AIQ

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EXPERT DESIGN STUDIO AT WORK

SHORT SELLING CANDLESTICK MODEL

An Effective Screening Technique for Shorting Stocks

By David Vomund

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For most of the 1990's, it was very difficult making money by shorting stocks. That's because the market increased with very few corrections. Over the last two years, however, the market has increased in value but there have been corrections that were large enough for short sellers to do well.

Even if you are not an aggressive short seller, an occasional short sale can help diversify and lower the risk of a portfolio that is long the market. In this article, we'll develop an effective screening technique for shorting stocks.

When you buy a stock "long" you are betting that the security will increase in value. Hence the old adage "buy low and sell high." For short sales, the saying might be reworded as "sell high

> *"The worst rules for buying stocks long can be the best rules for selling stocks short...the least effective rules for buying stocks long involve two candlestick chart patterns--the Hanging Man and the Harami."*

and buy low." Short sales are accomplished by borrowing stock for use in the initial trade, then repaying the loan in a later trade.

Let's clarify this with an example. At the start of the day, Mr. Williams owns 100 shares of IBM which are being held in street name at AG Edwards.

Later in the day, a Ms. Hanna places an order with her broker, AG Edwards, to sell 100 shares of IBM short (Mr. Williams believes IBM will move higher while Ms. Hanna believes IBM will fall.) In this case, AG Edwards takes the 100 shares of IBM that they are holding in street name for Mr. Williams and sell them for Ms. Hanna to some other investor, Mr. Jones. If Ms. Hanna is right and the price of IBM falls, she can buy her position back at a profit.

EXPERT DESIGN STUDIO AT WORK *continued* . . .

Mr. Jones would have a paper loss since he is long the stock.

What if IBM pays a cash dividend during the short sales? IBM sends the dividend to Mr. Jones, the holder of the securities. However, since Mr. Williams still owns the IBM stock, he also expects a dividend check. In this case, the short seller, Ms. Hanna, pays the dividend amount to AG Edwards who in turn sends a dividend check to Mr. Williams.

There are risks to short selling. Stocks that are bought long cannot drop below zero and, therefore, do not involve a loss greater than the total investment. But a stock sold short could, theoretically, produce an unlimited loss since there is no ceiling on a stock's appreciation potential. Those who shorted Qualcomm or Nextel can appreciate this fact!

Since a short sale involves a loan, there is a risk to the brokerage firm that the loan will not be repaid. To protect the broker, the short seller does not have access to the money received from the initial sale of securities and a margin requirement must be met.

In developing our short-selling model, we are using the research that appeared in the June 1999 *Opening Bell*. In that issue, we tested all the pre-built Expert Design Studio screening rules that come with TradingExpert Pro and ranked them
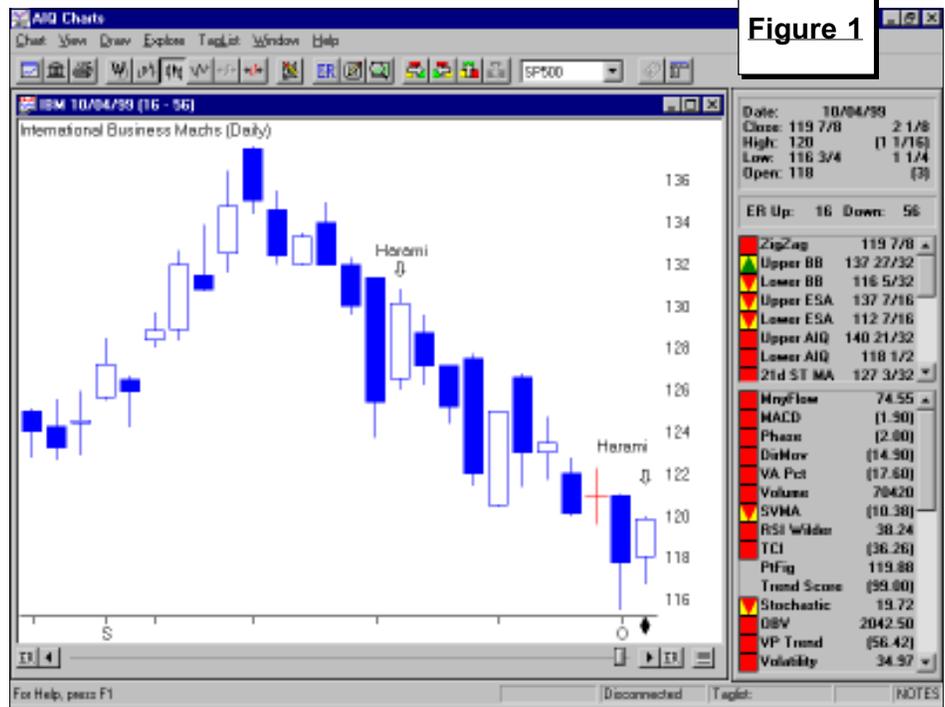

Figure 1

from best to worst based on their effectiveness. All the rules were tested for long trades. The worst rules for buying stocks long can be the best rules for selling stocks short.

Our testing found the least effective rules for buying stocks long involve two candlestick chart patterns—the Hanging Man and the Harami. We will use the Harami candlestick pattern in our model. With a candlestick chart the "real body" is the difference between the opening price and closing price. For the Harami pattern, a small real body follows a long real body. This pattern is somewhat comparable to an inside day pattern in bar charts.
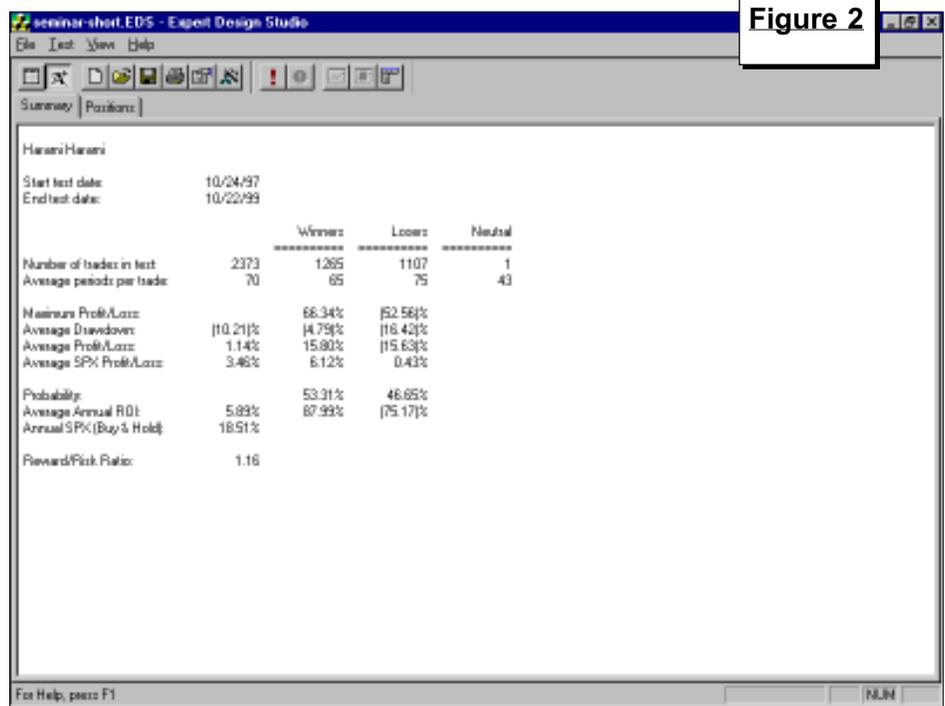
Figure 2

An example of a Harami candlestick pattern appears in **Figure 1**. On October 4, IBM's real body (rectangular box on the candlestick chart) is engulfed by the previous day's real body. Another Harami is found on September 20.

The Harami pattern is thought to be a reversal pattern. A stock in an uptrend that forms a Harami pattern is susceptible to a downward move. Conversely, a stock in a downtrend that forms a Harami often moves higher. Our testing using the Expert Design Studio package, however, shows that the trend is fairly insignificant and that stocks with Harami candlesticks typically underperform the market whether they are in an uptrend or a downtrend.

TradingExpert Pro's Expert Design Studio module provides prebuilt rules that can be used to search for many different candlestick patterns. Since candlestick formations are open to interpretation, some candlestick enthusiasts may disagree with how we created the rules. For example, when a textbook says a candlestick has a "large" real body followed by a "small" real body, what exactly is large and what is small?
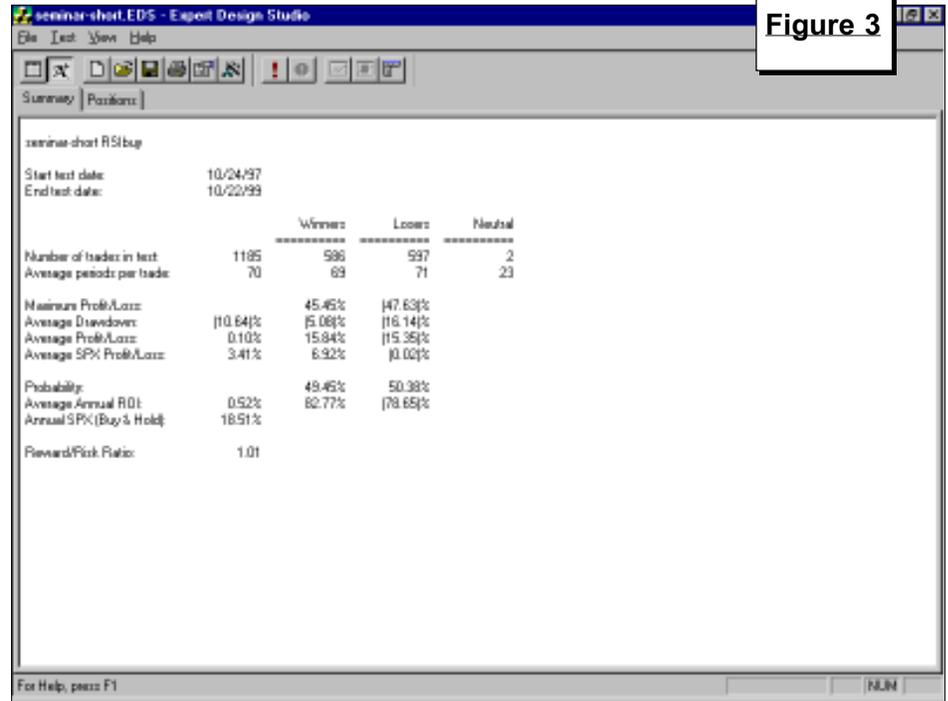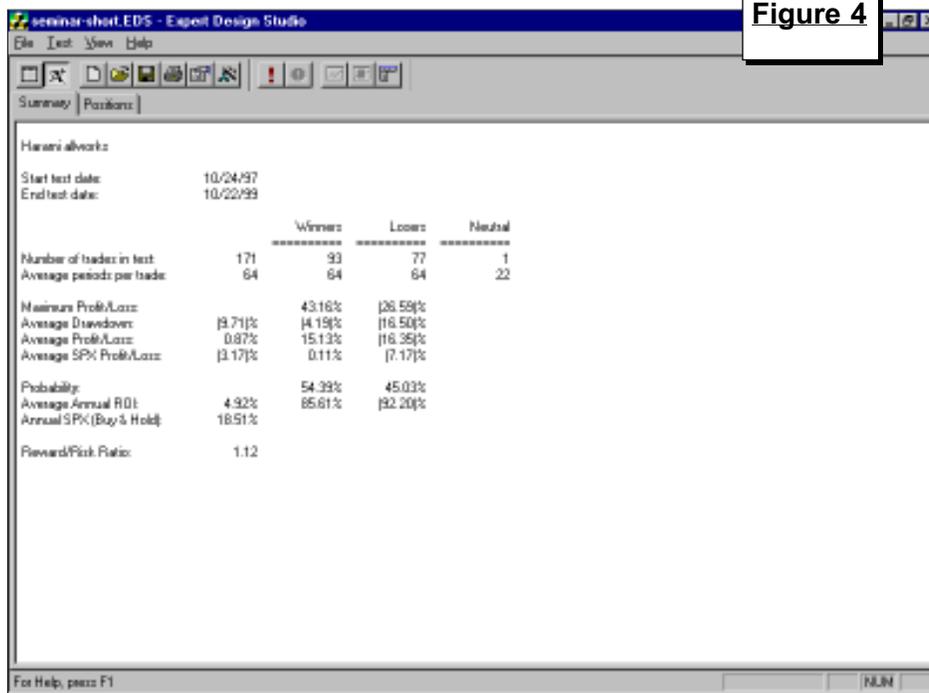

Figure 3

Figure 4

For our model, we used AIQ's prebuilt Harami rule without change.

To open the pre-built Harami rule, go to the Expert Design Studio module and select *File* then *Open*. Double-click the *EDS Strategies* folder, then double-click the *Basic Indicator Strategies* folder, next double-click the *Candlestick* folder, and finally open the

Harami file.

In **Figure 2** we test the Harami pre-built screening rule on a database consisting of the S&P 500 stocks using a sell strategy of 85% principal protect, and a 95% profit protect above 15%. We tested the model on the long side. We see that after a Harami candlestick pattern, stocks greatly underperform the market. The average stock increased 1.14% in the 70 days after a Harami pattern. An equivalent trade in the S&P 500 gained 3.46%. Hence, a bad rule for buying stocks long can be a good rule for selling stocks short.

The second and final rule in our short-selling model uses the RSI AIQ indicator. Contrary to what you'd believe, a buy signal on the RSI AIQ indicator is bearish. The pre-built rule that says the RSI AIQ must rise from below 30 to above 30 was one of the worst rules for buying a stock long.

Saying that an RSI AIQ buy signal is bearish may sound controversial. Yet, short sellers often short downtrending stocks after a short-term rally. These are equivalent patterns. The RSI AIQ indicator is

EXPERT DESIGN STUDIO AT WORK *continued* . . .

fairly insensitive so it takes a lot of downside movement for it to move to oversold territory (a value below 30). When a weak stock advances, it can give an RSI AIQ buy signal.

Figure 3 displays a backtest of the AIQ RSI buy signals using the same criteria that was used for Figure 2. Again, the test was for buying stocks long. We see that buying weak stocks after a short advance is a losing strategy. In the 70 days after an AIQ RSI buy signal, the average S&P 500 stock only advanced 0.10% whereas the S&P 500 gained 3.41%.

Our final short-selling screening model combines the Harami and RSI AIQ rules. That is, the model looks for stocks that have a Harami pattern and have given an AIQ RSI buy signal anytime in the last two days.

A backtest of the final model is found in **Figure 4**. Since this model was designed for screening short selling candidates, we tested the model on the short side. As before, we used 85% principal protect, and 95% profit protect above 15%. We see the average short trade made 0.87% per trade. If you shorted the S&P 500 index you would have lost an average of 3.17% per trade. This model actually shows a profit by shorting stocks over the last two years.

An example of a stock that fits our model is Novell Inc. on October 5. **Figure 5** shows that it formed a Harami pattern as its real body was contained within the previous day's real body. At the same time that the Harami was formed, the RSI AIQ indicator gave a buy signal. This

Figure 5

indicator moved from below to above the lower horizontal line.

This short-selling technique has worked well in the type of market that we've seen over the last few years. We'll continue to monitor its performance. Our confidence in the model will increase the longer it works.

AIQ users can download the model's file from AIQ's web page at *www.aiq.com*. Click on *educational products* and then select *Opening Bell newsletter*. In the lower right corner, select the file that corresponds to the November Opening Bell. ∎

*David Vomund publishes VIS Alert, a weekly investment newsletter. For a sample copy go to **www.visalert.com** or call (775) 831-1544.*

S&P 500 Changes

Analog Devices (ADI) replaces Ameritech (AIT). ADI is added to the Electronics-Semiconductors (ELECTRONS) group.

T. Rowe Price Associates (TROW) replaces Data General (DGN). TROW is added to the Investment Management (INVESTMG) group.

Leggett & Platt (LEG) replaces Cyprus Amax Minerals (CYM). LEG is added to the Household Furnishings & Appliances (HOUSEFUR) group.

El Paso Energy (EPG) replaces Sonat Inc. (SNT). EPG is added to the Natural Gas (NATURALG) group.

Comverse Technology (CMVT) replaces ASARCO Inc. (AR). CMVT is added to the Communications Equipment (COMMUNEQ) group.

Harcourt General (H) will move from Retail-Department Stores (RETAILDE) to Publishing (PUBLISHI) group.

About Expert Design Studio...

AIQ's Expert Design Studio (EDS) was developed for users who want to create and test their own customized screening reports or mechanical trading systems. For those unfamiliar with Expert Design Studio, an introductory tutorial is included in AIQ's New User Guide.

Full documentation can be found in the TradingExpert Pro User Manual *(Part 2, page 393)*.

TOOLS OF THE TRADE

THE RSI INDICATOR –
TRADINGEXPERT'S TWO APPROACHES EXPLAINED

New users of TradingExpert Pro may find it a bit confusing that AIQ has two versions of the well known Relative Strength Index (RSI) indicator, developed by Welles Wilder. Before discussing the differences, we'll first give some background on the indicator.

New technicians often assume the RSI indicator is a type of Relative Strength indicator. That is a bit of a misnomer in that the indicator has nothing to do with Relative Strength, which measures the performance of a security relative to other securities. Instead, the RSI indicator is an overbought/oversold indicator and the only data needed for its calculation is the closing price of the security under study.

At the time of the development of the RSI, most people looked at today's price of a security divided by the price x days ago to measure momentum. Mr. Wilder saw two problems with this calculation.

First, this type of indictor can become erratic simply because of the numbers that are being dropped off. Second, this type of indicator can go up for quite some time without giving a clue as to what is really a high value. A constant range of values was needed for comparison purposes.

RSI solves these problems by smoothing its values and normalizing all values to a range of between 0 and 100.

The actual formula is calculated as follows:

RSI=100 – [100/(1+RS)]

where RS = Average of x day's closing prices on up days divided by the average of x day's closing prices on down days.

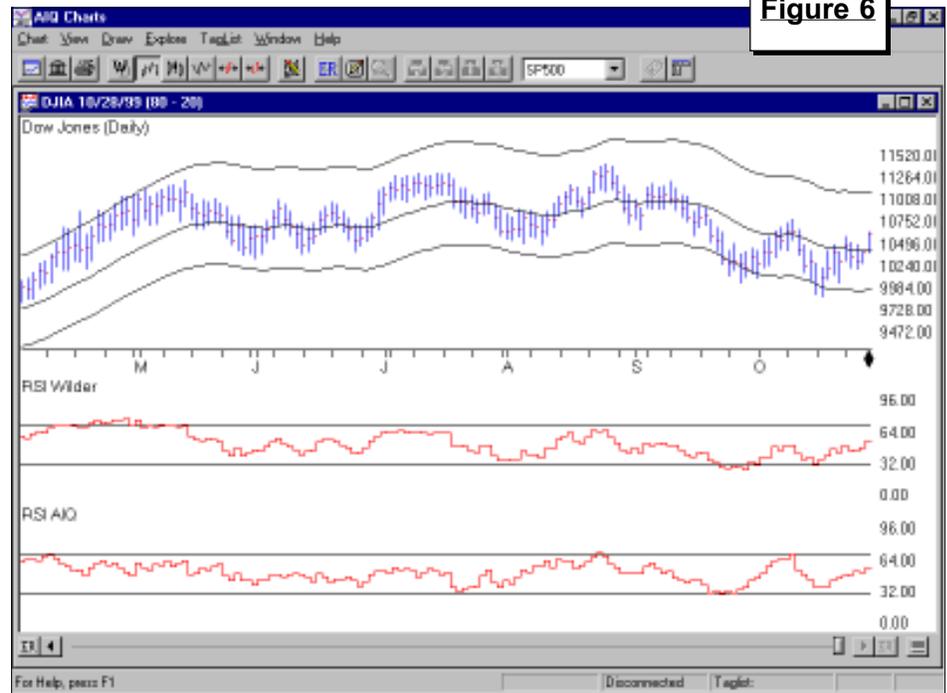With this formula in mind, the difference between the RSI Wilder

Figure 6

indicator and the RSI AIQ indicator is how the averages for the up and down days are calculated. In AIQ's calculation, exponential moving averages are used whereas Wilder's version uses simple moving averages. It sounds like a small difference, but an examination of the resulting indicators can yield significant variations.

Wilder's RSI is much more volatile than AIQ's RSI. To partially offset this, the default value for the moving average time period was lowered from 14 (which is the number of days Wilder originally used) to 7 for the AIQ version of RSI.

Figure 6 shows the Dow with both versions of the RSI. The most simple interpretation of the RSI is: when its value moves above the 70 level the security is considered overbought and due for a correction. A sell is registered when the indicator falls from above 70 to below 70. When the RSI value falls below 30, the security is oversold and will likely rally. A buy

is registered when the indicator rises from below 30 to above 30.

Examining Figure 6, we see the two indicators tend to move together but they reach overbought and oversold levels at different times. Both RSI indictors work beautifully on non-trending securities. When a security is in the upper end of its trading range, RSI is often above 70 and ready to give a sell. When a security is near the lower end of its trading range, RSI is often below 30 and ready to give a buy.

Using the buy and sell signals in their simplest form, the RSI indicators are not effective for trending securities. For an uptrending security, the RSI will give sell signals as the stock moves higher. When the overall market is in an uptrend, few stocks will give RSI buy signals and those that do are market laggards. ■

WANT TO ADD NEW INDICATORS TO YOUR TRADINGEXPERT PROGRAM? HERE'S HOW

By David Vomund

At AIQ's fall seminar, technical analyst John Murphy gave an outstanding presentation on indicator analysis and sector rotation. One of the indicators that he used was calculated as the difference between a 10-week moving average and a 40-week moving average. This is not one of the standard indicators in TradingExpert. Fortunately, TradingExpert provides users with the ability to create indicators using the Expert Design Studio module.

To create an indicator, we first need to create a User Defined Function (UDF) in Expert Design Studio.

To create a User Defined Function, do the following:

- Enter the Expert Design Studio and select **File** from the menu bar, then **New**.

- To create a rule that calculates the difference between two moving averages, type at the cursor:

Figure 7

MADif is [ST MA] - [IT MA].

- Save the file by selecting **File** from

the menu and then click **Save**. We'll call the file *MA Dif*.

Note: For more information on User Defined Functions, see page 439 in the User Manual.

To create an indicator, use the following procedure:

- Enter the Charts application. Select **Chart** from the menu bar and click **Settings**, **Indicator Library**, and **EDS Indicators**.

- The *Custom Indicators* screen that appears lists the EDS indicators that have been previously created. Click **Add** to create a new EDS indicator (**Figure 7**).

- In the *Open* dialog box, open the *MA Dif.eds* file.

- In the *Plot Type* dialog box, select **Histogram** and click **Next**.

- The *Histogram Indicator* dialog box will appear. In the box labeled *Description*, type a name for the new
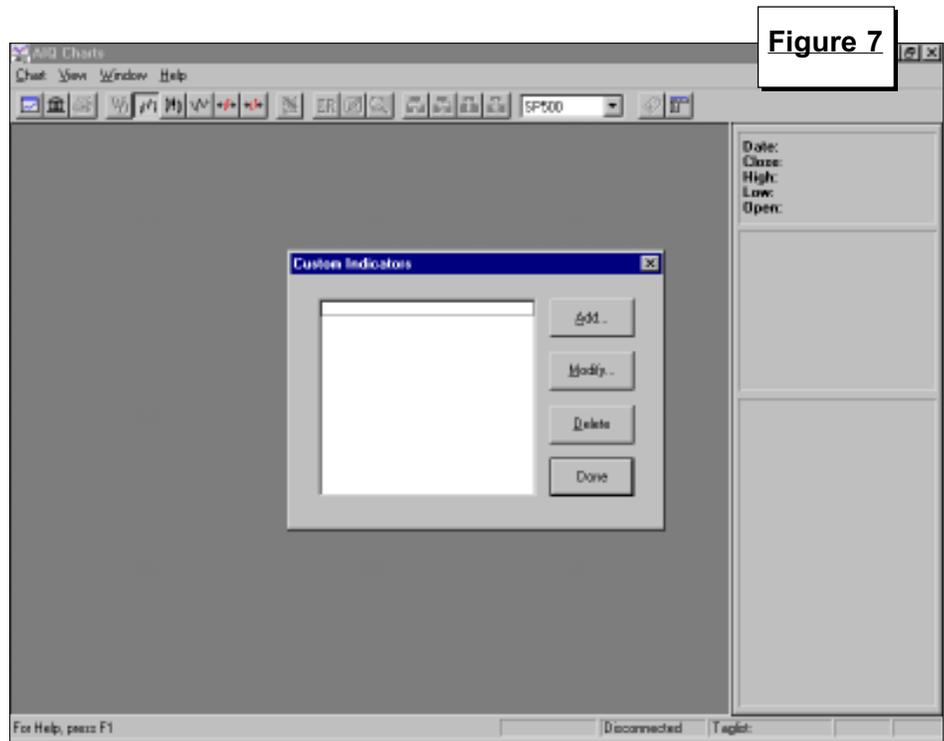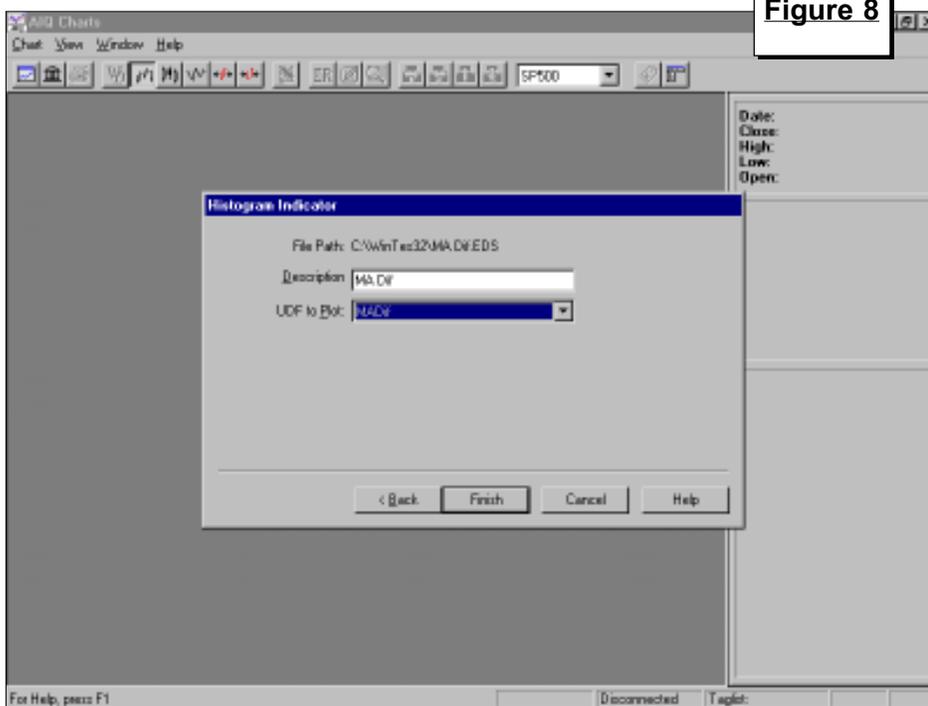

Figure 8

indicator. From the *UDF to Plot* text box, select *MADif* (**Figure 8**). Click **Finish.**

• When the *Custom Indicators* dialog box reappears, click **Done**.

The newly created indicator will now appear as one of the choices in the control panel of the AIQ charts.

Figure 9 plots the Semiconductor Index (SOX) along with its 10-week and 40-week moving averages. Our newly created indicator, MA Dif, which looks at the difference between two moving averages is plotted. Whenever the moving averages cross each other (see arrows) our MA Dif indicator crosses the zero line.

John Murphy points out that the MA Dif indicator gives you the advantage of looking for divergences. For example, the SOX hit a new low in the summer of 1996 but the MA Dif indicator was moving higher. The same thing happened last fall. A negative divergence appeared this summer when the SOX rallied to new highs but the MA Dif only matched its previous high.

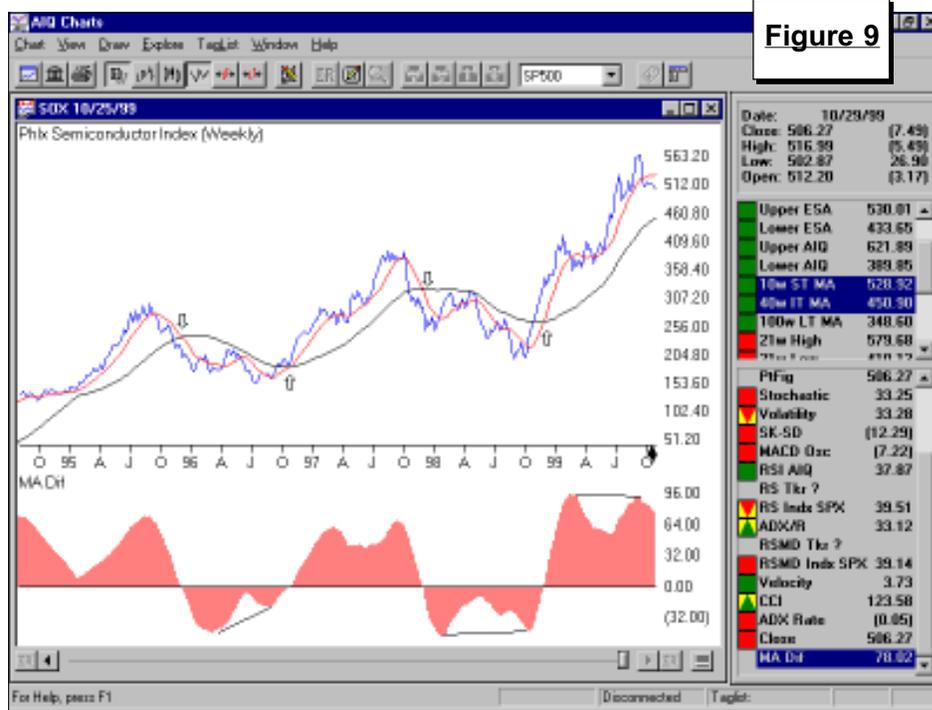Other simple indicators can be created. For example, people have expressed an interest in plotting the

Figure 9

ADX indicator without the ADXR line. This is easily accomplished using the following EDS code:

ADX is [ADX].

Another request is the ability to plot a moving average of an indicator. For example, the Money Flow indicator is a simple line. By creating a UDF we can create a Money Flow indicator and plot a moving average of the indicator. The following EDS code is used to plot a 50-day moving average of Money Flow:

MF is [MnyFlow].

Avg is SimpleAvg([MnyFlow],50).

When creating this indicator using the above procedure, select *Two Lines* in the *Plot Type* dialog box. The UDF called MF will plot the Money Flow indicator and the UDF called Avg will plot the moving average of Money Flow.

Figure 10 shows Andrew Corp. with a 50-day moving average of Money Flow. Plotting a moving average on Money Flow can help identify trend changes. Also shown in Figure 8 is the ADX indicator without the ADXR line.

User created indicators can not be tested within the Expert Design Studio application.

For more detailed information on user created indicators, see page 484 in the User Manual. ∎

Figure 10

MARKET REVIEW

It seems too easy but a simple market timing strategy of exiting the market in the summer and re-entering during an October selloff has once again proven to be a good strategy. Those that see the month of October as a glass half full recognize that good buying opportunities often occur during the month. Unlike last year, this October's low point will not likely lead to a strong rally. That's because the selloff was much more mild than it was last year. Investors in large-cap Nasdaq or technology stocks wouldn't even have known there was a correction. The Nasdaq Composite barely moved lower and closed at a new high at the end of the month.

We often focus on daily chart analysis but we can turn to weekly charts for a longer-term perspective. In October, the weekly Stochastic indicator moved into oversold territory (**Figure 11**). During the bull run in the 90s, these signals have proven to be effective (see arrows). From its July high to its October low, the S&P 500 corrected 12%.

October was an active month for the AIQ market timing model and we had some whip-saw signals. Heading into October, the AIQ timing model was on a September 27 buy signal. An additional 100 buy signal was registered on October 4. The model switched to a sell mode on October 12 when it registered a 100 sell signal. This signal was confirmed on that day as the Phase indicator was decreasing. The sell signal only lasted two days when a 99 buy signal was registered on October 14. This signal was not confirmed until October 20 when the Phase indicator increased in value. An additional 95 buy signal came on October 22. Finally, a 96 sell signal was registered on October 25. This signal came just before the market staged an impressive rally. This is a case where confirmation helped weed out a bad signal. By month's end, the
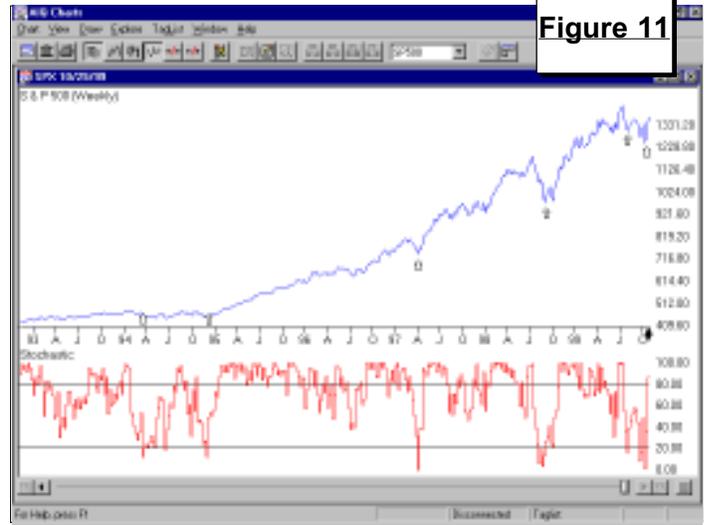

Figure 11

signal was still unconfirmed.

For the month, the best performing group is Software & Processing. The AIQ Pyramid software group contains high flying stocks such as Adobe Systems, I2 Technologies, and Veritas Software. Overall, the financial groups were the biggest winners, gaining about 15%. The worst groups were unchanged on the month and include Pollution Waste Management, Casinos, Heavy Machinery, Chemicals-Commodity, and Aluminum. ∎

STOCK DATA MAINTENANCE

The following table shows past and future stock splits and large dividends:

Stock	Ticker	Split/Div.	Approx. Date	Stock	Ticker	Split/Div.	Approx. Date
Genentech	GNE	2:1	11/03/99	1st Commonwealth Fin.	FCF	2:1	11/19/99
Sapient Corp.	SAPE	2:1	11/08/99	Timberline Software	TMBS	4:3	11/22/99
Jakks Pacific	JAKK	3:2	11/11/99	Veritas Software	VRTS	3:2	11/22/99
King Pharmaceuticals	KING	3:2	11/12/99	Amgen	AMGN	2:1	11/22/99
Phone.com	PHCM	2:1	11/15/99	ChoicePoint	CPS	2:1	11/25/99
Trinitech Sys.	TSI	3:2	11/16/99	Advance Paradign	ADVP	2:1	12/01/99

Name/Ticker Changes:

British Stell PLC (BST)	to	Corus Group PLC (CGA)
Foodmaker Inc. (FM)	to	Jack in the Box (JBX)
Hadco Corp (HDCO)	to	Hadco Corp (HDC)
WestPoint Stevens Inc. (WPSN)	to	WestPoint Stevens Inc. (WXS)

Trading Suspended:

Ameritech Corp. (AIT), Bank Boston Corp. (BKB), Capital RE Corp. (KRE), Centocor Inc. (CNTO), Data General (DGN), Everen Capital Corp. (EVR), Frontier Corp. (FRO), Lone Star Industries (LCE), Marshall Industries (MI), Pioneer Hi-Bred (PHB), Sbarro Inc. (SBA), Smithfield Foods Inc. (SFDS), St. Paul Bancorp (SPBC), Unitrode Corp (UTR)