points.**

### **Charts**

The Wyckoff Method uses three types of charts - Vertical Line (Bar), Figure (Point & Figure) and a Wave chart Wyckoff developed to forewarn of turning points. At the very minimum, an experienced Wyckoff trader can chart the stock market with a daily financial newspaper, a notebook and an hour a day in a quiet place.

To avoid spending too much time charting and not enough on analysis, the Wyckoff analyst maintains Vertical charts of the composite and important group averages and Figure charts of individual stocks. At the same time, the analyst scans individual stock volumes in a daily financial journal, looking for surges that would give cause for further investigation.

The search is for groups that are weak when the market is strong (buyers have reason to believe they can sell higher later on) and groups that are strong when the market is weak (buyers know something to the group's disadvantage and are selling out).

From Vertical charts, which follow price and volume, the analyst learns which direction prices are moving, whether it's an opportune time for buying, selling or closing out and where to place stop orders. Figure charts show only price changes and are used to forecast the approximate number of points a stock should move. They also help the analyst see where supply or support is building and how far a correction or rally moves.

When Vertical group charts show promise that a group could move further and faster than the composite, the analyst refers to the Figure charts of individual stocks to evaluate the size of potential price moves. This information comes from the Figure chart's "horizontal formation" - a price that is repeated for a

number of days and creates a horizontal baseline from which future prices advance or decline. The number of times a price is repeated in the horizontal formation is the number of points a stock, a group or the market should advance from its deepest low or decline from its peak high. A horizontal formation after a decline says market manipulators are willing to support the stock and stem the decline. After a rally, a horizontal formation signals a downturn in prices as soon as supply satiates demand.

From the indications of group and composite Vertical and individual Figure charts, the analyst knows when it's time to construct Vertical charts of promising individual stocks. For additional and extremely detailed information, the analyst can turn to Wyckoff's Wave chart, which tracks the aggregate intraday price of five leading stocks vs. time. The Wave chart is an exploded view of each bar on a Vertical chart and is used to detect critical points in market action and frequently warn of changes days before they are apparent on composite average charts.

### **Basic chart patterns**

Although the stock market rarely behaves exactly the same way twice, charts do follow general patterns that indicate imminent money-making opportunities. In a declining market, the usual chain of events is a Selling Climax, followed by Technical Rally, then Secondary Reaction. Rising markets follow a similar pattern starting with a Buying Climax.

On a Vertical chart, a sudden, abnormally large volume as sellers unload their holdings gives the first signal that a Selling Climax is imminent. The price range usually drops and widens, the closing price hits nearer and nearer to the low. The selling actually climaxes on a day of high volume and a closing price near the high.

Immediately after the climax is the first chance to buy long. A stop order should be placed two or three points under the purchase price and one to two points under the climax low.

Customarily, a Technical Rally (Automatic Rally or Rebound) follows in which volume dips and the price range jumps higher. If buyers during the climax did not intend to hold their purchases, those stocks will be thrown back on the market during the Technical Rally. Although the market looks bullish, it's the next phase, the Secondary Reaction (or Test), that shows where the market is really headed.

When the rally's supply is too large for buyer demand, prices during the Secondary Reaction will drop lower than the extreme low of the Selling Climax and a new decline is in the offing. If the market, on the other hand, reacts with shrinking volume and prices at or above the low of the Selling Climax, an upturn may be on the way.

Here is a second chance to buy long, after the Secondary Reaction shows buyers are gaining the upper hand as volume retreats and prices hover above the climax low. In this situation, the market is on the "springboard" ready to advance.

The final confirmation of an important reversal would be prices rising beyond the Technical Rally's extreme high. This is the third and least favorable chance to go long because a purchase would be in the midst of an up wave rather than at a turning point, which increases risk since the market may test the lows set during the Selling Climax and Secondary Reaction several times before a bull market really gets under way.

### **A closer look at price and volume**

Today's market behavior means nothing until it's been compared to what has happened in the past, and "support" and "resistance" points are essential clues to future performance. A support point is the lowest price set in the recent past and, similarly, a resistance point is the highest price set in the recent past.

Usually, price will "hesitate" as it nears a support or resistance point. Breaching either of these points, especially when volume is increasing, is a significant event that demonstrates the strength of the trend. This makes support and resistance points useful levels for placing stop orders.

Another essential test of the market's technical strength or weakness is how far a price drops during a reaction or how far it rises during a rally. Normally, a reaction drops half the distance of the preceding rally and a rally rises half the distance of the preceding reaction. For example, a 10-point advance followed by a 5-point reaction is considered normal. A reaction of more than half indicates technical weakness—the trend may be fading. Conversely, a rise of more than half after a decline would be considered technical strength.

When a chart shows a pattern of rising prices that tend to flatten out or arch over, the chart is saying demand is dying or supply is greater than buyers can handle. When a chart shows declining prices that level off or round upward, it's a message that supply is petering out.

The rate of price change gives important clues to impending action. Look for sudden sharp movements up or down (called thrusts and shake outs) or a price that stops oscillating and comes to "dead center." A shake out may look like an exaggerated selling climax on charts or a rapid drop at the end of an extensive preparation for advance. It is intended to scare stock out of the hands of persistent hangers-on. A thrust is the reverse of a shake out, a sharp run up and out of an area of distribution or a temporary bulge through the top of a trading range to encourage buyers.

## **Abnormally large and swift volume expansion marks a turning point – either temporary or permanent.**

When price comes to dead center or a "hinge," however, it tells the analysts the stock is probably on the "springboard" and ready for sharp and immediate action where entry into the market makes most efficient use of capital. A springboard usually occurs at the bottom of a decline, during a consolidation period. This is where manipulators are most likely to accumulate stock for a bull campaign. A springboard can also occur after preparations for distribution and becomes evident after price has declined and settled in a range.

Volume confirms or denies price clues. A gradual volume buildup means the public is coming into an advancing market or leaving a declining one and gives price the momentum to continue its current direction.

Volume that follows the price trend is usually bullish (i.e., increasing volume with rising prices or decreasing volume with declining prices). Volume that runs counter to the price trend is usually bearish.

Abnormally large and swift volume expansion marks a turning point – either temporary or permanent. It heralds the approach or the culmination of a move.

Small or "light" volume is like the end of a chapter in a book, something new is in the offing. Light volume at the bottom of a decline of any size says selling is drying up and taking the pressure off

declining prices. Light volume at the top of a rise in price is usually bearish and says demand has been filled and prices should drop.

### **Trendlines**

Trendlines are drawn through the successive tops or bottoms of price on a Vertical chart so it is easier to see when prices are changing pace or reversing their direction. Any threatened violation of a Trendline says the force of demand or supply is weakening. An analyst, however, must use judgment in drawing Trendlines and in interpreting how they are broken and the conditions under which violations occur.

There are; four basic Trendlines: a support line passing through two successive points of support in an up trend; a supply line passing through two successive points of resistance in a down trend; an oversold position line drawn parallel to the supply line and passing through the first point of support between the supply line's two tops, and an over-passing through the first point of resistance between the support line's two bottoms.

When price breaches a support or oversold line, it's a signal to buy long or cover shorts. Breaching a supply or overbought lines says it's time to sell out or go short.

By extending a Trendline past the points that define it, the trader has a better idea of what can be expected of future prices.

### **Position Sheet**

A Position Sheet is a record keeping device that keeps track of the potential movements of individual stocks in each group. On the Position Sheet, each stock is in one of five positions: ready to make a short or long upward swing, a short or long downward swing or no move at all.

The number of stocks in the bullish vs. the bearish positions gives the analyst an indication where the overall market sits and which groups are most closely aligned with the composite trend. From there, it's a matter of selecting individual stocks from the position sheets that are in harmony with the overall market and show the most price potential

A summary of the Position Sheet is charted permanently as the Technical Position Barometer, which can then be used as a trend forecaster.

### **Stop orders**

Stop orders should be used on every transaction and their position determined before a commitment is made. It's advantageous to place stop orders at fractional prices because there usually is an accumulation of orders at full prices (i.e., 90 or 83) and at half points. On long trades, place stops at odd fractions below the full figure and, on short trades, at the odd fractions above the figure.

Stops should correspond to support and resistance levels. As a rule of thumb, stops on high-priced stocks would be in the 3-to-5 point range, 2-3 points on moderately price stocks and 1-2 points on stocks selling under \$50.

The shorter the trading cycle, too, the closer a stop should be placed to a support or resistance level and the faster it should be moved. The more a stock moves in your favor, the closer the stop order should be moved to the market price. By the time market price is 3-to-5 points from a profit objective, the stop should be crowded right behind it.

When stops are caught too often, the trader is either starting trades too soon, bucking the market trend or placing and moving stops improperly.

### **Serving an apprenticeship**

Trading requires both technical knowledge and emotional restraint, and Wyckoff helped his students master both.

On the technical side, he was a firm believer in serving an apprenticeship with paper trades before delving into the real market. It is the inexpensive way to gain experience and develop confidence. Wyckoff recommended at least 50 to 100 paper trades—on both the long and short sides—before venturing money in the market. That first venture should be a small, diversified portfolio of 10- or 15-share lots, no matter how much trading capital is available. Profits build up the capital for dealing in larger lots at a later time.

The best place to paper trade is in a quiet spot away from interruptions for at least an hour a day. Concentrate on determining the market's position and trend, anticipating turning points and selecting stocks that should move farthest and fastest.

Watch how you time transactions—don't jump in too soon; wait for the peak. Decide in advance how much risk is in a trade and know every minute why you are starting it, holding it and why you should close out.

Place your orders "at the market," otherwise you may miss an entire move because your broker can't get the stock exactly at a price you specify. Also, don't pyramid unless you have the potential for a 10-to-15-point move. Use limit orders when you buy or sell these additional lots so the broker executes your orders automatically.

Never increase your line if a trade goes against you. Some traders will let a stock run to where it seems more desirable to buy or sell, trying to average the loss over more shares. A losing trade is the result of bad judgment and why persist in using bad judgment?

On the emotional level, Wyckoff stressed self reliance, self confidence and a "hard-boiled," analytical approach to managing trades. Particularly, he advised analysts to pull out of the market and regroup psychologically whenever they felt fear, hope, indecisiveness or a tendency to rely on instinct entering into their decisions.

**At any point in your trading, it's a good idea to stop and analyze your past performance.**

### **TROUBLESHOOTING YOUR OWN PERFORMANCE**

At any point in your trading, it's a good idea to stop and analyze your past performance. Step back and take an objective view at losses or at trades that didn't quite work the way you thought they should. What went wrong? Does the same problem crop up again and again? Test yourself against this list of common errors:

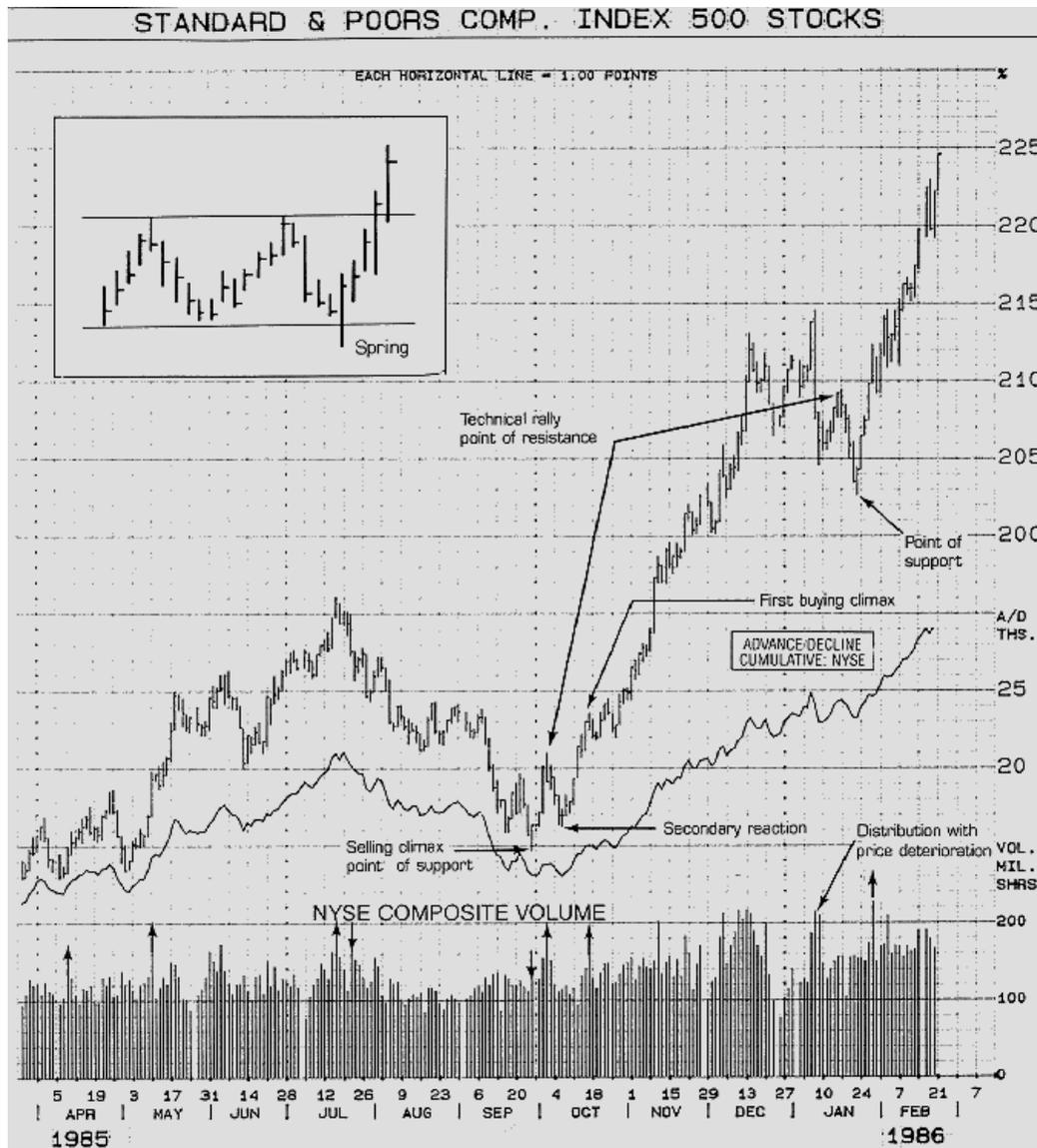
- making trades with insufficient study and practice. making trades out of harmony with the market

trend.

- taking a position too late, after a move is well under way or completed.
- taking a position too soon due to impatience.
- improperly estimating the distance a stock should move. letting eagerness to make profits warp judgment.
- failing to keep a Position Sheet and selecting stocks on hunches rather than calculations.
- buying on bulges instead of waiting for reactions. abandoning the use of Vertical charts in favor of Figure charts.
- buying after a stock has risen above the level where several buying indications appeared.
- failing to place and move stops.
- listening to advice from brokers, advisors, friends or newsletters.

The answer to these problems is to return to paper trading for a while and master the technical or emotional gremlins that are fouling up your trades. Don't be hasty in pronouncing yourself cured, either. As Wyckoff would have counseled, "Staying out of the market is as much a strategic move as being in it."

*This article concludes the 15-part series on the trading method developed by Richard D. Wyckoff and still widely used by active traders. The first article was published in the February 1986 issue, and the complete series is contained within Volumes 4 and 5 of Stocks & Commodities. Individual issues and complete volumes are available.*



**FIGURE 1:** Typical bear market intermediate trend cycle followed by a strong bull market intermediate trend cycle. Each of these major [bull or bear] is separated if y a short corrective phase. Chart by Commodity Research Bureau, 75 Montgomery St., Jersey City, N.J. 07302

<b>Buying and Selling Tests</b>	
<b>Buying Tests</b>	
(Applied to an average or a stock after a decline)	
<b>Indication:</b>	<b>Determined From:</b>
1) Downside objective accomplished	Figure Chart
2) Activity bullish (volume increases on rallies and decreases on reactions)	Vertical Chart
3) Preliminary support	Vertical and Figure
4) Average or stock stronger than market (i.e., more responsive on rallies and more resistant to reactions)	Vertical Chart
5) Downward stride broken (i.e., supply line penetrated)	Vertical or Figure
6) Higher supports (daily low prices rising)	Vertical or Figure
7) Higher tops (daily high prices rising)	Vertical or Figure
8) Base forming (horizontal price line)	Figure Chart
9) Estimated profit is at least three times the indicated risk	Figure Chart for profit objective; Vertical Chart for stop order placement
<hr/>	
<b>SELLING TESTS</b>	
(Applied to an average or a stock after an advance)	
<b>Indication:</b>	<b>Determined From:</b>
1) Upside objective accomplished	Figure Chart
2) Activity bearish (volume decreases on rallies and increases on reactions)	Vertical Chart
3) Preliminary support	Vertical and Figure
4) Average or stock weaker than market (i.e.: more responsive on reactions and sluggish on rallies)	Vertical Chart
5) Upward stride broken (i.e.: support line penetrated)	Vertical or Figure
6) Lower tops (daily high prices falling)	Vertical or Figure
7) Lower supports (daily low prices falling)	Vertical or Figure
8) Crown forming (lateral movement)	Figure Chart
9) Estimated profit is at least three times the indicated risk	Figure Chart for profit objective; Vertical Chart for stop order placement

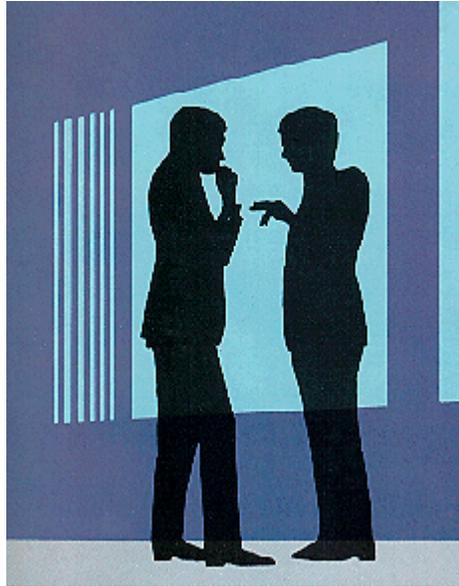
**FIGURE 2:**

# On tips and tipsters

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by Vincent Cosentino

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Charles Schwab, of discount brokerage fame, was quoted as saying: "I don't give (stock) tips." While Mr. Schwab may not, it seems just about everybody else does. Turn on your TV, pick up the local newspaper, glance through a business magazine and somebody is recommending some stock. Provocatively entitled columns such as "Heard On The Street" and "Inside Wall Street" bespeak the imminent disclosure of furtively gained confidences from Wall Street's most inaccessible files.

Journalistic puffs of steam? Or, are we really going to see fire and lava? Can these tipsters, with their ears supposedly on the track, hear the train a-coming?

We looked through some of the better known specialized journals published during September 1985 to see how some of these tips worked out as of September 1986. We selected the "Inside Wall Street" column in *Business Week*, "Streetwalker" from *Forbes*, and "Up and Down Wall Street" out of *Barron's*. We assumed an investor would have invested \$1,000 in each stock favorably mentioned in the columns and would have gone short a like amount in stocks with unfavorable coverage. Unclear comments or neutral articles were not considered. Except for one instance where the perspective would have been seriously distorted, stock price fractions were rounded to the nearest whole number.

So how did these professional tipsters do? Well, none of the three beat the Dow Jones Industrial Average, which was up nearly 33% during the period covered. But that is far from the full story.

A look at [Figure 1](#) shows "Streetwalker" was profitable in five out of six recommendations, including one short sale. Overall, the trading was up 30% in comparison to 21% for the broader-based Wilshire 5000 index. Three other stocks were mentioned: Olin Corp. and DuPont did not dip sufficiently to reach the column's recommended buying range and commentary on Wolverine Iron Works seemed inconclusive.

Interestingly, the October 6, 1986 "Streetwalker" column reviewed its October a-year-ago picks. With the

Dow then up 34% and the Wilshire 5000 up around 24%, their choices were up close to 30%. Not quite as good as the DJIA but better than the Wilshire 5000, which parallels the results of our review.

The showing of "Up & Down Wall Street," as compiled in [Figure 2](#), was unusual. With as many losers as winners (four and four, plus two unchanged and one pass), "Up and Down Wall Street," nevertheless, was up 23%, beating the Wilshire 5000's 21%.

Of the column's five favorably rated stocks, three were losers, one was a breakeven and the other advanced 155%, which was enough to offset the losses and turn the group to the gain side.

Even more interesting were the stocks receiving negative vibes (short sales according to our scenario) from the "Up & Down" typewriter. Moving counter to the Dow and Wilshire 5000, the shorts showed a gain of nearly 27%, with two of the four picks accounting for the bulk of the gains.

With 20/20 hindsight, the results of "Inside Wall Street" shown in [Figure 3](#) could have been improved if one had adopted some loss-limiting procedure. Getting out of Coleco and Western Digital with no more than a 20% loss for each would have boosted the net gain from 18% to 24% vs. the 21% for the Wilshire 5000.

With more selections than the other two magazine columns (12 stocks), "Inside Wall Street" showed profits in nine. That works out to 75% and isn't too shabby as batting averages go.

But what if your broker wasn't nearby and poised to take your order as soon as the print hit the streets? Could you have made any money on these tips? We checked the stock prices a few weeks after the companies were mentioned. Of the 19 favorably reviewed stocks in all three columns, only two were higher. Seven were lower and 10 were relatively unchanged. Of the two gainers, one had advanced 6% and the other nearly 12%, which should not have dissuaded a convinced buyer. As background during this period, the Dow moved up nearly two points, and the Wilshire 5000 was down nearly the same amount. So barring the mention of a spectacular new product or bio-tech breakthrough, there seems time to buy in on the long side.

The short sales, however, would have been a different situation. Of the nine negatively mentioned stocks, seven had fallen in price (one by 75%), and only two had advanced contra the commentary. Negative remarks seemed to have had a more immediate impact.

Keep in mind that a review of one month's performance does not a Bible make. But if these tipsters had any covert sources of information, superior techniques of analysis or circling satellites, the month we checked did not generate gong-sounding results.

Additionally, the famous trader Jesse Livermore is reputed to have said: "If you buy on Smith's tip, you must sell on Smith's tip." Unfortunately, none of the tipsters provided selling guidelines.

Nevertheless, there still seems to be some opportunity here for the sensible investor, especially on the long side. Any issue that seems appealing should be moving in the direction of the market's overall trend. Wait a few weeks for the publicity to grow dim. If the stock is still clinging to its major trend direction, then you may want to make your move.

Despite the obvious notoriety, tips can still be a valuable starting place for individual research. Don't be haughty and ignore them because they have become public knowledge. In many cases, there is still some juice left.

*Vincent Cosentino is a registered investment adviser with a broad background in financial management and fiscal control.*

<b>Streetwalker</b>					
<b>Favorable Comments</b>					
	<b>Date</b>	<b>Price</b>	<b>Price 9/30/86</b>	<b>Gain Amount</b>	<b>(Loss) %</b>
Amer. Bilrite Inc.	9/9/85	11	12	1	9
Marcade Group	9/9/85	5/8	1	3/8	60
Danaher Corp.	9/9/85	9	11	2	22
Interface Flr. Sys.	9/23/85	13	13	-	
Dart Group Corp.	9/23/85	105	163	58	<u>55</u>
<b>Favorable Gain</b>					<b>29%</b>
<b>Unfavorable Comments</b>					
Cameron Iron Works	9/9/85	16	10	6	<u>37</u>
<b>Unfavorable Gain</b>					<b>37%</b>
<b>Net Gain</b>					<b>30%</b>
<i>Wilshire 5000 Gain 21%</i>					
<i>Dow Jones Industrial Avg. -Gain 33%</i>					

**FIGURE 1 :**

<b>Up &amp; Down Wall Street</b>					
<b>Favorable Comments</b>					
	<b>Date</b>	<b>Price</b>	<b>Price 9/30/86</b>	<b>Gain Amount</b>	<b>(Loss) %</b>
Aeroflex Labs	9/2/85	13	11	(2)	(15)
Harsco	9/9/85	29	24	(5)	(17)
Exposiac Industries	9/9/85	16	12	(4)	(25)
Robertshaw Controls	9/16/85	33	84	51	155
Central Reserve Life	9/16/85	10	10		—
				<b>Favorable Gain</b>	<b>20%</b>
<b>Unfavorable Comments</b>					
Greeman Bros.	9/2/85	24	1	13	54
Monarch Avalon	9/2/85	18	3	15	83
BR Communications	9/16/85	8	8	-	-
Zenith Electronics	9/16/85	18	20	(2)	(11)
Copytel*	9/23/85	12	11	1	8
				<b>Unfavorable Gain</b>	<b>27%</b>
				<b>Net Gain</b>	<b>23%</b>
<i>*Split-adjusted</i>					

**FIGURE 2 :**

**FIGURE 3**

**Inside Wall Street**

**Favorable Comments**

	Date	Price	Price 9/30/86	Gain Amount	(Loss) %
E.F. Hutton Group	9/2/85	33	42	9	27
Coca-Cola*	9/2/85	24	34	10	42
Boise Cascade	9/2/85	246	57	11	24
Ausimont Compo N.V.	9/2/85	12	22	10	83
Gen'l Refractories	9/2/85	9	14	5	55
Coleco Industries	9/16/85	18	11	(7)	(39)
Chris-Craft Industries	9/16/85	52	69	17	33
Time Inc.	9/23/85	57	72	15	26
Apollo Computer	9/23/85	16	13	(3)	(19)
				<b>Favorable Gain</b>	<b>26%</b>

**Unfavorable comments**

Optical Radiation	9/2/85	30	18	12	40
BankAmerica Corp.	9/30/85	13	11	2	15
Western Digital Corp.	9/30/85	9	14	(6)	(75)
				<b>Unfavorable Loss</b>	<b>(7)%</b>
				<b>Net Gain</b>	<b>18%</b>

\*Split-adjusted

**FIGURE 3 :**

# Price/Volume Cross-Correlations in the DJIA

by Frank Tarkany

This article examines the use of a *Price Percent Filter* (PPF) on daily Dow Jones Industrial Average (DJIA) closing prices from January 2, 1897 to January 2, 1987. Price changes from the filter are cross-correlated with their corresponding New York Stock Exchange (NYSE) total volume changes. The correlation coefficient and chi-square statistics results from June 13, 1949 to January 2, 1987 indicate good price/volume cross-correlations.

**In recent times, the 10% Price Percent Filter has the highest price/volume change, cross-correlation coefficient**

## Analysis

A *Price Percent Filter* selects dates when the percentage of price change from a previous peak or low exceeds a threshold value. In this study a computer was used to find when a price change equals or exceeds the PPF in the opposite direction of the preceding PPF change. The date, DJIA price, and NYSE total volume were tabulated onto a computer file for subsequent analysis.

An example of a 10% PPF is shown in [Figure 1](#). At the start Date (D0), we have a price of 10, Volume of 3, Cumulative Volume (CV) of 3, and a percentage Price Change (PC) of 0.0%. At D 1 we have a PC of 7.5% and CV of 7. At D2, we have a 5% price change calculated as follows:

$$PC = \left( \frac{10.5 - 10}{10} \right) 100 = 5\%$$

At D4, we've found our first price change equal to or greater than the 10% PPF magnitude.

Prices continue to D9 to a maximum price of 12.25 without *declining* 10% from any price since D4. Prices decline to 11 at D,12 from the maximum value of 12.25 for a price change of 10.2%. This price change exceeds our PPF magnitude and is opposite in direction of the previous PPF +22.5% maximum. Now we tabulate the D9, price 12.25, and cumulative volume 110 on the file.

At D,19 we reach a low price of 9.25 (price change of -24.5%) and, at D29, a price change +10.8% greater than PPF and in the opposite direction. We tabulate D19, price 9.25 and CV 96. We continue this 10% PPF processing until our end date.

After each tabulation, we compare the absolute changes in price and volume. On D29, prices went down from 12.25 to 9.25. This decrease is noted with a "-" mark on the left side of the PV Change column. The cumulative volume went from 110 to 96, generating a "-" on the right hand side of the column. Similarly, on D,19, price rose from 9.25 to 15.5, generating a "+" mark, and cumulative volume went from 96 to 135 generating a companion "+" mark. Column 10 classifies the pairs of pluses and minuses into one of four groups: A, B, C or D.

When the tabulation was completed a computer was used to calculate the Price/Volume Cross-Correlation Coefficient ( $r$ ) and chi-square Statistics ( $\chi^2$ ). The technique for these calculations is explained in the March 1987 *Stocks & Commodities* article titled "DJIA/NYSE Auto/Cross-Correlations." The correlation coefficient ( $r$ ) and chi-square statistic ( $\chi^2$ ) are calculated as shown below:

$$r = \frac{AD - B\left(\frac{C}{\sqrt{A+B}}\right)}{(C+D)(A+C)(B+D)},$$

where A = ++ count, B = -+ count, C = +- count and D = -count

$$\chi^2 = r^2 N, \text{ where } N = A + B + C + D$$

The program then calculates the same statistics using *Price Percent Filters* from 1 % to 10% for four different time frames from January 2, 1897 to January 2, 1987.

### Results

Figure 2 summarizes the results: Column 1 is the filter's magnitude in percent. Columns 2,3,4 / 5,6,7 / 8,9, 10 and 11 , 12,13 show the number of data points, correlation coefficient ( $r$ ) and chi-square statistic ( $\chi^2$ ) for each time frame. Figures 3 through 5 illustrate the 10% PPF price and volume values from January 2, 1897 to August 12, 1982. Figure 6 is from August 12, 1982 to December 12, 1986 with the 1% PPF overlaid on the 10% PPF.

### Conclusions (June 13, 1949 to January 2, 1987)

1. In recent times, the 10% *Price Percent Filter* has the highest positive price/volume change, cross-correlation correlation coefficient of 0.5509. Next is 9% at 0.4424.
2. All ten *Price Percent Filters* have a chi-square confidence level greater than 99.5% except 8% (chi-square > 99%).

*Frank Tarkany has worked for the last 20 years in computer software applications, mainly in the military weapons systems and scientific fields.*

Date	Price	Vol.	CV	PC	Tabulate File			PV Change	Count
					Date	Price	CV		
0	10.00	3	3	0.00					
1	10.75	4	7	7.50					
2	10.50	5	12	5.00					
3	10.75	7	19	7.50					
4	11.00	8	27	10.00					
5	11.25	12	39	12.25					
6	11.50	15	54	15.00					
7	11.75	23	77	17.50					
8	12.00	24	101	20.00					
9	12.25	9	110	22.50					
10	12.00	8	8	-2.00					
11	11.25	7	15	-8.20					
12	11.00	6	21	-10.20	10	12.25	110	START PV	
13	10.50	7	28	-14.30					
14	10.75	10	38	-12.20					
15	10.25	13	51	-16.30					
16	10.00	15	66	-18.40					
17	9.75	14	80	-20.40					
18	9.50	9	89	-22.40					
19	9.25	7	96	-24.50					
20	9.50	8	8	2.70					
21	9.25	9	17	0.00					
22	9.75	12	29	5.40					
23	9.50	10	39	2.70					
24	9.75	13	52	5.40					
25	9.75	12	64	5.40					
26	10.00	14	78	8.10					
27	9.75	13	91	5.40					
28	10.00	14	105	8.10					
29	10.25	15	120	10.80	20	9.25	96	--	D

FIGURE 1:

### Price Percent Filters for Price/Volume Cross-Correlation

Time	24 Years, 8 Months			+ 27 Years, 10 Months			+ 37 Years, 6 Months			= 90 Years		
Filter %	1/2/1897 - 8/24/1922			8/24/1921 - 6/13/1949			6/13/1949 - 1/2/1987			1/2/1987 - 1/2/1897 - 1/2/1987		
	Number	CC	x2	Number	CC	x2	Number	CC	x2	Number	CC	x2
0	7255	0.0051	0.19	8248	0.0281	6.51	9533	0.1632	254.03	25038	0.0729	132.9
1	1260	0.0079	0.08	1483	0.0951	13.41	1246	0.1156	16.65	3991	0.0734	21.51
2	590	0.0983	5.71	771	0.1414	15.41	634	0.1514	14.54	1997	0.1307	34.11
3	378	0.0529	1.06	499	0.1543	11.88	392	0.2246	19.77	1271	0.144	26.35
4	260	0.1233	3.95	349	0.1805	11.37	277	0.278	21.4	888	0.1937	33.33
5	186	0.1506	4.22	241	0.1112	3.02	191	0.3089	18.22	620	0.1839	20.97
6	146	0.1235	2.23	183	0.0709	0.92	133	0.2933	11.44	464	0.1509	10.57
7	112	0.1432	2.30	159	0.0816	1.06	95	0.3898	14.43	368	0.1797	11.88
8	88	0.1369	1.65	137	0.1098	1.65	71	0.3238	7.44	298	0.1678	8.39
9	76	0.0796	0.48	113	0.0617	0.43	61	0.4424	11.94	252	0.1591	6.37
10	64	0.1252	1.00	99	0.0298	0.09	49	0.5509	14.87	214	0.1778	6.77

FIGURE 2:

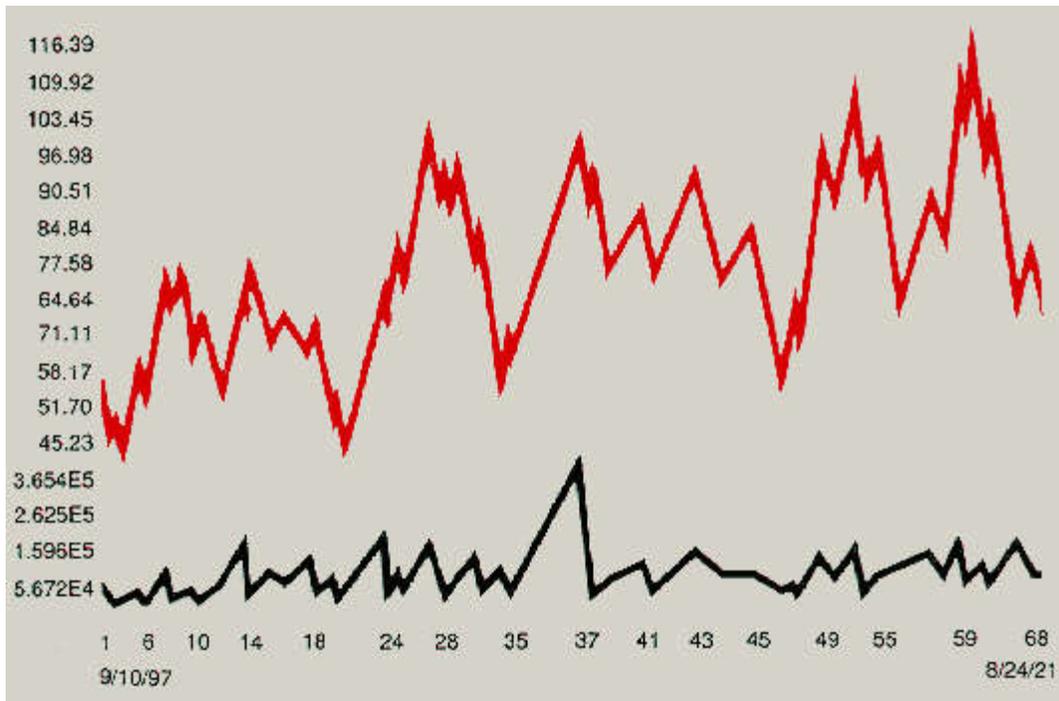
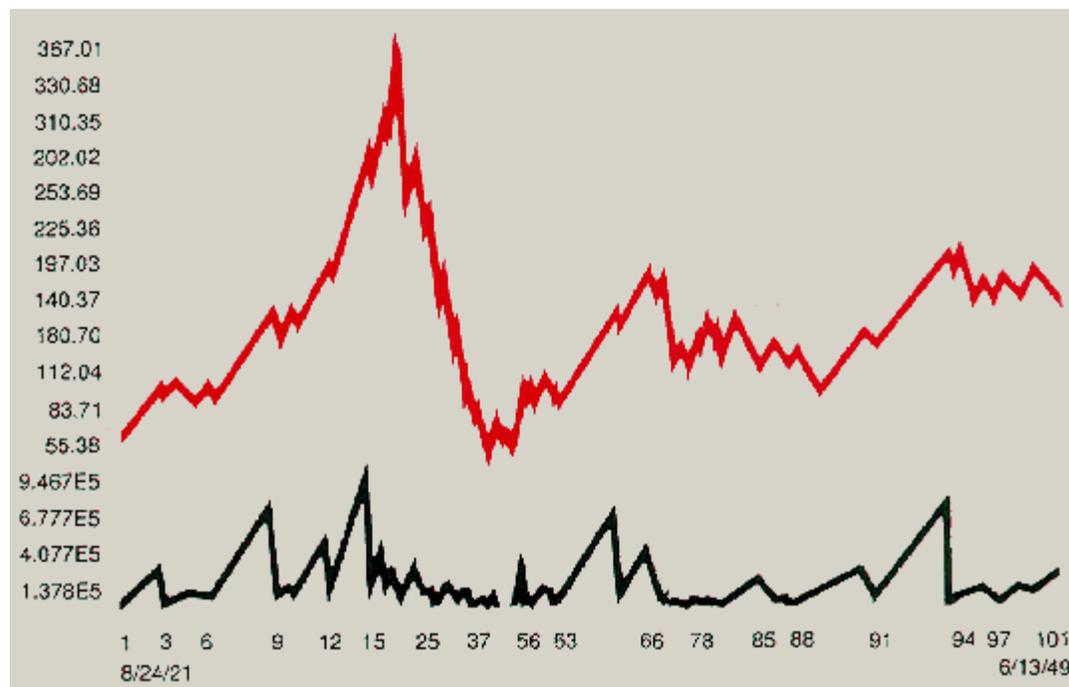
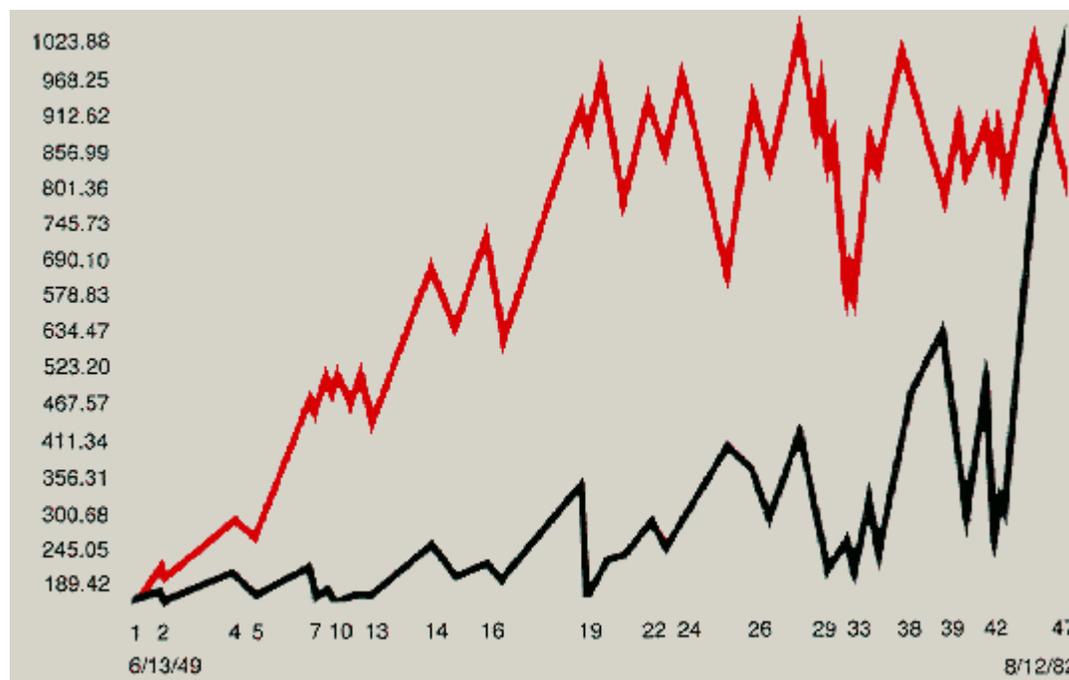


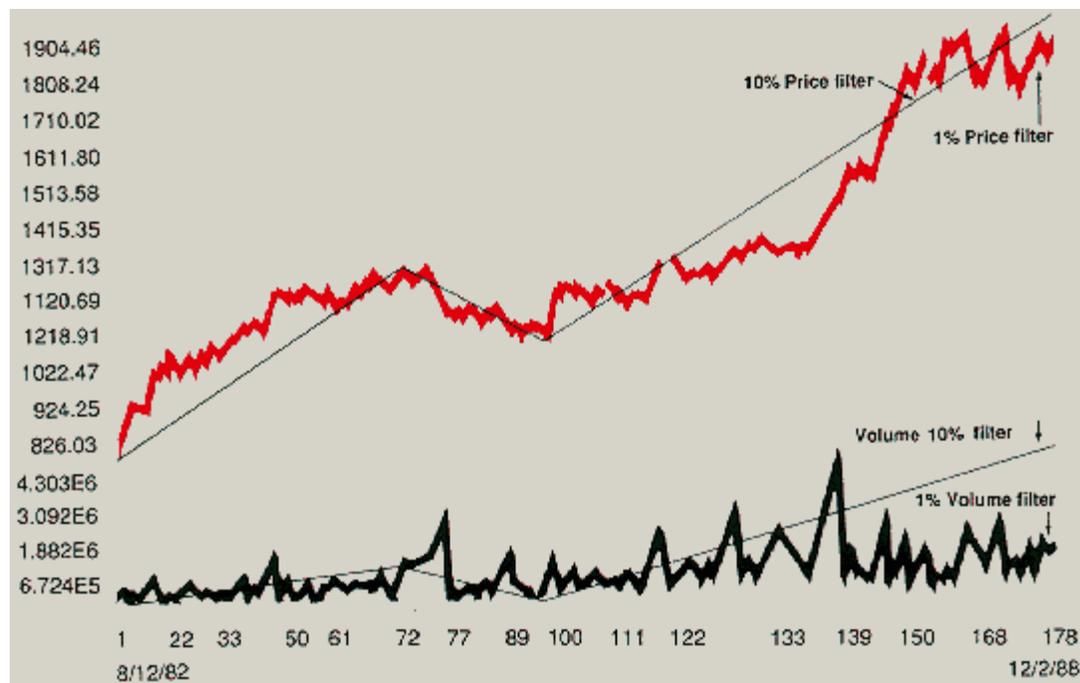
FIGURE 3: 10% Price Percent Filter and Volume



**FIGURE 4: 10% Price Percent Filter and Volume**



**FIGURE 5: 10% Price Percent Filter and Volume 10% Volume filter**



**FIGURE 6: 10% and 1% Price Percent Filter and Volume**

# Spread investing

## Part 4

by Frank Taucher



What if you have no interest in trading spreads, but prefer to trade outright commodity contracts?

Could you use the same principles developed in the spread investing program laid out in this series of articles and apply them to trades in individual futures contracts?

The answer to the above question is "yes." I use the same two tools in analyzing outright seasonals as I do analyzing spread seasonals. These tools are the quarter-month seasonal trade analysis and seasonal history printout.

What we are specifically attempting to uncover is the cream-of-the-crop period of the year when it is usually quite profitable to trade a particular commodity and also quite reliable. In other words, we want trades that have averaged a considerable profit over the years, and also have been able to experience those profits year after year after year.

Some examples are quite obvious: the winter rise in heating oil, the summer rise in gasoline, the pre-harvest rises and post-harvest declines in crop commodities. Others are not so obvious: the rise in Treasury bills as income tax payments are made in the spring and interest rates decline, the end-of-the-year repatriation of foreign earnings and their effect on the currencies, and the mid-year decline in lumber prices.

A logical extension of these situations is that we not only want to profit from a particular commodity market during a specified period of time, but also want to leave the commodity alone during the rest of the year unless another seasonal is found to exist.

The development of a diversified portfolio of seasonal trades is the reason why the commodity can be neglected during non-focused periods. Since there are enough trades to keep funds fully invested throughout the year, it is not necessary to chase trades during non-focused periods.

Of course, it goes without saying that a favorite trading system or method can be used in combination

with seasonals to further filter the trades, just as was done in our last article with the spread trades.

Thus, a seasonal investment program not only tells us which market to trade and when, but also the direction and extent of the expected move, the specific contract month to trade that best exemplifies the move, a point at which to call it quits (the stop level), and supplies us with a sufficient number of trades to diversify our funds.

Let's look at a specific example: March corn in the 19 years from 1969-1987. In [Figure 1](#), the quarter-month seasonal trade analysis matrix, we have isolated the period from November 7 (1107) to February 28 (228) as one of declining prices in the March corn contract. Specifically, 84% of the time this contract has tended to decline \$603 during this period 84% of the time as indicated in the cell where the entry date of 1107 and the exit date of 228 meet, producing the numbers "603/16". (The 16 is the probability that corn has gone up— so that 84% is the probability it has gone down.) At the bottom of the matrix are the average prices of March corn over the entire 19- year period. It is these prices that we plot in [Figure 2](#) to graph the spread from October 31 to March 7.

In the seasonal trade printout ([Figure 3](#)), rather than listing all 19 years, I have isolated three years in particular. Any grain trader who has been around the pits since the late 1960s would want to see what happened during the grain explosion of 1973. Hence, the 1973 experience (using March 74 contract) is listed along with the following year, 1974, and the experience in 1986 (using, of course, the March 1987 contract). Most of the numbers are self-explanatory and at the bottom of the table, the pertinent statistical data is summarized for all 19 years.

Note that the worst loss was experienced in 1973 (\$3,913), but 1974 had the largest gain of all 19 years (\$6,463). Such is often the case in seasonality. When a large contra-seasonal occurs in a commodity market, the following year often provides an abnormally large seasonal move as the contra-seasonal move is corrected.

Inspecting all 19 trades would show you the trade displays sufficient consistency to qualify as a seasonal trade. In this inspection, it becomes apparent that a stop of \$ 1,100 should be used. Indeed, if this stop had been used, total profits would have been increased on this trade by \$3,3264 to \$14,827 and the average profit would have increased to more than \$780 per trade.

It is also possible to make the same type of calculations that were made with the spread trades. For instance, if we take the March corn seasonal and divide the sum of the margin (\$500 plus the stop (\$1,100) into the average profit, we obtain:  $\$603 / (\$500 + \$1,100) = 37.7\%$ , which annualizes to more than 120%.

Earlier, the importance of having a diversified portfolio of *many* seasonal trades was mentioned. In my investment program, I use the quarter-month sheets to construct three different seasonal portfolios.

The large portfolio has more than 250 seasonal trades in it and, at its peak, has a \$60,000 margin requirement. The medium portfolio has more than 100 trades and requires \$30,000 in margin money, while the small portfolio, which consists of just over 70 seasonal trades in nine commodities (gold, bonds, lumber, heating oil, pork bellies, soybeans, wheat, sugar and the Deutschemark or one from each major commodities group) has a \$15,000 margin requirement. (The medium portfolio adds coffee and the S&P 500 to the commodities in the small portfolio).

In this article, we have seen that the same principles discussed earlier in my spread investing program apply to individual contracts as well. We have seen how individual trades are developed and how our

various portfolios are developed from individual trades. The main feature of these portfolios is, again, the tremendous amount of diversification they provide the trader throughout the year.

*Frank Taucher, Suite 190, 8236 E. 71st St., Tulsa, OK 74133, publishes The 1987 Commodity Trader's Almanac*

### Quarter-month seasonal trade analysis

March Corn, 1969–1987

Entry Dates	Exit Dates														
	1115	1122	1130	1207	1215	1222	1231	107	115	122	131	207	215	222	228
1107	-37/43	54/37	-50/32	-161/37	-289/32	-287/32	-336/37	-285/37	-273/37	-373/42	-309/26	-375/21	-372/21	-381/21	-603/16
1115	..	-17/37	-13/58	-144/42	-252/32	-250/37	-298/42	-248/37	-236/37	-396/37	-272/37	-338/37	-335/26	-344/26	-566/21
1122	..	..	4/47	-127/32	-235/26	-233/32	-282/26	-231/37	-219/37	-319/37	-255/37	-321/37	-318/32	-327/26	-549/21
1130	..	..	..	-131/37	-239/42	-237/42	-286/37	-235/42	-223/42	-323/42	-259/32	-325/32	-322/26	-331/32	-553/21
1207	..	..	..	..	-108/26	-106/21	-154/37	-104/42	-92/37	-191/42	-128/26	-193/26	-191/37	-200/42	-422/26
1215	..	..	..	..	..	2/37	-47/53	4/53	15/47	-84/53	-20/58	-86/42	-84/42	-92/47	-314/42
1222	..	..	..	..	..	..	-49/53	2/58	14/53	-86/53	-22/47	-88/42	-86/47	-94/42	-316/37
1231	..	..	..	..	..	..	..	51/74	63/63	-37/58	27/47	-39/42	-37/42	-46/42	-268/37
107	..	..	..	..	..	..	..	..	12/58	-88/47	-24/53	-90/32	-88/37	-96/37	-318/37
115	..	..	..	..	..	..	..	..	..	-100/26	-36/53	-102/37	-99/42	-108/37	-330/32
122	..	..	..	..	..	..	..	..	..	..	64/53	-2/42	0/42	-9/42	-231/26
131	..	..	..	..	..	..	..	..	..	..	..	-65/37	-63/37	-72/47	-294/32
207	..	..	..	..	..	..	..	..	..	..	..	..	-2/37	-7/42	-229/26
215	..	..	..	..	..	..	..	..	..	..	..	..	..	-9/42	-231/32
222	..	..	..	..	..	..	..	..	..	..	..	..	..	..	-222/11
228	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
307	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>AVG PRICE</b>	239.83	230.29	239.37	236.74	234.59	234.63	233.66	234.67	234.91	232.91	234.19	232.88	232.92	232.74	228.3
<b>DOLLARS</b>	11981	11964	11958	11837	11730	11732	11683	11734	11745	11646	11710	11644	11645	11637	11415

FIGURE 1

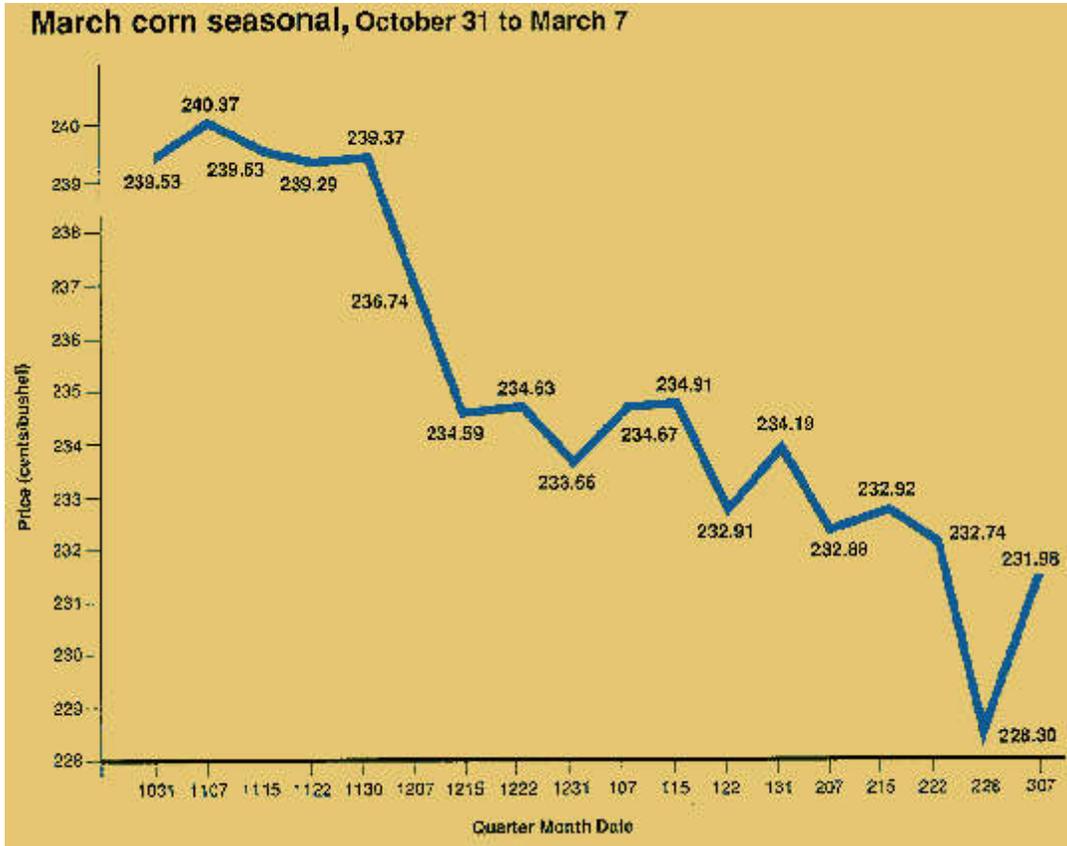


FIGURE 2

### Seasonal trade printout

Contract Analyzed : March Corn

	Date Bought	Date Sold	Price Bought	Price Sold	Contract Value Bought	Contract Value Sold	Dollar Profit	Cumula. Profit	Dollar Range Low	Dollar Range High	Price Range Low	Price Range High
C7403	740228.	731107	316.2500	238.00	15813	11900	-3913	-4425	-5038	0	238.0000	338.7500
C7503	750228.	741107	258.2500	387.5000	12913	19375	6463	2038	-38	6463	258.2500	388.2500
C8703	870302	861107	150.7500	182.5000	7538	9125	1588	11463	0	1988	142.7500	182.5000

**SUMMARY**

19 = Total Years	\$18125 = Dollars Won	\$1133 = Average Win	\$3913 = Worst Loss
16 = Number Won	\$-6663 = Dollars Lost	\$-222 = Average Loss	\$-5038 = Worst Drawdown
3 = Number Lost	2.72 = \$Won/Lost	\$500 = Margin	-646 = Average Monthly Profit
84 = Percent	\$11463 = Total Profit	\$603 = Average Profit	\$157 = Average Monthly Profit

Average Entry Price : 240.3684      Range : 119.6250 to 387.5000  
 Average Exit Price : 228.3026      Range : 114.1250 to 351.0000

FIGURE 3

# Volatility Breakout System

## Version 2

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*by John Sweeney*

---

**Technical Trading Strategies, Inc.**

**4877 S. Everett St.**

**Littleton, CO, 80123**

**(800)648-2232**

**Service:** Disclosed trading system for Treasury bonds, notes and bills; Eurodollars, municipal bonds, Deutschemarks, Yen, Swiss Franc, British Pound, S&P 500, Value Line, NYFE index and Maxi Index. Other contracts can be entered.

**Price:** \$3,000.00

**Equipment:** IBM PC/XT/AT or 100% compatible, 384K RAM, DOS 2.0 or higher, hard disk and one floppy or two floppies. Copy protected.

**Ratings:**

Ease of Use: A

Customer Service: A

Documentation: A

Reliability: A

Error Handling: A\*

Profitability: A

Minimizing Losses: A+

*\* BETA test of Version 2 worked well but hasn't been in the field long enough to be sure. Version 1 worked perfectly.*

**I**t turns out it is possible to devise a trading strategy which effectively minimizes drawdowns while steadily building your accounts balance. Doug Bry and Phil Spertus have put together such a package in

the Volatility Breakout System (VBS for short).

VBS was designed to accept very short-range pricing data and generate reliable trading signals for trades of much longer duration. To do that, its developers studied four parameters of pricing activity: time horizon, price range, trading boundaries beyond the range and volatility, both minimum and maximum. They asked themselves: "How much excursion beyond the recent trading range indicates a move which can be traded profitably?"

It turns out there are many profitable answers to that question and VBS allows you to explore past data for those answers and generates trading signals to exploit the answers you find. If you don't have the urge to explore, Bry provides a good starting set of parameters for bonds, S&P 500 and Dmarks. A strong point in this system's favor is that it is completely disclosed and, for once, the explanation is very clearly written. You could run this with a paper and pencil but the computer package is most likely a better idea.

Short-term pricing patterns seem to be the rage in trading circles today: recall Larry Williams' interview in these pages (*Stocks & Commodities*, June 1987). A similar approach is probably found in JC Productions' Deutschemark trading program. In VBS, we have the best disclosure available, the best back-testing facility, the broadest application in contracts, the best drawdown record—and the highest price!

### **Lifestyle**

VBS does require that you get up in the morning. You can't check the data during a leisurely after-dinner read and phone in the orders the following morning. Here you need to know the opening price to put in a couple of contingent orders (VBS will write these out for you!). Thus, you need to: (1) be able to think at 6 a.m. and (2) have a broker who can handle contingent orders. If you are using a discount house, go over these with your trading desk supervisor to see if they can handle it. In fact, this is one of those things you should check during the first few days you have the package.

### **Drawdown**

Although profitability is usually the first thing a trader looks for in a system, the impressive thing about VBS is that its equity drawdowns are so low. [Figure 1](#) is *Stocks & Commodities*' start-up portfolio from the arbitrary date of March 9, 1987. The portfolio traded bonds, S&P's and Dmarks because these contracts had recommended parameters from the authors of the system.

Once you exceed the volatility parameters of the system, it quietly exits. Thus, you are not likely to be in an environment where sudden large drawdowns occur. It can still happen (see day 8 in [Figure 1](#)!) but they are less likely. On days 37-61 (April 27 to June 1) the system got out of all these markets and marked time—they were too volatile to trade with this parameter set. That is, past experience had shown it to be more profitable to avoid trading during such volatile periods. As volatility dampened in July, tradeable opportunities started showing up after a period when portfolio drawdown was minimized.

The system also features an exit when volatility is too low to generate profitable trading. Those futures or stocks where "Dead Stop" sometimes occurs can be better traded when this feature indicates standing aside is prudent.

### **Trade identification**

A good trade doesn't go far wrong and if it is a loser it shows up quickly. I plotted how far VBS' winning

and losing trades went against the recommended positions to see how much mental agony went with this system and whether it could effectively identify winning vs. losing trades (for more on this technique, see *Stocks & Commodities*, October 1985). VBS does a very good job indeed, although its effectiveness can vary.

Figure 2a is the maximum adverse excursion of winning and losing Deutschemark trades. It's just OK—more winners than losers and an effective cutoff for stop placement at 50 trading points. It would be nicer if the losers had bigger adverse movements so the 50-point stop would cut them off early. However, for Deutschemarks, the winning trade curve is very similar to the losing trade curve.

For both S&P's and bonds, the situation is more complex. Both Figures 2b and 2c have a large number of winning trades with no adverse excursion at all—zero. This means you could, were you willing, set extremely close stops (9 points in bonds and 60 points in S&P's) that would get hit at least 70% of the time and still do quite well on the few trades that were winners from the moment they were put on!

More conventionally, you could just let VBS' own stop system and volatility limitations get you out. The figures in this article were prepared using VBS' stops and reversals, so they don't show much distinction between the shapes of the winning and losing curves. That indicates VBS has pretty much found the good stop or reversal points.

There is one exception. Note that you could put a stop at 240 S&P trading points and eliminate some very hefty losers! The general lack of improvements through stop placement indicates to me that the parameters developed by Bry are pretty effective.

### **Profitability**

VBS' track record, replicable on the version you receive, is quite good. It uses only bonds, S&P's and Dmarks to come up with profits of \$45,000 to \$110,000 while holding maximum drawdowns to less than \$5,000 in five years. Win percentages were all over 50%. That doesn't guarantee a prosperous future but in the prospective testing I did, I found the system adept at making good profits and holding on to them. We'll need another five years to be sure but the trading I watched was quite similar to the historical record.

VBS track record is done with the parameters disclosed in the manual. It also comes with five years of CSI data and a nifty, if long-running, optimization capability. You can set it to search thousands of combinations of the four parameters and then home in on the few that look good. My advice is: "Look outside the ranges you might intuitively consider." I had optimized within the constraints of my own desires (i.e., low volatility), but found good areas outside those constraints when Doug pointed them out to me.

Once you have the parameters you want, you can create a track record on a summary or day-by-day basis. The day-by-day feature shows the prices, drawdowns, calculated values for entry and exit, profits and losses—the whole schmeer. Or you can get a one-line summary. This part is well done and ran without glitches for me, a surprise since it is a rollover system that uses the data from all the actual leading contracts. Thus, there are no artificialities associated with perpetual contracts. The system trades the real thing.

### **Nuts and bolts**

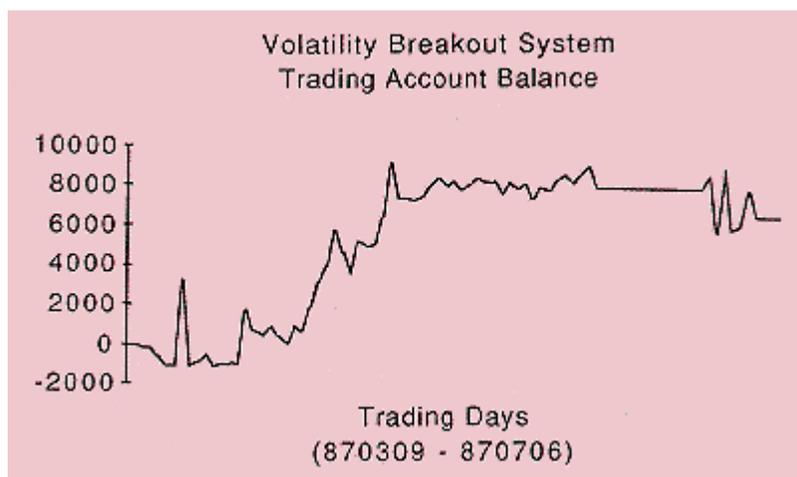
I tested the system for about four months. In all cases, it worked well. I did have questions about things I

missed when I read the manual for the first time, and Doug Bry answered them all instantly. The manual is clearly written and takes you through everything in good order and the new Version 2 is extensively menuized. Space prevents me from reciting all the convenience features but I can comment that most all the bells and whistles that have made trading packages easy to use can be found here.

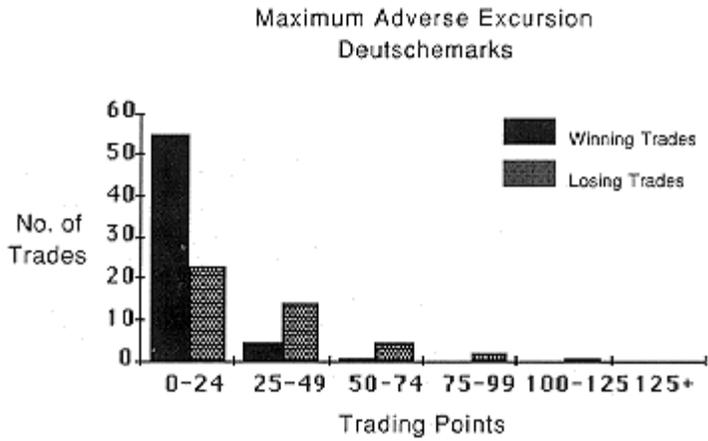
If you are using CSI data as I did, you'll be able to automate your data update just by using your native CSI files. VBS has the unique capability to search throughout your hard disk for all CSI directories and string together the contracts it needs to complete a long-term optimization study or, for that matter, a daily signal output. Those with large data directories will appreciate this feature. Manual data entry also is possible through DOS's EDLIN, Lotus 1-2-3, or an editor built into the package.

### Conclusion

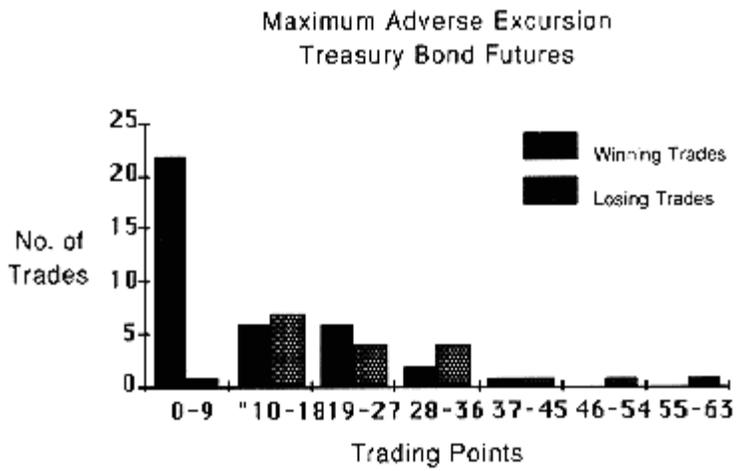
I like this package. The trading idea— following the move outside an expected range—turns out to be robust and the package allows you to study it in depth. The disclosure is complete and very educational. VBS allows you to specify and backtest a system that trades those markets behaving well and get out of those that are not. Plus, it makes money with very well-controlled drawdowns. How much it makes depends on your parameters and your discipline. Customer service is reputed to be very good and the service we received was tops— but then we were doing a review! Certainly, Technical Trading Strategies took all our criticisms to heart immediately and popped appropriate revisions into Version 2. The price is very steep considering the competition is at \$700 to \$1000, but then this is one system that hasn't yet stumbled. Keeping in mind that that could still happen, I'll have to leave the purchase decision to you. However, I think enough of it to add this program to our comparisons contest with Eurotrader and the Kelly Hotline.



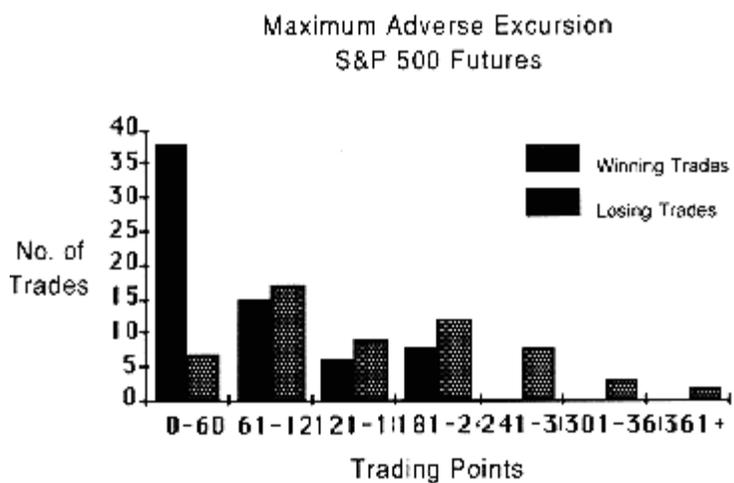
**FIGURE 1**



**FIGURE 2a**



**FIGURE 2b**



**FIGURE 2c**