AIQ Opening Bell
Newsletter

Equity Bubble Aftermath

Be Aware of Post-Bubble Problems In Technical Analysis—Making Adjustments Is Critical!

By David Vomund

These are extraordinary times for the market. In the last five years we've experienced the largest equity bubble in U.S. history and have also experienced a bear market that is arguably worse than that of the Great Depression. In the aftermath of the bubble, technical analysis remains valid as market movement is still based on the laws of supply and demand.

The bubble and the ensuing bear market does pose problems to many forms of analysis, however. In this article, we are exposing three post-bubble problems in technical analysis. By exposing these problems, our hope is that you'll spot these issues in your own analysis and will make appropriate adjustments.

Problem #1 - Wild Price Swings Hide the Chart Patterns

Most people use arithmetic charts. That is, the price scale (y axis) increases in equal increments. For a given period of time, the graph encompasses the highest and lowest stock price and the vertical (price) scale is divided into equal increments. This style of graph works fine for short-term charting, but
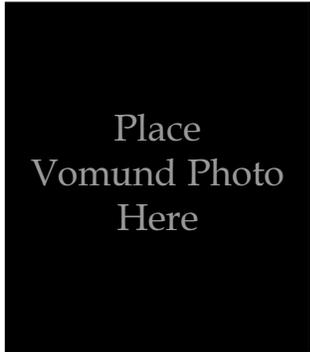
DAVID VOMUND

> *"In the aftermath of the bubble, technical analysis remains valid as market movement is still based on the laws of supply and demand. The bubble and the ensuing bear market pose problems, however. In this article, we are exposing three post-bubble problems in technical analysis"*

problems exist when stocks are charted using a time period of more than a year.

In early 2000, many Nasdaq growth stocks were near $100 but have since fallen below $20. That causes

problems for chartists using arithmetic charts. These charts exaggerate the movement of the stock when the price is high but show little movement when the stock is low.

Figure 1 shows Power One (PWER). Like many stocks in this extraordinary time period, PWER rocketed toward $100 only to fall back below $10 once the bubble burst. It looks like a big move when PWER fell from $80 to $70 (a 12.50% drop) but the fall from $10 to $5 (a 50% drop) looks like simple sideways movement. In fact, a chartist may look at Figure 1 and conclude the stock experienced a strong rally, an equally strong drop, and then a long sideways or consolidation movement.

The flaws inherent in arithmetic charting hide the true pattern of the stock. **Figure 2** graphs the same stock for the same time period but with a logarithmic scale
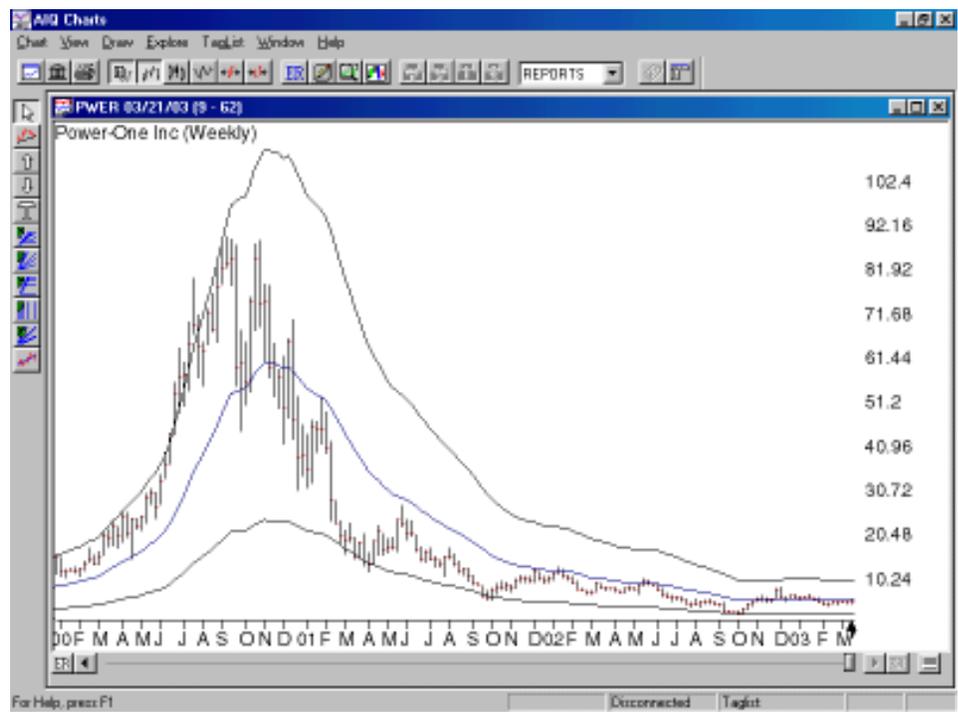
Figure 1. Weekly chart of Power-One with arithmetic price scale. After major decline in late 2000 and 2001, price appears to have moved sideways in 2002 and 2003.

> *"The flaws inherent in arithmetic charting hide the true pattern of the stock...Log scale charts show a truer picture of a stock's price movement."*

chart. Rather than using equal increments, log scale charts use percentage-based increments. Notice the distance between $10 and $20 (a doubling in price) is the same as the distance between $20 and $40, which in turn is the same as the distance between $40 and $80. With log scale charts, the price movement on an equity chart can be compared across the entire period of time displayed on the chart.

Log scale charts provide a truer picture of a stock's price movement. Whereas Figure 1 shows a stock that is in a long consolidation period, Figure 2 shows a definite

downtrend. To conclude that Power One is in a consolidation range can be costly.

Many software packages and internet sites have a log scale charting option. To convert a chart to logarithmic charting in TradingExpert Pro, click the *Log Scale* button that is located just to the right of the *ER* button on the Scroll Bar.

With the wild price swings of the last few years, this style of charting has become much more important.

Problem #2 - Relative Strength Analysis Favors Low Priced Stocks

Relative strength calculations have always favored low priced stocks. It is easier for a stock to go

from $2 to $4 than it is to go from $40 to $80. Reports that sort stocks based on relative strength often list mainly low priced stocks near the top of the ranking. In the past, many analysts resolved this problem by excluding stocks that were priced below $10, thereby eliminating the low priced issues. Unfortunately, in the aftermath of the bubble there is now a long list of

> *"Many relative strength calculations break the price action of the last year into quarters and then give twice the weighting to the most recent quarter. The post bubble's wild price swings pose a problem to these calculations."*

well-known and widely followed stocks that are below $10.

Looking at just the S&P 500 stocks, high relative strength reports show stocks like Dynegy (DYN), which has recently jumped from $0.68 to $2.50, at the top of the

report while stocks like eBay (EBAY), which is hitting multi-year highs, get lost in the ranking. EBay, with its relatively consistent uptrend, has the type of chart pattern that most relative strength investors favor. However, the relative strength rankings are currently dominated by low priced stocks.

Many relative strength calculations, including AIQ's Relative Strength Long Term report, break the price action of the last year into quarters and then give twice the weighting to the most recent quarter. The post bubble's wild price swings pose a problem to relative strength comparisons based on these calculations.

There is also a bias inherent in the process of simply averaging percentage changes. The following example explains why.

Consider a stock that moves from $20 to $10 and then rallies back to $20. In other words, it fell by 50% and then rose by 100%. Averaging the percentages shows a positive number but the stock is break-even. There is an upside

Figure 2. Weekly chart of Power-One with logarithmic price scale. From this type of chart, it is clearly evident that a high rate of decline continued throughout most of 2002.

resolved. In the meantime, use caution on high relative strength ratings on low priced stocks.

Problem #3 – Over-Optimization

Over-optimization, or curve fitting, is always a concern when forming a trading model. When you fit a model too closely to unique historical price movement, then the system will have little forecasting value. With the extreme market movement in the last five years, it is increasingly easy to go too far in optimizing a system.

Let's show an example. We created a system that only purchases stocks based on two screening components. The first component in our model states that stocks must close in the upper half of their daily trading ranges. The second component states that

stocks are only purchased when the Nasdaq's 28-day moving average increases in value by at least 7% in the last 10 days. For simplicity, stocks are held for a fixed 22-business-day period (approximately one month) and

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bias when you average percentages.

Using the Dynegy (DYN) example, DYN has fallen from $30 to $2.3, a 92% decrease, in the last year but its 260% jump in recent months makes it one of the S&P 500's highest rated relative strength stocks.

As we enter the next bull market, this problem will get

only Nasdaq 100 stocks are purchased.

Figure 3 shows the summary results of every trade in our model for the five-year time period ending in December 2002. This strategy produced 192 trading signals (an average of 37 trades per year). The average trade gained 9.33% over its one-month holding period. On an annualized basis, you would have doubled your money each year!

Unfortunately, the outstanding backtest of this system has no relevance to the future. Our rule stating that the Nasdaq's 28-day moving average must increase by 7% in 10 days allowed the system to buy stocks in 1999 but produced no signals in the bear market and is unlikely to give many signals in the coming years. There were 192 trades over the five-year test but nearly every trade occurred in 1999.

A Portfolio Simulation incorporating capitalization rules shows a much lower result. Since nearly all the trades came in one year, most of the trades could not be acted upon since the portfolio was already fully invested. There were no trades during 2001 and 2002. This model has a great backtest but it has no bearing on the future.
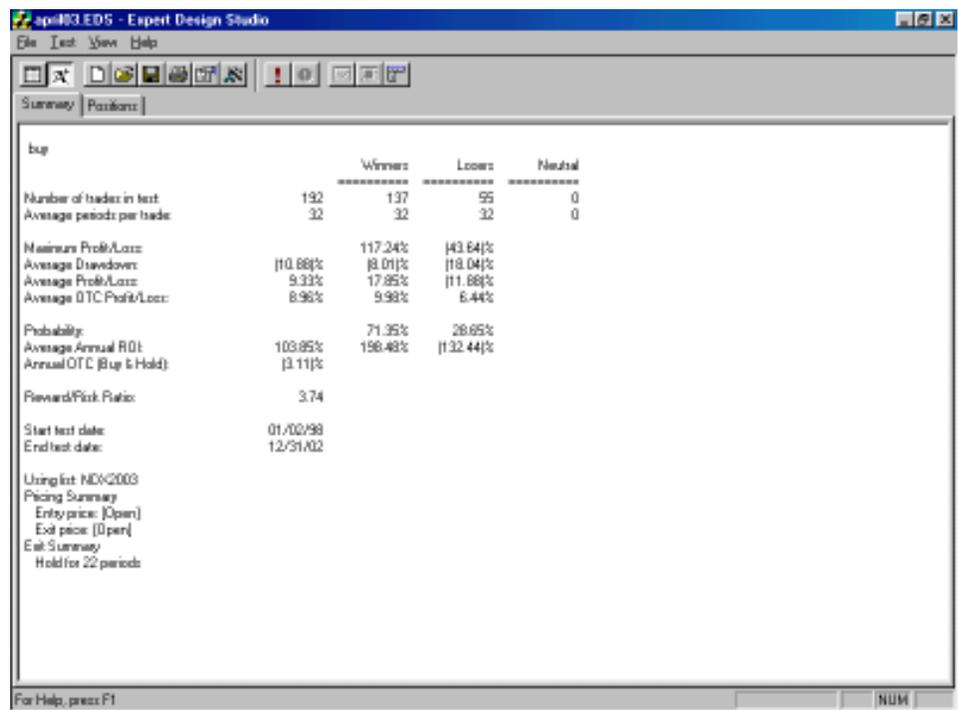
Figure 3. Backtest results from example model for the five-year time period ending in December 2002. Strategy produced 192 signals with average gain of 9.3% over one-month holding period.

Along the same lines, we could develop a model that flourished during the three-year bear market but it is unlikely that the next three years will be as bad as the last three so the model would most likely disappoint

In Summary

We've seen that the extreme price movement over the last few years poses some problems to technical analysis. Stocks that were crushed during the bear market but participated in the 2002 Q4 rally create problems to charting and relative strength ratings.

In addition, it is easy to over-optimize trading systems, rendering them useless. Being aware of these problems and making appropriate adjustments is critical.

Market Review

The market's activity in March coincided with the events of the war. In the first half of the month, the market rallied in anticipation of a quick resolution to the conflict and continued to rise during the shock and awe campaign.

In the second half of March, the market gave back some of its gains as the market realized that the war would not be easy. For the month, the S&P 500 rose 0.84% and the Nasdaq rose 0.27%.

There were three market timing signals in March. A 95 buy was registered on March 5 and a 100 buy was registered on March 7. The system switched to a sell signal on March 10 when a 98 sell was registered.

The best performing sector was Internet, which gained 8%. The worst performer was Energy Service, which lost 5%.

Testing Reveals Performance of EDS Rules

The <u>Least</u> Effective Expert Design Studio Rules Can Be Combined To Create Valuable Short-Selling Strategies

By David Vomund

As noted in previous articles in our series on AIQ's Expert Design Studio (EDS) rules, TradingExpert Pro comes with about 200 pre-built EDS rules. Most of the pre-built rules are based on the action of a specific indicator. For each indicator, several rules were created to represent most of the indicator's technically significant actions. Trading systems can be created by simply copying and pasting these individual rules.

Recently we performed the time consuming task of testing all of the pre-built rules. In last month's *Opening Bell* we identified the most effective of the 200 rules using a short 5-day holding period. New Expert Design Studio models can be created by combining some of these most effective rules.

> *"Our tests were run on a database of the AIQ Pyramid stocks, which includes about 1700 issues. The time period used for the tests was 01/01/98 to 07/31/02. This period includes both bull and bear markets."*

This month, we will reveal which rules are the <u>least</u> effective using a 5-business-day holding period. In the November 2002 *Opening Bell,* we reported which rules were the least effective using a one-month holding period.

Why care about the least effective rules? Because the rules that lost the most money on the long side can be used as effective short-selling rules. By combining some of these least effective rules, valuable short-selling strategies can be created.

Our tests were run on a database of the AIQ Pyramid stocks, which includes about 1700 issues. The time period used for the tests was 01/01/98 to 07/31/02. This period includes both bull and bear markets. A fixed holding period of 5 business days was used. This is an appropriate holding period as most of the rules were designed for short-term trading.

Table 1 is a listing of the 40 least effective Expert Design Studio rules, sorted by their return on investment (ROI). To aid you in locating these rules in your system, Table 1 indicates which folders the rules reside in and what the rule names are.

The first column of the table displays the name of the directory (or directories) followed by the file name. The second column shows the name of the rule that was tested.

To find a pre-built rule, open the Expert Design Studio and select *File, Open* and double-click the *EDS Strategies* folder. This accesses the directory list found in Table 1. Double-click the appropriate directory name and then highlight and open the file name. With the

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file open, the rule will be displayed in the *Rule Library* page of the EDS window.

The worst performing rule is the Gilligans Island buy rule from Jeff Cooper's *Hit and Run Trading* book. In fairness to Mr. Cooper, the entry and exit point of his rule involves real-time analysis and our backtest assumes end-of-day analysis so we are entering and exiting long after he would.

For the Gilligans Island buy, the stock must gap open to a two-month low. After it gaps lower, the stock must close in the upper half of its daily range and be equal to or above the opening price. Mr. Cooper's buy rule is to enter on the next day if/when the stock rises 1/8 above the previous day's high. For our Expert Design Studio test, we are buying at the open the day after the stock moves 1/8 above its previous day's high.

Table 1. Lowest ROI Trades

The following is the result of testing the pre-built EDS rules using a stock database of 1700 AIQ Pyramid stocks. A fixed 5-business-day holding period was used. The testing time period was 01/01/98 to 07/31/02.

	Folder\File	Rule Name	Annual ROI
1	Hit and Run Trading\Gilligans Island Buys	GilligansIslandBuy	-27.33
2	Chart Pattern Strategies\Double bottom strategy	Low	-19.42
3	Hit and Run Trading\Lizards Buy	LizardBuy	-17.28
4	Hit and Run Trading\Expansion Pivot Buys	ExpansionPivotsBuy	-14.48
5	OBM\Nov99obm	allworks	-8.49
6	Basic Indicator Strategies\Volatility\Volatility cuts above moving average after 21 days below	VOLTYb	-7.17
7	Basic Indicator Strategies\Candlesticks\Dark Cloud	DarkCloud	-5.75
8	Basic Indicator Strategies\CCI\CCI cuts from above -100 to below -100	CCIsellshort	-3.68
9	Basic Indicator Strategies\OBV\Price reaches a new low not confirmed by low in OBV	OBVloNON	-3.66
10	Street Smarts\Turtle Soup	Isgoodturtle	-3.07
11	OBM\Smtp_Ion	allworks	-2.43
12	Basic Indicator Strategies\VP Trend\Price new low not confirmed by low in VP Trend	VPTnonLO	-1.72
13	Basic Indicator Strategies\OBV Pct\Price new low not confirmed by low in OBV Pct	OBVPctKLOnon	-0.33
14	Basic Indicator Strategies\Candlesticks\Meeting Lines	MeetingLines	0.17
15	Basic Indicator Strategies\Phase\Negative Phase with 3 day slope down	PhaseSlopeDown	1.17
16	OBM\Obmdec98	allworks	1.66
17	Basic Indicator Strategies\MFRSI\MFRSI is greater than 80	MFRSIover80	1.77
18	Expert Rating Strategies\1656 debate	ER16and56	1.86
19	Basic Indicator Strategies\Split Volume\Split Volume up 5 days price is ascending	SplitVolupPriceup	2.02
20	Basic Indicator Strategies\ACCMDis	ACCMDisLOnon	2.14
21	Basic Indicator Strategies\SMA's\Close less than IT MA and LT MA	CloselessLTITMA	2.36
22	Basic Indicator Strategies\Bollinger Bands\Price crosses from below to above Lower BB	LowerBBcrossUp	2.53
23	Basic Indicator Strategies\ESA's\Price cross upside LT MA	LTMApriceup	2.84
24	Basic Indicator Strategies\RSI Wilder\RSI Wilder is in overbought territory	RSIWilderover70	3.52
25	OBM\Congesti	Breakout	3.68
26	Street Smarts\Volatile History	Buy	3.92
27	Basic Indicator Strategies\Phase\Phase was going up then turns down	Phasedown	3.98
28	Basic Indicator Strategies\Price Based\Price Gap up	GapUp	4.15
29	Basic Indicator Strategies\Price Based\Price Gap down	GapDown	4.52
30	Combination Basic Indicator Strategies\ADX_RSI	Buy	4.64
31	Basic Indicator Strategies\ESA's\ST ESA crossover IT ESA to the downside	EsaCrossDown	4.77
32	Basic Indicator Strategies\SVMA\SVMA slope is up while price slope is down	SVMAdivUp	5.95
33	Basic Indicator Strategies\Price Based\Price reaches a new 21 day low	Price21lo	6.14
34	Street Smarts\Range Contraction	RangeContraction	6.73
35	Basic Indicator Strategies\ESA's\Price crosses from below to above the Lower ESA	ESAlowerUP	6.73
36	Basic Indicator Strategies\SFSD\SK crosses from above to below SD	SKSDcrossdn	6.75
37	Basic Indicator Strategies\Candlesticks\Candlestick Engulf bearish	Engulfbearish	7.20
38	Chart Pattern Strategies\Double Top strategy	Doubletop	7.69
39	Basic Indicator Strategies\VAPct\Price new low not confirmed by low in VA Pct	VAPCTlowNON	8.32
40	Basic Indicator Strategies\RSI AIQ RSI AIQ slope is up while price slope is down	RSIAIQupPRICEdn	8.40

Let's explain this with an example. **Figure 1** shows Citizens Banking (CBCF). On February 14 the stock gapped to a new two-month low but then rallied and closed on its high point of the day (marked as "1" on the chart). Jeff Cooper's entry point comes intra-day on day 2 when CBCF rises 1/8 above day 1. In our Expert Design Studio test, the pattern is fulfilled on day 2 when the stock rises above the previous day's high. The AIQ backtest entry point is day 3's opening price. Jeff Cooper had a profitable trade on day 2 before our backtest purchased the stock on day 3.

Those who want to apply Jeff Cooper's technique could use EDS to find the Gilligans Island reversal (day 1) and then use real-time charts for the entry and exit points. It's useful to know that applying an end-of-day analysis to this strategy yields terrible results, however. The pre-built EDS model makes a good short-selling model.

The third and fourth rules are also based on *Hit and Run Trading*.
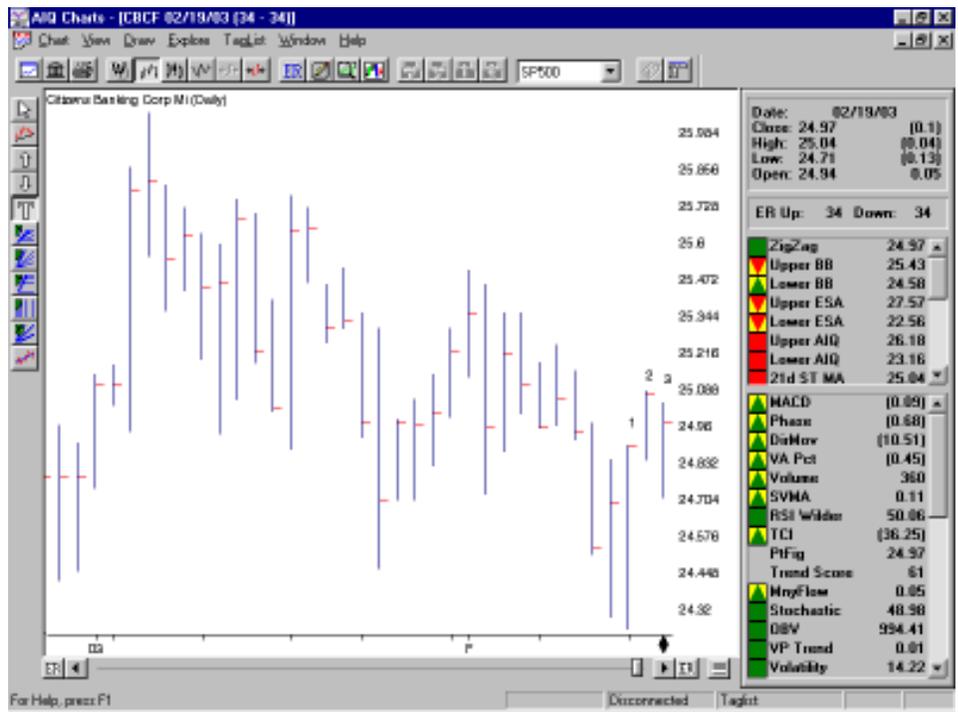
Figure 1. Chart of CBCF with Gilligans Island buy signal occurring on 2/14/03 (day labeled "2").

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Similar to the Gilligans Island rule, the entry and exit points of these rules were designed to be used on real-time charts. In fact, when describing the Lizards rule, Mr. Cooper explains it is a day-trading rule and there is often little follow-through. The AIQ backtest shows he is right. By the time the end-of-day traders buy the setup, it is too late and the stock typically underperforms.

The fifth worst performing model was featured in the November 1999 *Opening Bell*. Luckily, it was a short-selling model! The model featured a Harami candlestick chart pattern, which had previously tested as bearish. The Harami pattern is somewhat comparable to an inside day pattern in bar charts. It occurs when a small real body follows a long real body. The second and final rule in

Figure 2. Chart of Electronic Arts showing sell signal given on 12/16/02. EDS rule is short selling strategy from 11/99 Opening Bell Newsletter that is based on Harami candlestick pattern (arrow).

the model uses the RSI AIQ indicator. The rule states that the RSI AIQ indicator must rise from below to above 30 anytime in the last two days.

Figure 2 shows an example of a stock that passes the screening. On December 16, 2002, Electronic Arts formed the Harami pattern when the high price was below the previous day's high and the low price was above the previous day's low. On the same day, the RSI AIQ indicator rose above 30. Over the next five days ERTS fell about 15%.

The seventh rule is based on the Dark Cloud candlestick chart pattern. This bearish pattern takes place over two days. On the first day there is a strong white real body. That means the stock is heading higher and the close is greater than the open. On the second day the price gaps higher but by the end of the session the stock closes near the low of the day and is within the prior day's white body.

Figure 3 shows an example of a Dark Cloud Cover. Novellus Systems (NVLS) is heading higher in January and forms a large white candle on January 10. The following day, the stock gaps higher but

Figure 3. Candlestick chart of Novellus with Dark Cloud sell signal. This pattern requires strong white body on day one followed by price gap up then close near low on day two.

closes near the lower end of the daily range.

All of the rules in Table 1 have a lot of trades. This helps to validate the results. The rule with the fewest trades was the Dark Cloud rule, which had 573 trades. Rules two and four each had over 20,000 trades so it would be very easy to combine these rules in an effort to

lower the number of trades and make a highly effective short-selling model.

In the coming months, we'll use the information from the testing reported in this article to create some short-selling models.

STOCK DATA MAINTENANCE

The following table shows stock splits and other changes:

Stock	Ticker	Split	Approx. Date
Federal Screw Works	FSCR	5:4	04/02/03
Toro Co.	TTC	2:1	04/15/03
Capital Corp. West	CCOW	5%	04/28/03

Trading Suspended:

Inktomi Corp. (INKT), Landair Corp. (LAND), Osmonics Inc. (OSM), Rational Software (RATL), Rouge Industries (ROU), Steitel Inc. (SEI)

Name Changes:

Crown Cork & Seal (CCK) to Crown Holdings (CCK)

Offshore Logistics (OLOG) to Offshore Logistics (OLG)

S&P 500 Changes

Changes to the S&P 500 Index and Industry Groups:

McCormick & Co. (MKC) replaces Healthsouth Corp. (HRC). MKC is added to the Packaged Foods & Meats (FOODCOMP) group.

Apartment Investment & Mgmt. (AIV) replaces AMR Corp. (AMR). AIV is added to the Real Estate Inv. Trusts (REITRUST) group.