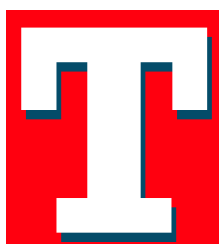# Trading
THE MOMENTUM

# of market breadth

The S&P tracking stock (SPY) and the S&P 500 futures contract probably are among the most difficult markets to trade. Statistics would most likely show the futures contract toward the top of a group of markets responsible for the quickest depletion of customer trading accounts.

Most short-term traders trade the S&P 500 markets using timeframes ranging from a single tick up to one hour. When trading in these shorter timeframes, it's easy to become disoriented and lose track of the true market dynamics.

One tool many traders use to track "internal" market strength is a breadth indicator such as the advance-decline line (the running total of advancing NYSE stocks minus the declining stocks). The changes in the number of advancing or declining issues can offer a glimpse of market dynamics not immediately revealed by price action. For example, even if the market is rising, a declining advance-decline line may indicate these gains are being fueled by a progressively smaller number of stocks, in which case a correction or reversal may be imminent.

While breadth indicators are commonly used to gauge longer-term directional strength, intraday analysis of advancing or declining issues can be used to develop shorter-term trading strategies. Here, we'll look at how measuring the momentum of advancing NYSE stocks on an hourly basis can be used to time trades.

Breadth of fresh air

It is well-known that the combined directional bias of the NYSE advancing, declining and unchanged issues lists are helpful in determining the overall direction of the S&P 500

One of the best ways to keep track of the market's true dynamics is to monitor its advancing and declining issues. Here's a strategy that uses the momentum of advancing issues to time short-term trades.

BY MARK BROWN

index and S&P futures. Traditionally, studies have been based on either a combination of the advancing and declining issues (such as the advance-decline line described previously), or the advancing, declining and unchanged issues.

However, research suggests that you can gain the same benefit (and simplify your analysis in the process) by using only the advancing issues statistics. And just as many short-term traders use price momentum in their trading decisions, the "breadth" momentum can be used to trigger trades. In fact, the momentum of the advancing issues provides enough information to develop a profitable trading strategy that allows you to bypass the actual market prices.

One simple trading model based on this approach is the "Oddball S&P system," which uses hourly readings from the NYSE advancing issues list. This timing model is based on the theory that in the short-term the S&P futures (and even the actual S&P index) and the market breadth may deviate from time to time, but they will nonetheless align themselves when large moves are made.

The original purpose behind this strategy was to use advancing/declining/unchanged numbers to identify high-volatility situations that showed the highest likelihood of having a directional bias. However, research and testing showed it was sufficient to use the advancing issues alone — not just as a filter, but also as a stand-alone trading strategy. In addition, as mentioned earlier, using only the advancing issues numbers

TABLE 1 PERFORMANCE SUMMARY

The performance summary of the advancing issue/momentum strategy, from January 1998 to August 2000, trading one S&P 500 futures contract (no money deducted for slippage and commission).

|			
Total net profit	$227,700.00	Open position P/L	-$750.00
Gross profit	$912,275.00	Gross loss	-$684,575.00
Total # of trades	550	Percent profitable	51%
Number winning trades	278	Number losing trades	272
Largest winning trade	$23,975.00	Largest losing trade	-$12,075.00
Average winning trade	$3,281.56	Average losing trade	-$2,516.82
Ratio avg. win/avg. loss	1.30	Avg. trade(win & loss)	$414.00
Max. consec. winners	8	Max. consec. losers	8
Avg. # bars in winners	9	Avg. # bars in losers	5
Max. intraday drawdown	-$38,250.00		
Profit factor	1.33	Max. # contracts held	1
Account size required	$38,250.00	Return on account	595%

Source: TradeStation

makes the approach less complicated. As a very basic trading approach, this strategy also functions as an excellent benchmark against which to compare other systems.

Measuring momentum

The strategy is based on calculating the rate of change (ROC) of the hourly advancing issues number. ROC, which is an oscillator-type indicator, is the difference (or alternately, the ratio) between the current price and the price n periods in the past. For example, the five-day ROC would be the difference between today's price and the price five days ago. On an hourly chart, the five-period ROC would be the difference between the current price and the price five bars (hours) ago.

FIGURE 1 ADVANCING ISSUES ROC
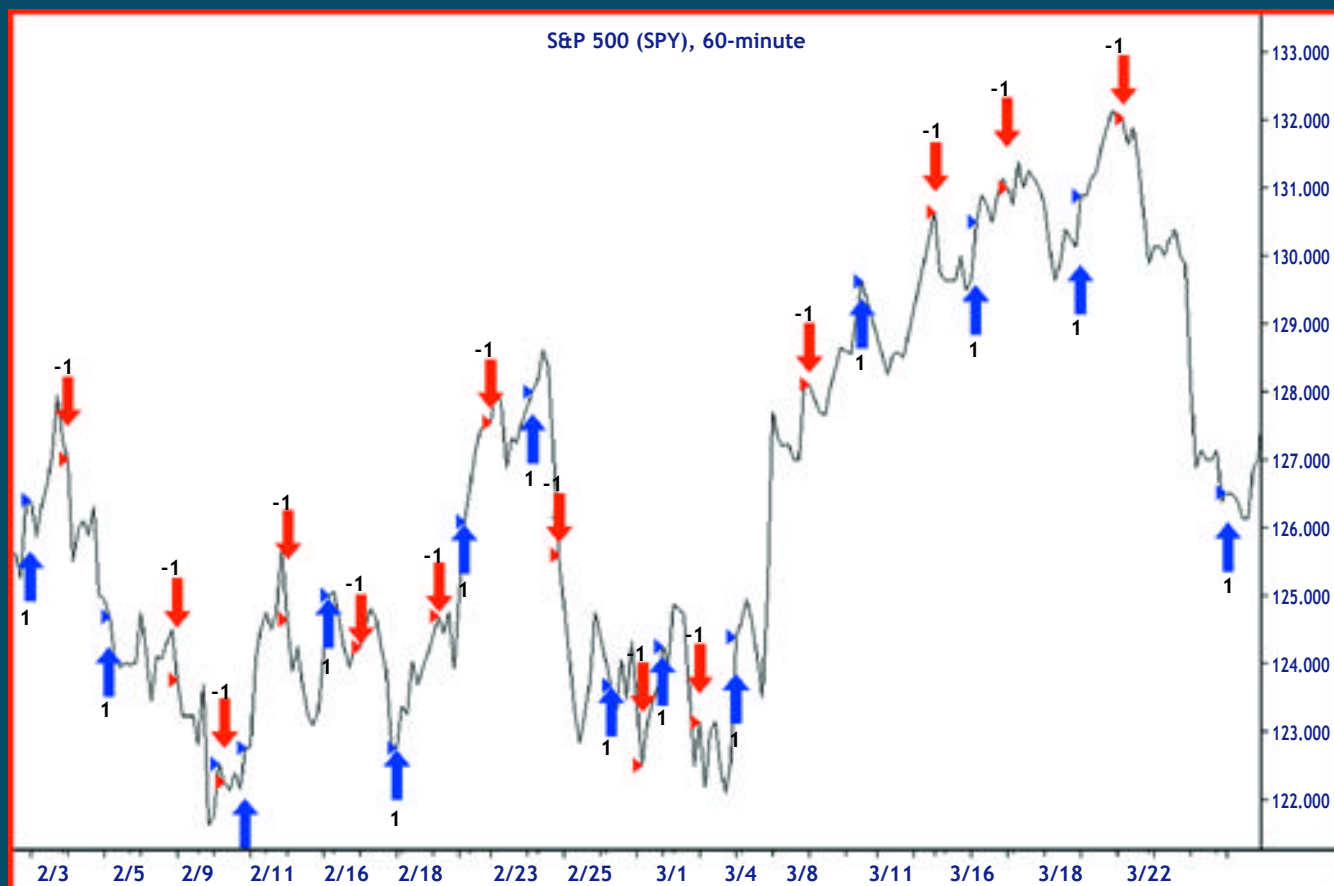
A seven-period ROC of the hourly advancing issues number provides the basis for the oddball S&P system.

December 2000 S&P Futures (SPZO), hourly

Advancing issues, hourly

Rate of change of advancing issues
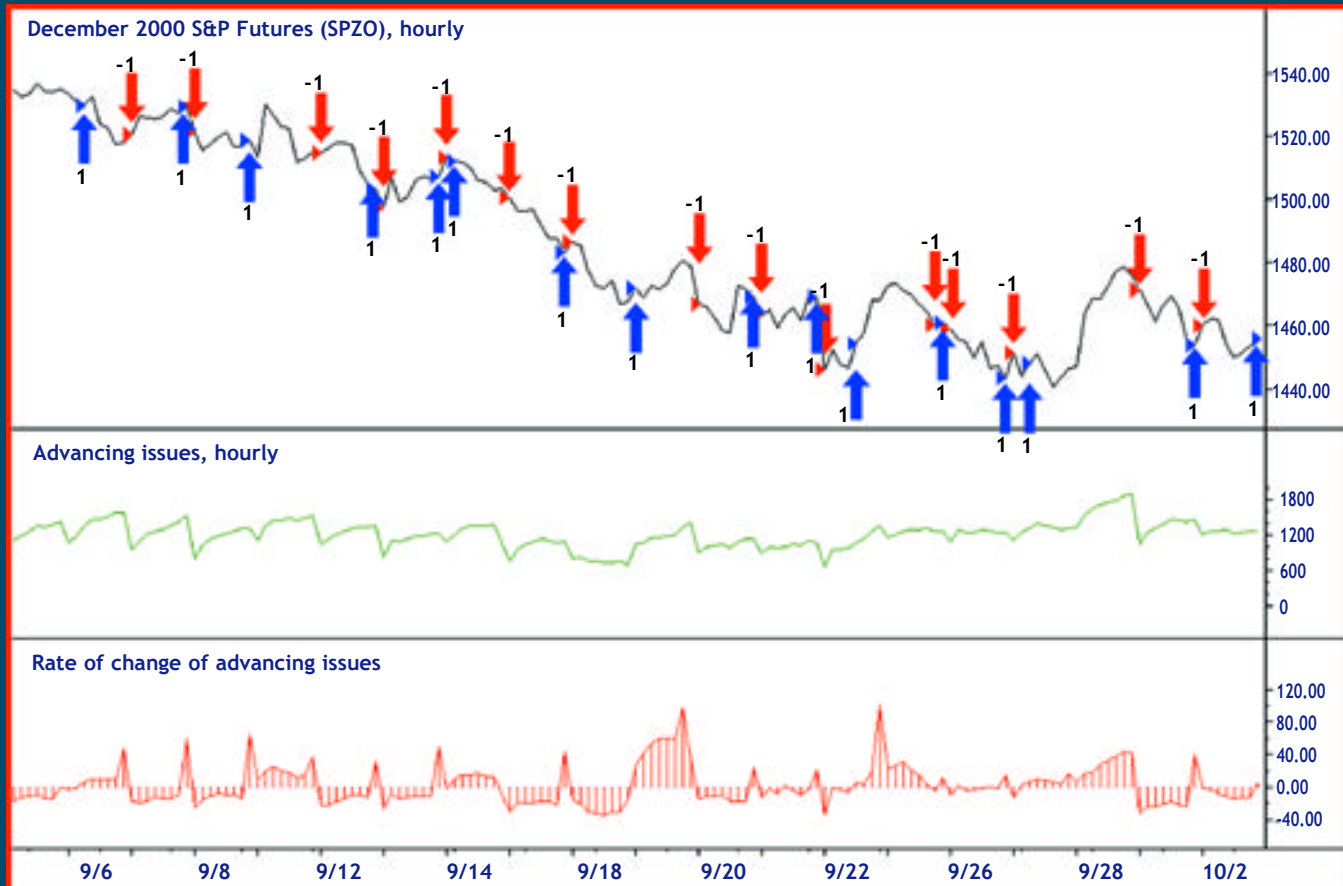
Source: TradeStation

FIGURE 2   SPY TRADES

Although the number of winning and losing trades are approximately the same for this strategy, the chart shows that the winners are larger than the losers, which makes the system profitable in the long run.

S&P 500 (SPY), 60-minute

Source: TradeStation

(For a more thorough discussion of the ROC indicator, see "Indicator Insight: Momentum and rate of change," *Active Trader*, October, p. 82). Because there are seven hours in the trading day, a seven-period ROC of the advancing issues number was used in this strategy.

One way to construct an oscillator-based system is to trigger trades when the indicator crosses above and below the "zero" line (the median line that represents neutral momentum, when the current price is the same as the price *n* periods ago). But a better alternative is to use two separate indicator levels, or zones — one to initiate long trades and another to initiate all short trades.

A good initial setting is to set the buy level to 3 percent, and the sell level to 1 percent. That is, you buy as soon as the rate of change of the advancing issues is 3 percent higher than it was seven periods ago and sell as soon as it falls below 1 percent higher than it was seven periods ago. (See "Strategy snapshot," p. 41, for the precise formula for the indicator.) This means the system will always be in the market, either with a long or short position.

The indicator settings used here were selected to keep the strategy as straightforward and simple as possible for testing. Traders may, of course, experiment with other indicator settings to see if they produce better results. Similarly, a different

oscillator-type indicator could be substituted for the ROC. The underlying system logic and trading approach would remain the same.

In short, the oddball S&P system works as follows:

•**If the rate of change of the advancing issues is greater than the buy trigger level, buy the market.**

•**If the rate of change of the advancing issues is less than the sell trigger level, sell the market.**

Every hour, on the hour

Because this system recalculates every hour on the hour, up to and including the close of the stock market at 4 p.m. EST, you will not be able to use the last reading of the day if you are trading the S&P 500 tracking stock (SPY). However, if you are trading the S&P futures, you will still be able to enter a trade based on the last reading because the futures market continues trading until 4:15 p.m. EST.

For either market, this also means that you will have to wait for the first reading at 10 a.m. EST to trade in the morning. But this is actually advantageous, because as so many professional traders point out, you should avoid trading immediately after the open because of the directionless volatility that often occurs

Testing a strategy on multiple markets can help determine if it is robust and likely to perform well in the future. In this case, the strategy appears to trade profitably on the QQQs as well.

Nasdaq 100 (QQQ), 60-minute
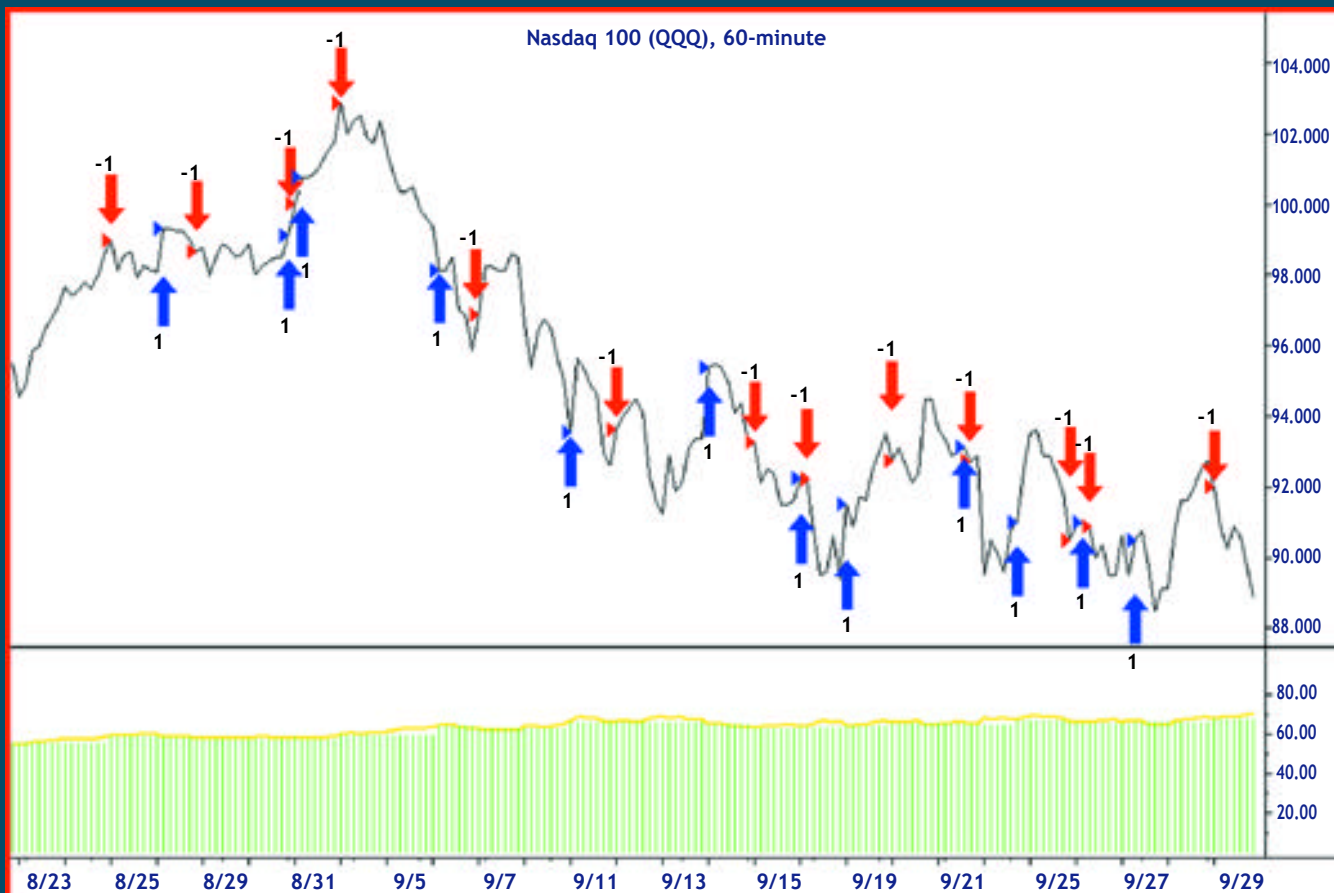
Source: TradeStation

before the market finds its direction and pace for the day.

This kind of trading strategy is strengthened by the fact that it is easy to monitor and execute, and it is based on one primary input. The one-hour timeframe was selected because it is outside of the typical short-term trader's time horizon, and also because consistency is a key factor when implementing a mechanical model. It is easy to check your trades each hour on the hour, or to program your laptop, mobile phone or handheld computer to do so for you.

Also, only using one data point per hour also enhances the reliability of the model. Why? Because when you view an intraday chart and observe a bad price print it will most likely be the high or the low of the given bar. By eliminating all data points but the close, you also reduce the possibility of errors.

Performance summary

To provide some additional insight, let's look at some examples of buy and sell signals, and performance statistics of a test run on the S&P 500 futures contract. Table 1 (p. 42) is the performance summary, which shows the average trade has a profit of $414, (before slippage and commissions). To get a feel for how much you are likely to make taking these costs into consideration, simply deduct the appropriate amount for the aver-

age trade. For instance, if it is your experience that these costs amount to $75, then your average profit per trade will be $339. Similar testing on the Nasdaq (statistics not shown) supports the strategy's positive performance in other markets.

Figure 1 (p. 42) shows a chart with recent market action in the S&Pfutures, together with the advancing-issues line (green line) and its ROC calculation (red line). Figure 2 (p. 43) shows trades in the SPY. In this case, there were a total of 28 — 15 of which were winners — over an approximately six-week period. As a reflection of how robust (i.e., that it also can work well on other markets) the strategy is, Figure 3 (above) shows a recent set of trades in the Nasdaq 100 tracking stock (QQQ). In this case, there were 24 trades over a five-week period: Twelve ending up as winners — a few quite substantial — helping ensure the average trade stays in positive territory. This strategy also could function as a filter to take trades in a shorter time frame. For example, when the model signals a trade in the hourly timeframe, you could scan the market for a better entry point using 10-minute bars.

In upcoming articles we will take a closer look at how we can expand on this model to make it more suitable for trading the different index tracking stocks. ⌂