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Trading with Candlesticks

'Twinkle Twinkle Little Star'

By Allen Thomas

Editor's note: We recommend that those unfamiliar with candlestick charts should first read Allen Thomas's introductory article on candlestick charting in the April 2002 Opening Bell.

When I first began reading about candlestick analysis in Steve Nison's book *Japanese Candlestick Charting*, I was overwhelmed with all the different patterns. There's the "*Hanging Man*," "*Shooting Star*," "*Dark Cloud Cover*," "*Piercing Line*," and so on. Fortunately, many of the patterns have colorful, descriptive names to help distinguish one pattern from another. But to the budding candlestick trader it can be a daunting task to sift out which of these candlesticks they should actually look for and use in their everyday trading. So, in this issue of the *Opening Bell*, I'm going to take an in-depth look at two of my favorite patterns that have proven to be consistently powerful in their ability to predict an oncoming reversal in a stock's price. These two patterns are the "Morning Star" and the "Evening Star." The planet Mercury is called the "Morning Star" because it appears bright in the early morning sky presaging the rising of the sun and the beginning of a new day. So it is with the candlestick pattern of the same name. The "Morning Star" (**Figure 1**) is a bullish trend-reversal pattern made up of three successive candlesticks.

Place Thomas Photo Here

Allen Thomas

The first candle is a long black candle at the end of a significant downtrend. A long black candle implies that the security closed well below its opening price. The second candle is a small real-bodied candle (either black or white) whose real body gaps down from the previous candle's close (remember, real body is the difference between the open and the close). The last candle is a strong white candle which gaps up at the open and then closes well within the real body of the first black candle.

This pattern is a graphic depiction of a bearish trend that has exhausted itself of sellers. On the first day, the price sells off dramatically as panic sets in and traders are willing to exit at all costs, allowing the stock to close at or near the low of the day. This is followed by a gap-down opening the next day, but further attempts by the bears to push

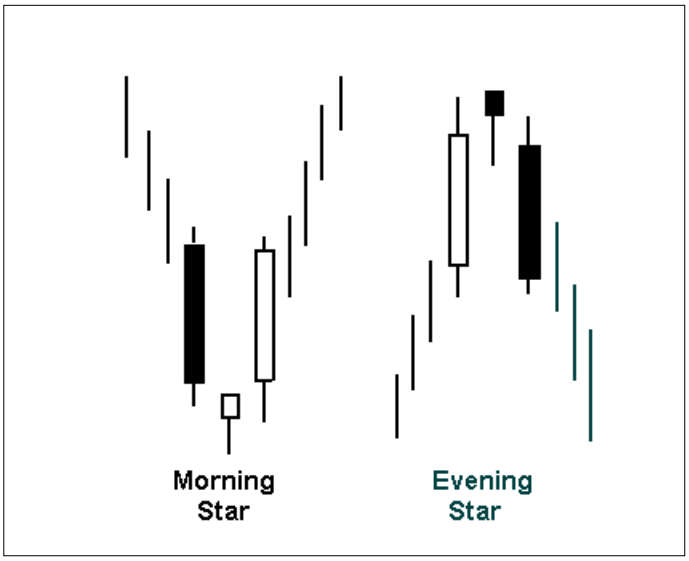

Figure 1. Morning Star and Evening Star trend reversal patterns

prices lower stalls with a very narrow trading range. The final day signifies the coup by the bulls as prices not only gap up in a breakaway manner, but also push off their opening lows to close much higher, no doubt spurred on by some degree of short covering.

Before we take a look at some charts, there are a few additional criteria that will help to further enhance the reliability of the Morning Star pattern. First, the longer the real bodies of both the first and final candles, the more powerful is the expected reversal. Second, although a gap-up on the final candle is not always present, when you see one it does increase the odds of this pattern working. Third, the higher the volume on the final candle, the higher the conviction is of the bulls to push prices loftier still in coming days. Fourth, when the middle candle is a "Doji" candle, you can generally expect the reversal to be more significant (a Doji is when the open equals the close).

Figure 2 shows an hourly chart of Emulex (EMLX) during the end of February and beginning of March 2002. After trading laterally between $36 and $37, the price took a nosedive down to the $31 area where it found support and formed a decent looking Morning Star pattern. Note that we don't have a true gap-down between the close of the first long black candle and the following small white one, but the pattern is certainly close enough to be a Morning Star.

Following the formation of the pattern, prices consolidated between $32 and $33 before breaking from this small descending trendline (further confirmation of the trend change) the following day with a breakaway gap that saw the stock run up nearly $6 before cooling off.

"In my experience, I've found the best place to take a long position after the Morning Star is to wait until the security has retraced about 30% to 50% into the length of the large white candle's real body."

Notice that the decline in price prior to the Morning Star pattern was pretty steep and rapid. When you see that type of selling followed by a Morning Star formation, you can anticipate a more significant bounce in price.

The chart in Figure 2 also calls attention to an important point regarding where to enter after the appearance of one of these candles. In my experience, I've found the best place to take a long position after the Morning Star is to wait until the security has retraced about 30% to 50% into the length of the large white candle's real body. This simply reduces your risk, as your stop is closer than if you were to enter at the very opening of the next

Figure 2. Candlestick chart of Emulex with Morning Star trend reversal pattern

candle. It also serves to make it easier to get your order filled versus trying to buy as the price continues its ascent.

Figure 3 demonstrates the concept of waiting for a retracement back into the pattern before buying. Mid February saw Compuware (CPWR) shed about 20% of its price in the week prior to the development of this bullish Morning Star pattern. However, it wasn't until four trading sessions later that a "buy" signal fired. This occurred when the price finally retraced around 50% of the white candle's length before finding intra-day support. The stock then moved rapidly upwards, adding over $2 in as many days.

Note in Figure 3 the lower shadows of the first and second candles of our Morning Star pattern. Do you see how much longer they are in relation to any of the lower shadows in the previous trading sessions? This shows a general sense of support at these lower prices and failure of the bearish camp to push prices any lower, adding overall validity to the bullishness of the pattern.

I've covered where to buy but what about stops? Another concept to remember with Morning Stars is that the low of the pattern (usually the lower shadow of the second candle) will serve as a level of support in future retracement. So, I place my stops just a tick or two below the low point of the Morning Star pattern. If the price falls below that low, then it has broken through support and a new up trend is improbable. In Figure 3, waiting first for the retracement in order to buy decreases the amount of risk you are taking due to the shortened interval to the stop loss just underneath the low of the pattern.

The bearish counterpart to the Morning Star is, of course, called the "Evening Star" (see Figure 1). Just like Venus in the night sky, the Evening Star can be looked upon to herald the arrival of darkness, and lower prices to come. This trio of candles is found at the end of an up trend, and sometimes at the tail of a lateral congestion band. As with all candlestick reversal patterns, the longer and steeper the trend preceding the pattern, the more significant is the expected reversal. An Evening Star on a 15-minute chart will have far less impact on the overall trend than one on a daily or weekly chart.

Author Steve Nison likens this

Figure 3. Candlestick chart of Compuware showing Morning Star trend reversal pattern followed by price retracement before rapid upturn.

Figure 4. Hourly candlestick chart of COMPX showing temporary congestion channel.

pattern to a traffic light. A traffic light goes from green (bullish white candle), to yellow (the small bodied candle) to red (the black candle confirming the up trend is over). Evening Stars are potent callers of market tops, and often serve as resistance levels for future rallies.

During the second half of January this year, the NASDAQ had been in a steady decline (**Figure 4**) when a lateral trading band of congestion developed between the 1925 and 1960 area. On two separate occasions the price had turned downward off the upper trendline. When the price began moving upward off its support, this hourly chart gave little indication of whether the index was going to break free above this channel or travel south again to test the lower support.

Figure 5 shows the final failed attempt at breaking the 1960 area of resistance on a 15-minute time frame. The opening three candles on January 29 show a very cleanly formed Evening Star pattern with gaps between all three candles' real bodies. The ensuing decline this time pushed through the 1925 support and signaled a continuation

Figure 5. Hourly COMPX candlestick chart with Evening Star pattern followed by price decline

of the prior downtrend. To a candle enthusiast, the first 45 minutes of the day were all that was needed to abandon any notion of higher prices in the immediate future.

Although the retracing candle that followed failed to reach into the 50% area of the final black candle, the same principles of waiting for retracement and stop-loss levels apply to the Evening Star as the Morning Star. Those wishing to short (or abandon a long) should wait until there is some upward movement of the candle following an Evening Star pattern. Since an Evening Star pattern sets a level of resistance, stop loss orders should be placed just above the highest upper shadow of the three-candled pattern.

Figure 6 is a 15-minute chart of Qlogic (QLGC) in April of this year. It shows how the high of an Evening Star pattern can serve as future resistance to any rally. It also shows why I use just *beyond* that level for our stops.

After a large intra-day gap down, QLGC staged a rally to attempt to close the gap. A nice Evening Star pattern popped up on the 15th. The following candle retraced upwards nicely into the black real body, but rather than selling off hard, prices simply consolidated around $48 through the rest of the trading session.

"Just like Venus in the night sky, the Evening Star can be looked upon to herald the arrival of darkness, and lower prices to come."

The following day saw more buying on a gap-down opening that pushed prices up to, but not over, the high of the Evening Star pattern. When prices moved under $47.50, it gave confirmation to the Evening Star's bearishness via a Double Top. Don't you wish all your charts unfolded this nicely? Had the price been able to take out the high of the Evening Star, then the Evening Star

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topping pattern would be invalidated and shorts would be covered.

As with all other candlestick patterns, the more information you have to corroborate a trend reversal, the greater your success will be. Watch for these patterns to develop at prior levels of resistance and support. Look for confirmation with your favorite momentum indicators.

Feel free to contact me on my website and I'll happy to answer any questions you might have including interpretation of a specific candlestick formation you're seeing. Good luck and happy hunting!

For more details on how using candlestick analysis can help to improve your trading, and for further examples of Morning / Evening Star patterns in action, visit the A-TeamTraders website at: **www.A-TeamTraders.com**.

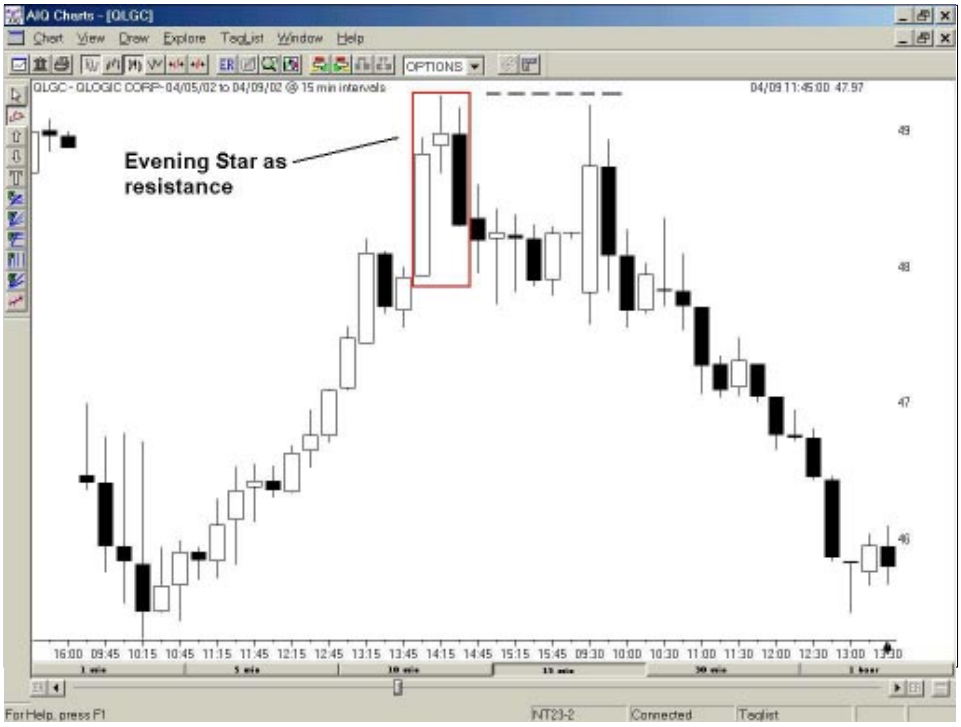

Figure 6. Qlogic 15-min. chart with Evening Star pattern. Price retraces to resistence level forming double top before selling off.

STOCK DATA MAINTENANCE

The following table shows stock splits and other changes:

Stock	Ticker	Split	Approx. Date
P.F. Chang's China	PFCB	2:1	05/02/02
Option Care Inc.	OPTN	5:4	05/02/02
Darden Restaurants	DRI	3:2	05/02/02
Best Buy	BBY	3:2	05/13/02
Fastenal Co.	FAST	2:1	05/13/02
Maxwell Shoe	MAXS	3:2	05/20/02

Trading Suspended:
APW Ltd. (APW), Budget Group (BD), Comdisco Inc. (CD), GenTek Inc. (GK), Intimate Brands (IBI), J2 Communications (JTWO), Kaiser Aluminum (KLU), NTL Corp (NLI)

Name Changes:
Minnesota Mining & Manuf. (MMM) to 3M Co. (MMM)
PanCanadian Energy (PCX) to EnCana Corp. (ECA)

S&P 500 Changes

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

IMS Health (RX) moves from the Diversified Commercial Services (SERVICED) group to Health Care Distributors & Services (HEALTHSS).

Convergys Corp (CVG) moves from the Diversified Commercial Services (SERVICED) group to Data Processing Services (SERVICEP).

Market Review

In April, the S&P 500 index lost 6.1% and the Nasdaq Composite lost 8.5%. Government data signs pointed to a renewing economy but that didn't spill over into corporate profits.

The AIQ timing model has been ineffective in this market. It registered five market timing buy signals in April -- on April 3, 15, 16, 18, and 24. Yet the market continued its decline. At the end of the month, the Nasdaq had broken down; its chart showed lower lows. The S&P 500, however, was at the bottom of its trading range.

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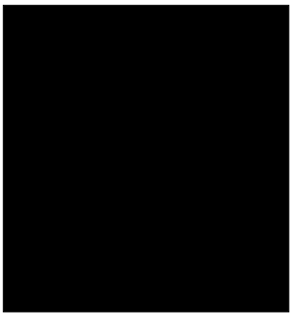

DAVID VOMUND

Step-by-Step Process: Creating a Mechanical Trading Model Based on the Money Flow Indicator

By David Vomund

In the April *Opening Bell*, we introduced an Expert Design Studio model designed to find stocks with attractive Money Flow indicators. For people like myself who place considerable importance on this indicator, this model serves as a great time-saver. Each day it provides a list of stocks that have positive divergences in their Money Flow indicators and whose Money Flow indicators have been strong for the last six months. With this list of stocks, we can perform further analysis by looking at the chart patterns of the stocks as well as other indicator readings.

"The process of creating our mechanical Money Flow model is outlined in this article. It is useful to understand the process because those who create their own trading models will follow the same steps."

The April model was designed to provide trading ideas. This month, we will refine the model and create a fully mechanical trading model based on the Money Flow indicator.

Since the April model was designed to give trading ideas, it found a large list of stocks. A three-year backtest of this model showed 2059 trades. With that many trades, we can tighten the technical buy rules and thereby lower the number of trades and hopefully increase the overall return.

The first step in creating a fully mechanical Money Flow trading model was to test the individual rules from the April model, making them more restrictive and increasing the effectiveness of their selections.

Persistence of Money Flow rule

The most effective rule from the April model was the Persistence of Money Flow rule. This rule required the Volume Accumulation Percent indicator to be above zero at least 80% of the time in the previous six months. An Expert Design Studio backtest over the last two years of the Persistence of Money Flow rule showed 5056 trades with an average annual return on investment (ROI) of 10.08%.

Note: In this and all other tests in this article, we used a fixed 30-day holding period on a database of about 2100 stocks. Only those stocks with prices greater than $10 and volumes greater than 100,000 were considered for purchase.

With 5056 trades, we could make the Persistence of Money Flow rule more restrictive, hoping for even better results. We changed the rule to require the Volume Accumulation Percent indicator to be above zero at least 90% of the time in the last six months. This corresponds to the default for the Persistence of Money Flow report. After this change, the number of trades dramatically fell to 1879 and the average annual ROI increased to 13.29% (**Figure 1**). This is the foundation of our mechanical Money Flow trading model.

Pause rule

The April model had a rule that required the stock to pause for at least ten days. Specifically, the rule stated that the highest close in the last three days was less than the highest value in the previous seven days. Testing this rule combined with the Persistence of Money Flow rule found 1785 trades with an average annual ROI of 13.85. Comparing this to Figure 1, we see that the Pause rule only lowered the number of trades by 94 trades and slightly increased the overall return.

We tested several variations to the Pause rule. For example, we searched for recent consolidations by requiring a less than 10% difference between the high and low prices of stocks. Results were worse.

In the end, we kept the Pause rule just as used in the April model. This rule does not play a prominent role in the model.

Money Flow rule

The April model required the Money Flow indicator to be hitting a 120-day high. Combining this rule with the Pause rule denotes a positive divergence in the Money Flow indicator. That is, the stock is not hitting a new high but its Money Flow indicator is. Running this rule combined with the Persistence of Money flow rule showed 1271 trades with an average annual return of 9.6%.

We included this rule in the

April model because we wanted to find stocks with very strong Money Flow indicators. In creating a fully mechanical model, however, this rule needed to be changed. As is, this rule reduced the number of trades and lowered the overall return.

Instead of requiring the Money Flow indicator to be hitting a new high, we found the indicator's slope to be a better screening parameter. Requiring a positive 22-day slope had good test results. Using a five-day slope was better. In the end, we changed the rule to require a positive two-day slope in the Money Flow indicator.

Using a two-day slope combined with the Persistence of Money Flow rule yielded 1785 trades with an average annual ROI of 13.50% (compare these results to Figure 1 to see the effectiveness of the rule). Similar to the Pause rule, this rule filters out very few trades.

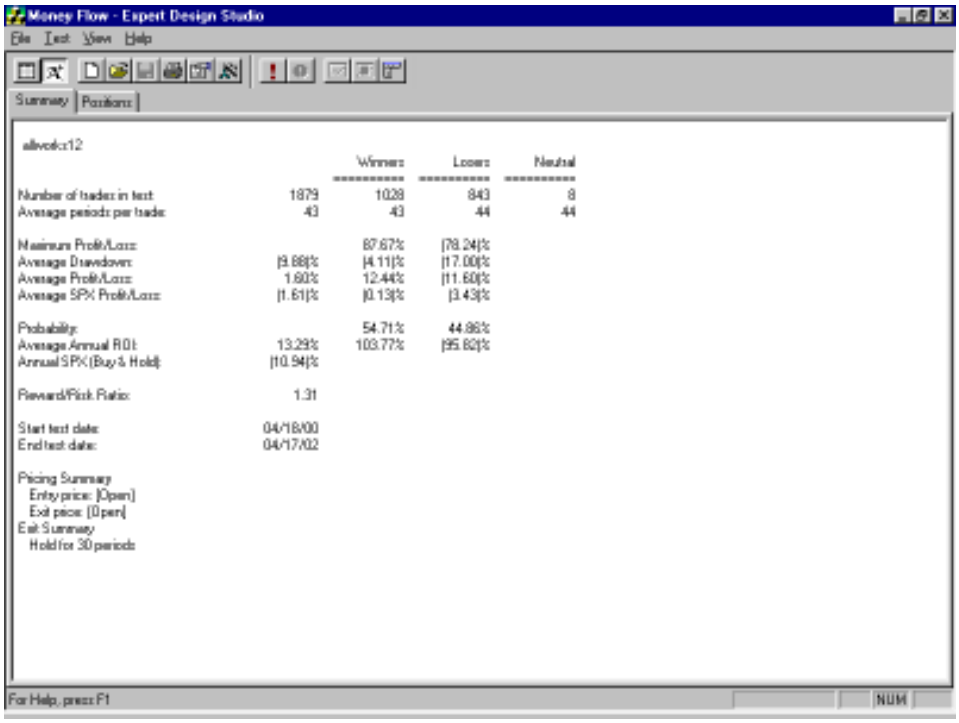

Figure 1. Test results of Persistence of Money Flow trading model, first version

Uptrend rule

Indicators don't always work. Every once in a while you see a stock that continually falls month after month even though its Money Flow indicator keeps moving higher. We don't want that. For that reason, the April model had a rule that required the stock to increase by at least 10% over the last 44 business days (approx. two months). Testing found 1150 trades with an average annual ROI of 6.7%. That could be improved. We tried requiring the stock to rise by 20% instead of 10% but overall returns fell. This change would have improved results during the 1990s bull market but in the last two years it didn't work. We also tried a 30% criterion but those results were poor as well.

We kept the 10% criterion but next experimented with the time period. Results were much improved by requiring the stock to increase by at least 10% in the last four months (instead of two months). Using a six-month time period worked even better. A one-year time period found lower results.

For the final decision, the Uptrend rule required the stock to rise by at least 10% over the last 132 business days (approx. 6 months). A backtest with these criteria found 1561 trades with an average annual ROI of 15.06% (compare this result to Figure 1 to see the effectiveness of the Uptrend rule).

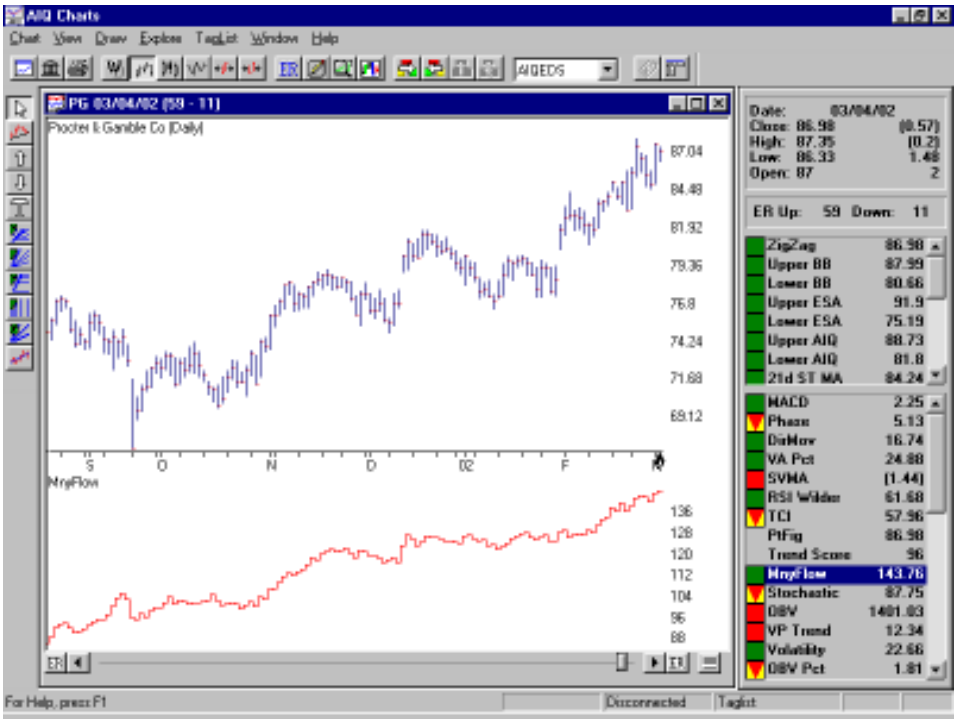

Figure 2. Procter & Gamble chart showing history of rising price and Money Flow

Final Model

The Expert Design Studio screening model is now complete.

Money Flow Trading Model continued on page 8

The rules are:

- Price is greater than $10
- Volume is greater than 100,000 shares
- Persistence of Money Flow set at 90%
- The stock is below its 10-day high
- Two day slope of Money Flow is greater than zero
- The stock has increased by at least 10% in the last 6 months

Of these rules, the Persistence of Money Flow rule is by far the most important.

An example of a stock that passes the model is Procter & Gamble (PG), shown in **Figure 2**. PG had increased in value over the last six months but on a short-term basis it was just off its high of five days earlier. Procter & Gamble's Money Flow indicator persistently rose higher over the previous six months and on a short-term basis its two-day slope was positive.

An EDS backtest of this final model is shown in **Figure 3**. This model made money during the two-year bear market. There were 1363 trades with an average annual ROI of 15.79%. How did it perform over a longer time period? A four-year test showed an average annual ROI of 18.31%.

A summary of the tests in this article is found in **Table 1**. The first line shows the results of testing the April *Opening Bell* model. The second line shows the results from running the model on the most important rule, Persistence of Money Flow. The next section shows the results of adding additional rules to the Persistence of Money Flow rule. Finally, the backtested results of all the rules combined are found on the last line.

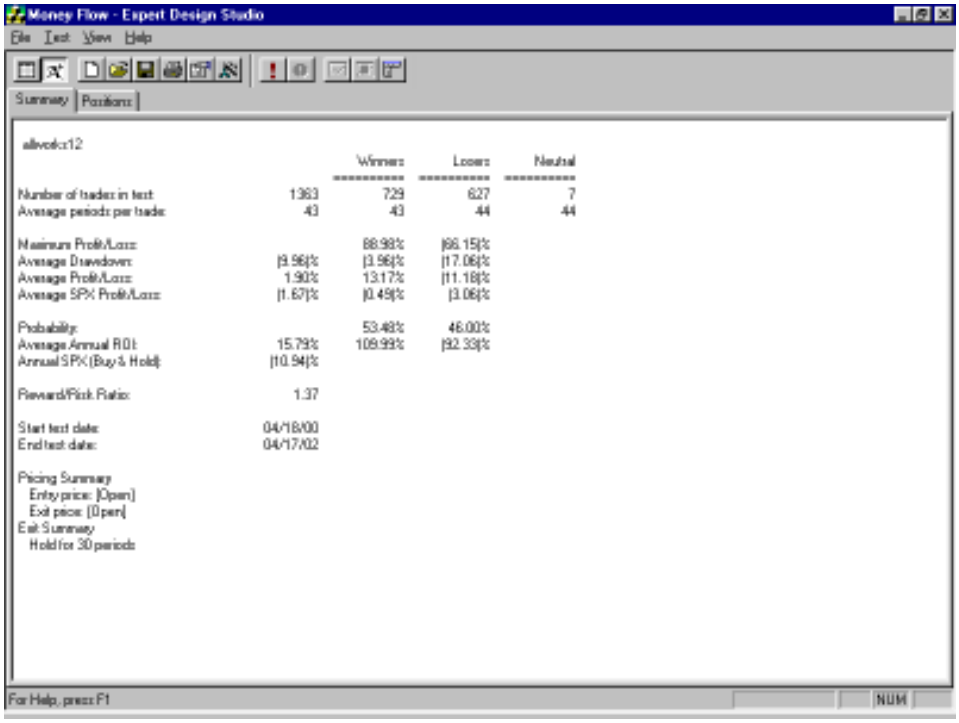

Figure 3. Test results of Persistence of Money Flow trading model, final version

The process in creating our mechanical Money Flow model is outlined in this article and Table 1. It is useful to understand the process because those who create their own trading models will follow the same steps.

The tests in this article were run on a database of about 2100 stocks. Many of the stocks that were purchased were lesser known small company stocks. Some people, including myself, probably wouldn't buy stocks that they've never heard of. Therefore, we tested this model on Standard & Poor's 500 stocks. Using the same two-year time period, there were 366 trades with an average annual ROI of 9.09%.

The EDS Money Flow screening model is now completed. The model can be downloaded from AIQ's web page at **www.aiqsystems.com**. Click on *Educational Products* and then *Opening Bell*.

The screening model may be finished but the trading system is not. We have to establish our capitalization rules, such as how many stocks will be held in a fully invested portfolio. We also have to set the sell parameters. There was a 66% loss in one of the trades. By setting better sell criteria, we can lessen the drawdowns and increase the returns. Our mechanical Money Flow trading model will be completed next month.

Table 1.

EDS Testing Results

	Annual ROI	# of Trades
April Model	2.78%	1457
Persis. MnyFlow	13.29%	1879
Persis. plus Pause	13.85%	1785
Persis. plus MnyFlow	13.50%	1785
Persis. plus Uptrend	15.06%	1561
Final Model	15.79%	1363

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