

Connors Research Trading Strategy Series

Short Selling Stocks with ConnorsRSI

By

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Section 1

Introduction

For more than thirty years, the asset management industry has attempted to create firms and funds revolving around short selling stocks. Few (very few) have succeeded in the long term. Most of these funds (many now defunct) applied a single-minded approach to short selling: identify a company that is going out of business and short it.

For example, a well-known short strategy is to find the firms that are committing accounting fraud and short them. In the mid-90s I paid \$10,000 for a one-year subscription to a research firm that specialized in identifying accounting fraud. The report that subscribers received spelled out in detail the depth of the accounting fraud a firm was committing. It was compelling. So compelling that of course I shorted many of these stocks. Unfortunately, the 1995 bull market began to take hold and in zero cases were any of these companies found to have committed fraud. In fact, many of these stocks experienced high double-digit (and in some cases triple-digit) gains over the next year. Fortunately, I was out of all of them before they maxed out; I was either stopped out by my own sense of panic or simply because my put options went to zero. Over the years, this research company identified about 200 suspect firms, of which three actually committed fraud. I was not a happy subscriber, nor were the many short or long/short funds who also subscribed. Needless to say, I didn't renew.

There are other strategies which have been used by short funds looking for companies to go to zero: technologies that would become obsolete, competitors that would crush them, or the fact that the US economy was going to collapse and therefore every company along the way would collapse as well.

None of these methods have worked in the long term. Yes, some companies have been found to have committed fraud (Enron, Tyco, etc.), yes the US economy got hit in 2000-2002 and in 2008, but overall the performance of the majority of these short funds has been pretty dismal. The people behind these funds mean well. Most have conviction in their beliefs. But their track record proves just how difficult it is to make money in the long run by shorting stocks.

In this Strategy Guidebook, we're going to teach you a quantitative, systematic way to short stocks that has proven to be successful for quite some time. There are no juicy stories here. This strategy is simply identifying behavior, **backed by statistics**, which has occurred over and over again since 2001. In fact we can show you this same behavior going all the way back to 1995. The basic behavior pattern is: when stocks become extremely overbought on a short-term basis they tend to pull back sharply for a short period of time. Few go out of business. However, most do pause, profit taking occurs, scared (long speculative) money gets flushed out, further pressure is placed on the stock as analysts' price targets get hit, and in the majority of cases (approximately 70%, which is high) prices are lower within a few days.

We first identified this behavior in 2003 and started teaching a variation of the strategy in our TradingMarkets Swing Trading College in 2005 which we still teach today. The concepts we taught back then still hold true today and we're proud of the fact that in spite of markets changing, especially after 2008, the behavior of extremely overbought stocks has not changed. And this is where the Alpha is.

A few words of caution need to be made here. First, these are short sales, which means that the losses are potentially unlimited. Stops lower the test results but that doesn't mean they should not be used; that's up to you. The test results include all stocks which have met the entry criteria for the strategy, and

some have risen by 50% - 100% before exiting. On an individual trade basis this hurts. But as you see on an overall basis, in spite of these adverse moves, the longer term test results are significantly positive. For those of you who understand the risks involved in options, liquid puts can also be used to contain the potential for unlimited losses, because your risk (total dollar amount) is known ahead of time.

In order to achieve Alpha, you have to go places others won't go. Shorting the stocks in this strategy is a place most people psychologically can't go. The edges have been there, as you will see in the statistics, but you have to be able to overcome the fear of shorting "story stocks" which have been run up to unsustainable short-term levels by "the crowd". This Guidebook, backed by over a decade of statistics, will show you how to do this.

We hope you enjoy this next installment of the *Connors Research Strategy Guidebook Series*. If you would like to see more topics from our Strategy Research Series please [click here](#).

Section 2

Shorting Mechanics

Many individual investors will never short a stock. Sometimes this is because of the fear of associated with swimming against the current, as described earlier in the Introduction. In other cases, it's simply a lack of adequate knowledge about how the process works. In this section, we'll present some of the basics that you should be familiar with before executing your first short sale.

We're all quite accustomed to the model where we purchase something first and sell it later. Certainly this is the case for most of the major investments we make in life, including houses, cars, artwork, precious metals, etc. However, in certain financial transactions, we're allowed to reverse the process by selling something before we buy it. In the case of stocks, we call this *short selling*, or sometimes simply *shorting*.

Every stock transaction involves a buyer who is willing to give up cash (either her own, or loaned to her by a broker) in exchange for stock held by the seller. So how does the short seller complete this transaction without actually owning any stock? Just as a buyer can use *account margin* to effectively borrow cash from a broker, so too can the short seller borrow shares from his broker. If your broker has shares that they are willing to loan to you for shorting, your trading platform will typically designate those stocks as *Easy to Borrow*, or simply ETB. Stocks that are listed as Hard to Borrow, or HTB, may be completely unavailable, or may require a call to a live person at your broker's trade desk.

When we exit a short trade, we say that we are *covering* our position. We do this by buying the stock (i.e. we give up cash in exchange for shares), but the shares we get don't stay in our account, they go back to the broker to repay the loan that was created when we entered the short position.

It's worth noting that different brokers may have different stocks available to borrow. Very highly liquid stocks will probably be ETB from most any broker, but less liquid stocks may be available from some brokers and not others. If your current broker consistently doesn't allow you to borrow shares that you want to short, consider opening an account with another broker.

Because your broker is loaning you shares when you enter a short sale, you must have a margin account with the brokerage firm. You cannot short stocks from an IRA, 401k, or other cash-secured account. Also, just like when you trade on margin, the broker will charge you interest on the shares you've borrowed.

If you buy a stock for \$100 per share, your maximum risk is the \$100 you paid because the stock price cannot go lower than zero. However, if you short a stock, your risk is potentially unlimited, because theoretically there is no upper bound on the price. Keep in mind that if you're in a short position and the price moves against you, your broker will require you to have sufficient collateral (cash and other securities) in your account to cover your position. Again, this is very similar to how your broker handles long positions that you purchased using margin.

Another issue to be aware of is that short sellers are responsible for paying dividends. Let's say that I borrow a stock from my broker, and sell it short at \$50/share. A few days later, the company pays a \$1/share dividend to the new owner, which will cause the stock price to drop by \$1. However, my broker still owns shares as well, because they simply lent them to me for a period of time. Since they

expect to collect their \$1/share dividend as well, the money to pay that dividend comes out of my account. Of course, if I shorted the stock at \$50/share and cover it a few days later at \$49/share, then I've made \$1/share on the transaction, and that's the \$1/share that pays the dividend. In other words, when a company pays a dividend and the stock price falls by the corresponding amount, there is really no net effect on the short seller other than the cash coming out of his or her account now versus the gain that won't be realized until the short position is covered.

Now that we've covered some of the basics around shorting, let's move on to the rules for the strategy.

Section 3

Strategy Rules

The fundamental concept behind the *ConnorsRSI Short Stock Strategy* is to find stocks that have moved strongly upward and achieved new short-term highs. We short these stocks on further intraday strength, and then wait for mean reversion to pull the prices back down before we exit.

This strategy executes trades using a simple three-step process consisting of Setup, Entry and Exit. The rules for each of these steps are detailed below.

A **Setup** occurs when all of the following conditions are true:

1. The stock's price closes above \$5 per share.
2. The average volume over the past 21 trading days (approximately one month) is greater than 500,000 shares.
3. The stock closes with a ConnorsRSI(3,2,100) value greater than X, where X is 75, 80, 85, 90 or 95.
4. The stock's 100-day Historical Volatility, or HV(100), is greater than 40.
5. The stock's 10-day Average Directional Index, or ADX(10), value is greater than 40.
6. Today's High is the highest high in the past N days, where N is 7, 10 or 13.

If the previous day was a Setup, then we **Enter** a trade by:

7. Submitting a limit order to **short** the stock at a price Y % above yesterday's close, where Y is 2, 4, 6, 8, or 10.
NOTE: Some variations use *Variable Limits*. This concept will be explained in detail below.

After we've entered the trade, we **Exit** using one of the following methods, selected in advance:

- 8a. The stock closes with a ConnorsRSI value less than 20.
- 8b. The stock closes with a ConnorsRSI value less than 30.
- 8c. The stock closes with a ConnorsRSI value less than 40.
- 8d. The closing price of the stock is less than the 5-day moving average, or MA(5).
- 8e. The closing price of the stock is lower than the previous day's close. We typically refer to this exit as the *First Down Close*.

Let's look at each rule in a little more depth, and explain why it's included in the strategy.

Rules 1 & 2 assure that we're trading liquid stocks which are likely to have shares available to borrow.

Rule 3 uses ConnorsRSI to identify a price surge. A complete description of ConnorsRSI can be found in the Appendix.

Rule 4 helps select stocks that have been experiencing healthy levels of price volatility over the past several months. Short term strategies like the one presented here depend on strong price moves both to set up the trade and to generate profits. Stocks with lower volatility are less likely to generate such moves.

Rule 5 uses the ADX indicator to identify stocks that have been trending strongly. Although ADX is non-directional, the other rules assure us that the price has been moving upward, and thus ADX measures the strength of that upward trend.

Rule 6 identifies an N-day high. Stocks seldom move in one direction for an extended period of time, and when the price reaches a short-term high, it's often a sign that the stock is getting ready to pull back before resuming its upward trend.

Rule 7 allows us to enter the trade at an optimal price. The Setup rules identify an overbought stock, and the entry rule waits for it to become even more overbought on an intraday basis. Because the intraday price surge is occurring for a second consecutive day, it often motivates traders with long positions to take some profits by closing their positions. Their selling will generate downward pressure on the price, which in turn will generate profits for our short position.

Over the years, our research has consistently shown that stocks that are trading above their 200-day moving average, or MA(200), have a greater tendency to move upward in price, while stocks below their MA(200) have a greater tendency to move downward. Using **Variable Limit Entries** allows us to leverage this information by specifying a larger limit order when the stock is above the MA(200).

Strategy variations that use Variable Limit Entries use a limit percentage that is 1.5 times the standard limit when the stock is above the MA(200). For example, if we're using a variation with a stated limit percentage (Y) of 4%, then a stock that closed above the MA(200) on the Setup day will actually use a 6% limit order to enter the trade, while a stock trading below the MA(200) will use the 4% limit. Strategy variations that do not utilize Variable Limit Entries use the same limit percentage regardless of whether the price on the Setup day closes above or below the MA(200). We will see examples of both kinds of trades later in this section.

Rule 8 provides a well-defined exit method. Few strategies have quantified, structured, and disciplined exit rules. **Rule 8** gives you the exact parameters to exit the trade, backed by over twelve years of historical test results. As with all other strategy parameters, we select in advance the type of exit that we will use, and apply that rule consistently in our trading.

In our testing we closed all trades at the close of trading on the day that the Exit signal occurred. If this is not an option for you, our research has generally shown that similar results are achieved if you exit your positions the next morning.

Now let's see how a typical trade looks on a chart. For the example below, we'll use a strategy variation that requires the ConnorsRSI value to be above 90 and that requires a 10-day high on the Setup day. The limit order will be placed 6% above the Setup day's closing price (no variable limits). We will exit when ConnorsRSI closes below 30. In terms of our strategy rules above, that means $X = 90$, $N = 10$, $Y = 6$, and the exit method is defined by **Rule 8b**.

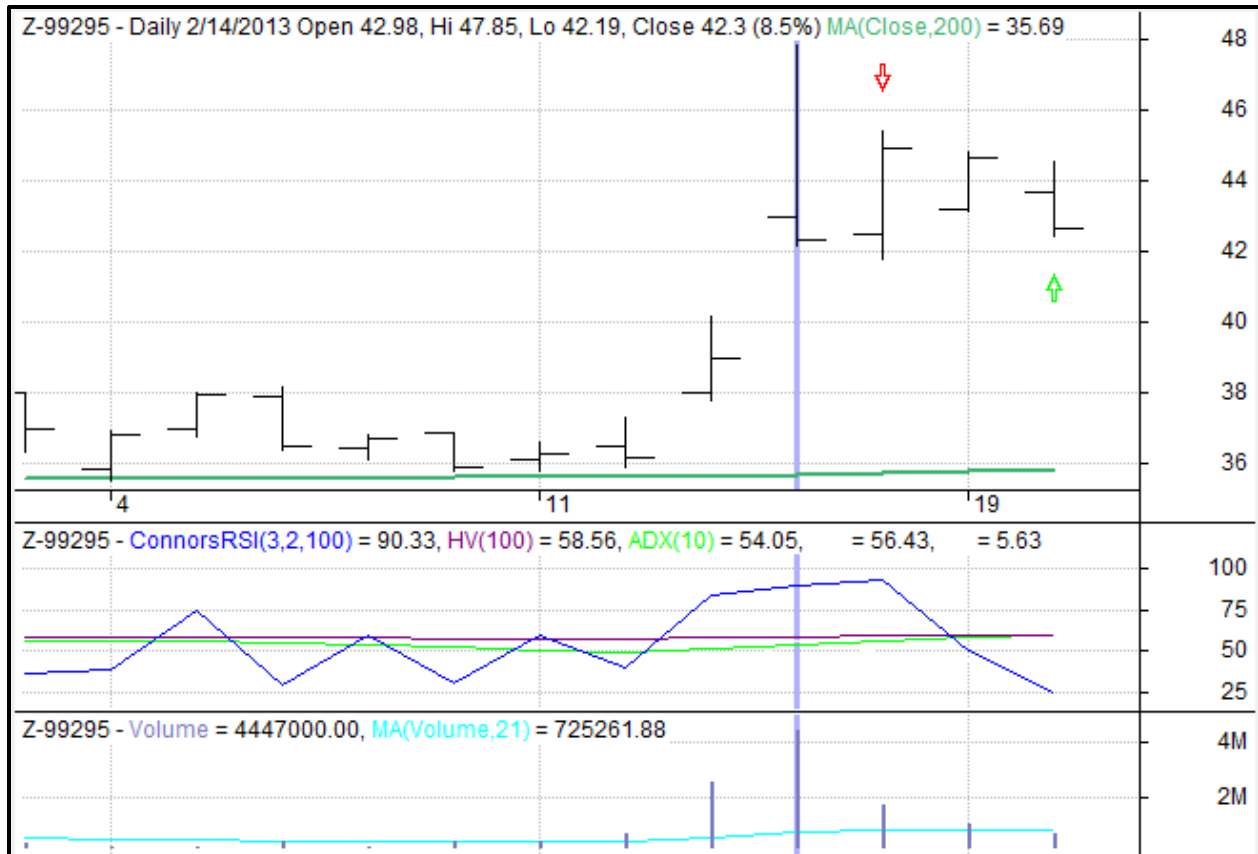


Chart created in AmiBroker. Reprinted courtesy of AmiBroker.com.

Figure 1: Zillow Trade

The chart above is for *Zillow Inc.*, whose symbol is [Z](#). In the chart, the top pane shows the price bars in black and the 200-day moving average or MA(200) in dark green. The vertical blue-gray line marks the currently selected day which is also the Setup day, February 14, 2013. The red down arrow marks the entry day, and the green up arrow indicates the exit day. The middle pane shows the values for ConnorsRSI in bright blue, 100-day historical volatility or HV(100) in purple and ADX(10) in bright green. The bottom pane shows the daily volume as a blue-gray histogram, and the 21-day average volume as a turquoise line. Now we'll confirm that each of our entry and exit conditions was correctly met.

Rule 1 requires the stock price to close above \$5 on the Setup day. The closing price of \$42.30 meets this requirement.

Rule 2 is satisfied because the 21-day average volume is over 725,000 shares, which is well above our minimum requirement of 500,000 shares.

Based on our strategy parameters, **Rule 3** requires the ConnorsRSI(3,2,100) value to be above 90 on the Setup day, which it is: the value shown on the chart on the Setup day is 90.33.

Rule 4 is satisfied because the HV(100) value of 58.56 on the Setup day is above the threshold of 40.

Rule 5 is also fulfilled because the ADX(10) value of 54.05 is above the threshold of 40.

Rule 6 requires an N-Day high, and for this strategy variation N = 10. The Setup day counts as Day 1 of the 10-day lookback period. Counting back an additional 9 days will take you to the left edge of the chart. You can see that the high on the Setup day is higher than any of the other highs during the lookback period, and thus the **Rule 6** criteria have been met.

Since all three Setup rules have been satisfied, we enter a limit order for the next trading day, which is February 15th. Our selected strategy variation tells us to use a limit of 6% above the Setup day's closing price, so we would use a limit price of:

$$\begin{aligned}\text{Limit Price} &= \text{Close} \times (1 + \text{Limit } \%) \\ &= \$42.30 \times 1.06 = \$44.84\end{aligned}$$

On February 15th the price of Z climbs to \$45.38, so our limit order gets filled and we short the stock at the limit price of \$44.84.

On the next trading day, February 19th, the price of Z opens lower but closes with a price very near the entry day's closing price. This brings the ConnorsRSI value down to about 50. Since this is not below our exit threshold of 30, we stay in the trade.

On February 20th, the price falls further. This time the closing value of ConnorsRSI is 25.22, which signals our exit. We cover our position at or near the closing price of \$42.65, which gives us a nice profit on the trade of just under 5% before commissions and fees:

$$\begin{aligned}\text{Profit} &= \text{Gain (or Loss)} / \text{Cost Basis} \\ &= (\$44.84 - \$42.65) / \$44.84 \\ &= \$2.19 / \$44.84 = 4.9\%\end{aligned}$$

Let's look at another example using the same strategy parameters, except this time with variable limits enabled. The chart below is for *Osiris Therapeutics* ([OSIR](#)), and uses the same conventions as the previous chart.

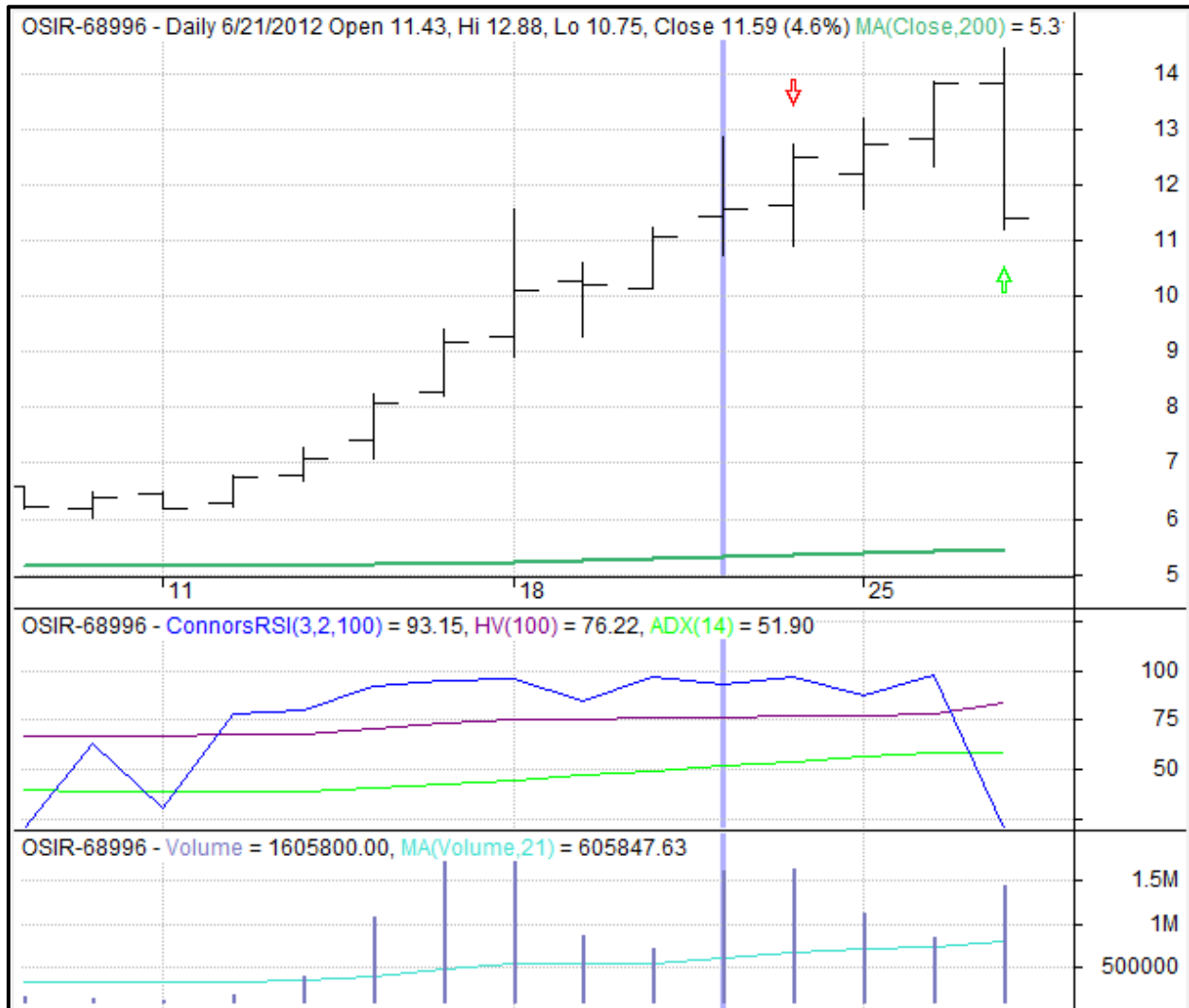


Chart created in Amibroker. Reprinted courtesy of AmiBroker.com.

Figure 2: ORIS Trade using Variable Limits

The Setup day for this trade was June 21, 2012. As per **Rule 1**, OSIR is trading above \$5 and as per **Rule 2** the 21-day average volume is above 500,000 shares. Thus our liquidity requirements have been met.

Rule 3 is satisfied by a ConnorsRSI value of 93.15 (greater than 90) on the Setup day, **Rule 4** is taken care of by an HV(100) value of 76.22 (greater than 40), and **Rule 5** is covered by an ADX(10) value of 51.90 (also greater than 40).

As per **Rule 6**, we can very clearly see that OSIR has made a 10-day High. This steady upward march over a two-week period is classic behavior for trade candidates when using the *ConnorsRSI Short Stock Strategy*.

With all of our Setup conditions met, we are ready to place a limit order for the next day. Since the price of OSIR is above the MA(200) on the Setup day, we will use a limit order of 9% instead of 6%, as per **Rule 7**. That makes our limit price $\$11.59 \times 1.09 = \12.63 .

On June 22nd, the price of OSIR hits an intraday high of \$12.75, which is above our limit price, so our order gets filled and we enter the trade.

For the next two days, the price of OSIR continues to rise, and the ConnorsRSI value stays near the top end of the range. Then, on June 27th, the price drops by over 17% in a single day, pulling ConnorsRSI down to 15.2 and signaling our exit as per **Rule 8**. We cover our short position at or near the closing price of \$11.42. This trade would have generated a profit of approximately 9.6% before commissions and fees.

Now that you have a good understanding of the trade mechanics, we'll look at the historical test results for different variations of the strategy.

Section 4

Test Results

We can never know for sure how a trading strategy will perform in the future. However, for a fully quantified strategy such as the one described in this Guidebook, we can at least evaluate how the strategy has performed in the past. This process is known as “back-testing”.

To execute a back-test, we first select a group of securities (sometimes called a watchlist) that we want to test the strategy on. In our case, the watchlist consists of past and present members of the S&P 500.

Next we choose a timeframe over which to test. The longer the timeframe, the more significant and informative the back-testing results will be. The back-tests for this Guidebook start in January 2001 and go through the end of April 2013, the latest date for which we have data as of this writing.

Finally, we apply our entry and exit rules to each stock in the watchlist for the entire test period, recording data for each trade that would have been entered, and aggregating all trade data across a specific strategy variation.

One of the key statistics that we can glean from the back-tested results is the *Average % Profit/Loss*, also known as the *Average Gain per Trade*. Some traders refer to this as the *edge*. The Average % P/L is the sum of all the gains (expressed as a percentage) and all the losses (also as a percentage) divided by the total number of trades. Consider the following ten trades:

Trade No.	% Gain or Loss
1	1.7%
2	2.1%
3	-4.0%
4	0.6%
5	-1.2%
6	3.8%
7	1.9%
8	-0.4%
9	3.7%
10	2.6%

The Average % P/L would be calculated as:

$$\text{Average \% P/L} = (1.7\% + 2.1\% - 4.0\% + 0.6\% - 1.2\% + 3.8\% + 1.9\% - 0.4\% + 3.7\% + 2.6\%) / 10$$

$$\text{Average \% P/L} = 1.08\%$$

Average % P/L is the average gain based on invested capital, i.e. the amount of money that we actually spent to enter each trade.

For short-term trades lasting three to ten trading days, most traders look for an Average % P/L of 0.5% to 2.5% across all trades. All other things being equal, the larger the Average % P/L, the more your account will grow over time. Of course, all other things are never equal! In particular, it’s important to consider the Number of Trades metric in combination with Average % P/L. If you use approximately the

same amount of capital for each trade that you enter, you'll make a lot more money on ten trades with an average profit of 4% per trade than you will on one trade that makes 10%.

Another important metric is the *Winning Percentage* or *Win Rate*. This is simply the number of profitable trades divided by the total number of trades. In the table above, 7 of the 10 trades were profitable, i.e. had positive returns. For this example, the Winning Percentage is $7 / 10 = 70\%$.

Why do we care about Win Rate, as long as we have a sufficiently high Average % P/L? Because higher Win Rates generally lead to less volatile portfolio growth. Losing trades have a way of "clumping up", and when they do that, the value of your portfolio decreases. This is known as *drawdown*. Those decreases, in turn, can make you lose sleep or even consider abandoning your trading altogether. If there are fewer losers, i.e. a higher Winning Percentage, then losses are less likely to clump, and your portfolio value is more likely to grow smoothly upward rather than experiencing violent up and down swings.

* * *

Let's turn our attention to the test results for the different variations of the *Short Selling Stocks with ConnorsRSI Strategy*. First, we'll sort the test results to show the 20 variations that produced the highest Average % P/L. All variations that generated fewer than 200 trade signals during the 12+ year testing period have been filtered out to avoid skewing the results.

Top 20 Variations Based on Average Gain

# Trades	Avg % P/L	Avg Days Held	Win Rate	Entry CRSI	# Days for Highest High	Limit %	Var. Entry Limits	Exit Method
203	9.40%	10.24	78.82%	90	13	10	Y	CRSI < 20
339	7.42%	10.29	76.11%	90	13	10	N	CRSI < 20
244	7.08%	11.49	75.00%	90	10	10	Y	CRSI < 20
319	6.97%	10.70	75.55%	90	13	8	Y	CRSI < 20
357	6.88%	11.55	73.11%	85	13	10	Y	CRSI < 20
205	6.85%	3.74	77.56%	90	13	10	Y	CRSI < 30
273	6.55%	11.37	75.82%	90	7	10	Y	CRSI < 20
205	6.41%	3.79	76.10%	90	13	10	Y	Close < MA(5)
206	6.28%	2.19	76.70%	90	13	10	Y	CRSI < 40
493	6.21%	11.69	70.99%	80	13	10	Y	CRSI < 20
382	6.19%	11.01	74.08%	90	10	10	N	CRSI < 20
246	5.89%	3.88	76.02%	90	10	10	Y	CRSI < 30
576	5.88%	11.73	69.79%	75	13	10	Y	CRSI < 20
419	5.82%	10.99	74.46%	90	7	10	N	CRSI < 20
343	5.79%	4.04	76.97%	90	13	10	N	CRSI < 30
382	5.76%	11.35	73.82%	90	10	8	Y	CRSI < 20
206	5.73%	1.57	71.84%	90	13	10	Y	Down Close
343	5.70%	3.84	76.09%	90	13	10	N	Close < MA(5)
435	5.61%	11.15	74.71%	90	7	8	Y	CRSI < 20
364	5.55%	4.13	75.00%	85	13	10	Y	CRSI < 30

Below is an explanation of each column.

Trades is the number of times this variation triggered from January 1, 2001 –April 30, 2013.

Avg % P/L is the average percentage profit or loss for all trades, including the losing trades, based on invested capital. The top 20 variations have all shown positive gains ranging from 5.55% to 9.4% over the 12+ year testing period.

Avg Days Held is the average trade duration expressed as a number of days. The range for the variations above is relatively large, from just over 2 days to over two weeks (11+ trading days). We will discuss this further in a later section.

Win % is the percentage of simulated trades which closed out at a profit. Most of the top 20 variations have win rates in the mid-70s. This is a high percentage of profitable trades in a world where many traders are aiming for 50-60%.

Entry CRSI corresponds to Rule 3 of the strategy, which states that the ConnorsRSI value must be above the entry threshold. Recall that we tested with ConnorsRSI thresholds of 75, 80, 85, 90 and 95. As you might expect, the higher ConnorsRSI values dominate the list, although the 95 threshold is suspiciously absent. Again, we will explore this further in a later section.

Days for Highest High corresponds to Rule 6 of the strategy. Again we see a preponderance of higher values in the list, demonstrating that we can often achieve larger gains by waiting for more restrictive entry criteria to be met.

Limit % is related to Rule 7 of the strategy, and determines the limit price that will be used to enter the trade. We tested limits of 2, 4, 6, 8 and 10% above the Setup day's close.

Var. Entry Limits is Yes (Y) when the test used an entry limit of 1.5 times normal for stocks that were above the MA(200). When the same limit was used regardless of whether the price was above or below the MA(200), this column contains a No (N). We see many more Y's than N's, indicating that using variable entry limits was beneficial.

Exit Method is the rule that was used to exit trades in this strategy variation, as described in **Rule 8**.

Next, let's look at the strategy variations that have historically had the highest frequency of profitable trades or Win Rate.

Top 20 Variations Based on Highest Win Rate

# Trades	Avg % P/L	Avg Days Held	Win Rate	Entry CRSI	# Days for Highest High	Limit %	Var. Entry Limits	Exit Method
203	9.40%	10.24	78.82%	90	13	10	Y	CRSI < 20
205	6.85%	3.74	77.56%	90	13	10	Y	CRSI < 30
343	5.79%	4.04	76.97%	90	13	10	N	CRSI < 30
206	6.28%	2.19	76.70%	90	13	10	Y	CRSI < 40
266	4.42%	3.70	76.69%	95	13	6	N	Close < MA(5)
321	5.47%	3.99	76.64%	90	13	8	Y	CRSI < 30
282	4.37%	3.74	76.24%	95	7	6	N	Close < MA(5)
310	4.00%	3.68	76.13%	95	13	4	Y	Close < MA(5)
339	7.42%	10.29	76.11%	90	13	10	N	CRSI < 20
205	6.41%	3.79	76.10%	90	13	10	Y	Close < MA(5)
343	5.70%	3.84	76.09%	90	13	10	N	Close < MA(5)
246	5.89%	3.88	76.02%	90	10	10	Y	CRSI < 30
279	4.32%	3.76	75.99%	95	10	6	N	Close < MA(5)
386	5.26%	4.09	75.91%	90	10	10	N	CRSI < 30
344	5.37%	2.24	75.87%	90	13	10	N	CRSI < 40
323	4.77%	2.25	75.85%	90	13	8	Y	CRSI < 40
273	6.55%	11.37	75.82%	90	7	10	Y	CRSI < 20
333	3.91%	3.73	75.68%	95	7	4	Y	Close < MA(5)
275	5.37%	3.96	75.64%	90	7	10	Y	CRSI < 30
328	3.85%	3.74	75.61%	95	10	4	Y	Close < MA(5)

All 20 of the top variations have historically produced a profit on over 75% of the identified trades! Notice that there is a good deal of overlap between this list and the one presented in the previous section on Average % P/L, telling us that we have multiple strategy variations that have historically won consistently while producing excellent edges.

Section 5

Selecting Strategy Parameters

In previous chapters we've described the different values we tested for strategy parameters such as the ConnorsRSI entry threshold (X), N-Day High, entry limit % (Y) and exit method. In this section we'll discuss some additional things to consider as you decide which variation(s) to use in your trading.

Let's talk conceptually about entries and exits for a moment. Both entry and exit rules can be thought of in terms of how strict they are, i.e. how easy or difficult they are to achieve. You might also say that strictness is a measure of how frequently or infrequently the rule conditions occur. For oscillators such as ConnorsRSI, values that are closer to the extremes (0 and 100) are more strict (less likely to occur) than values that are in the middle of the range.

Stricter entry rules will be satisfied less frequently than more lenient entry rules, and thus a strategy that relies on the stricter rules will generally generate fewer trades than a strategy whose entry rules are more easily satisfied. With a robust strategy, the reward for fewer trades is usually a higher gain per trade, on average. If you short a slightly overbought stock, it's most likely to have a moderate pullback. But if you wait for the stock to become extremely overbought, the chances are much higher that it will experience a significant price drop and create a bigger profit.

In contrast to entry rules, the strictness of exit rules has little effect on the number of trades generated by the strategy. However, just like the entry rules, stricter exit rules typically result in higher average profits. Why? Because stricter exit rules tend to keep you in your trades for a longer time, giving the stock more time to experience the mean reversion behavior that we're attempting to exploit with a strategy like the *Short Selling Stocks with ConnorsRSI Strategy*. Thus, for entries the tradeoff is between more trades and higher gains per trade, while for exits the tradeoff is between shorter trade durations and higher gains per trade.

* * *

Now let's turn our attention back to the strategy described in this Guidebook. In the table below, we compare five variations of the strategy that all use the same number of days (10) for the highest high, the same static limit entry (6%) and the same exit method (ConnorsRSI < 30). Only the ConnorsRSI entry threshold differs between the variations shown below.

The Effect of ConnorsRSI Entry Threshold

# Trades	Avg % P/L	Avg Days Held	Win Rate	Entry CRSI	# Days for Highest High	Limit %	Var. Entry Limits	Exit Method
3209	2.41%	4.69	69.43%	75	10	6	N	CRSI < 30
2635	2.55%	4.66	69.56%	80	10	6	N	CRSI < 30
1799	2.76%	4.53	70.71%	85	10	6	N	CRSI < 30
898	3.47%	4.27	71.71%	90	10	6	N	CRSI < 30
279	4.47%	4.00	74.19%	95	10	6	N	CRSI < 30

Notice that the most lenient entry in the table, the first line with a ConnorsRSI Entry Threshold of 75, generated the most trade signals and the lowest gain per trade. As the entry rule becomes stricter, i.e. the ConnorsRSI Entry Threshold rises, we see fewer and fewer trade signals but higher and higher average gains per trade. The variation with an entry threshold of 95 has nearly double the Average % P/L as the first variation, but also has less than 1/10th the number of trades.

It should come as no surprise that the pattern emerges again when we hold all parameters constant except the Limit % used to determine the limit entry price. If we keep the Setup conditions constant, then there will obviously be more stocks that experience a price surge of 2% or greater the next day than there will be those that rise by at least 10%.

Variations with Different Limit % Entries

# Trades	Avg % P/L	Avg Days Held	Win Rate	Entry CRSI	# Days for Highest High	Limit %	Var. Entry Limits	Exit Method
5422	1.41%	4.77	67.54%	85	10	2	N	CRSI < 30
3078	2.13%	4.64	69.36%	85	10	4	N	CRSI < 30
1799	2.76%	4.53	70.71%	85	10	6	N	CRSI < 30
1119	3.23%	4.52	71.58%	85	10	8	N	CRSI < 30
745	4.09%	4.44	73.42%	85	10	10	N	CRSI < 30

We have confirmed that stricter entry rules result in fewer trades but higher average gains. Now let's look at the exits. Here we hold the setup and entry criteria constant, but vary the exit methods:

Variations with Different Exit Methods

# Trades	Avg % P/L	Avg Days Held	Win Rate	Entry CRSI	# Days for Highest High	Limit %	Var. Entry Limits	Exit Method
1834	2.36%	1.75	68.70%	85	10	6	N	Down Close
1825	2.62%	2.56	70.08%	85	10	6	N	CRSI < 40
1803	2.64%	4.07	70.55%	85	10	6	N	Close < MA(5)
1799	2.76%	4.53	70.71%	85	10	6	N	CRSI < 30
1743	2.95%	11.76	70.22%	85	10	6	N	CRSI < 20

As we predicted earlier, all five variations generated very similar numbers of trade signals. The range is from 1743 trades to 1834 trades, which represents only about a +/- 3% variation from the average value of 1801. However, the variation that uses the most lenient exit method (covering the position on the first day that the stock price closes down) generates an average gain that is only 80% of the strictest exit method.

Even more notable is the difference in the trade duration, which ranges from 1.75 days to 11.75 days! It's also interesting to compare the second and third lines in the table. Using an exit method of ConnorsRSI < 40 generated 1825 trade signals with an average gain per trade of 2.62% and an average duration of 2.56 days. Using an exit method of Close > MA(5) generated nearly the same number of trades (1803) and average gain (2.64%), but with an average trade duration of over 4 days. If you were selecting between these two variations only, it would obviously be better to use the first variation and take your profits more quickly. In this instance, holding the trade for a longer time produced very little incremental benefit.

Armed with this information, you will now be able to select strategy parameters that are most likely to produce the number of trade signals, average gains, and trade duration that best complement your overall trading plan.

Section 6

Using Options

Options trading has been a major growth industry over the past several years in the markets. This is because spreads have tightened, liquidity has increased, and the ability to easily trade complex options has never been simpler.

We'll now focus on applying options trading to the short-term market moves we have just learned. Like everything else in this Guidebook, there are definitive rules as to how to execute an options trade when a strategy signal triggers.

Here is what we know based upon the data:

1. The majority of the moves from entry to exit have been held a very short period of time (2-12 trading days).
2. The average gains per trade have been large – well beyond the normal distribution of prices over that short period of time.
3. A high percentage of the moves have been directionally correct.

When we look at this type of behavior, it can lead to many strategies but one strategy stands out (and this has been confirmed by professional traders). **The strategy is to buy front month, in-the-money long puts.**

Why front month, in-the-money long puts? Because they will move most closely to the stock itself. And the closer an option moves with the stock, the greater the gain will be on a percentage basis when the move is correct.

Here are the rules.

1. A signal triggers.
2. Buy the front month in-the money put. If you were to normally short 500 shares of the stock, buy 5 puts (every 100 shares should equal one put option contract).
3. Exit the options when the signal triggers an exit on the stock.

Let's go further:

1. What does in-the-money exactly mean here?

In this case it's defined as one to two strike prices in the money. If the stock price is at 48 and the interval between option contracts is \$5, then buy the 50 or 55 puts.

2. What does front month mean?

Because the holding period is so short, you want to trade the options whose monthly expiration is the closest. If the closest month is eight trading days or less from the front month's option expiration date (meaning the second Wednesday before or closer) use the following month as the one to trade.

3. What happens if I'm in the position and it expires, yet the signal for the stock is still valid?

In this case, roll to the next month. You're trading the stock signals so you want to have exposure to that signal.

4. What about liquidity and spreads?

There's some discretion here. There is no hard and fast rule as to what exactly liquidity means in options. Many traders look for minimum volume and/or open interest to determine liquidity.

Assuming there is active volume in the options, look at the spreads. If the option is trading 3.00 bid / 3.30 offer, the spread is 10%. Can you really overcome a 10% spread? Not likely. Now compare this to an option that's trading at 3.25 bid / 3.30 offer. This is far more acceptable and tradable.

5. What are the advantages of buying put options instead of shorting the stock?

Assuming the spreads and liquidity are there, the advantages are large:

1. Greater potential ROI on capital invested.
2. Less money tied up.
3. Less points at risk. This means if you short a stock at 50, your losses are theoretically unlimited. The options can only lose up to the premium you paid. So, if you bought the 55 puts, the risk is only the premium.
4. There's greater flexibility. For example, let's say the stock triggered a short signal at 50 and you paid \$5.50 for the 55 puts. If the stock immediately moves lower (let's say to 46); you have choices here. You can exit, or you can roll into the 50 put getting most of your money out and now turning this into a nearly free trade if you believe that prices will continue to fall.

There are numerous examples like this and you can find these types of strategy opportunities in most options books. But trading anything exotic or different than simply buying the puts is against the advice of the many professionals we posed this question to.

In conclusion, options provide traders with a good alternative to shorting the stock outright. The structured methodology for our strategies is: front-month, in-the-money, with equivalent sizing (1 option per 100 shares), and exiting when the signal exits.

The above options strategy, in many experts' opinion, is the best and most efficient strategy based upon the historical data from these signals.

Section 7

Additional Thoughts

1. As you have seen throughout this Guidebook, the *Short Selling Stocks with ConnorsRSI Strategy* has had large quantified edges when applied in a systematic manner.
2. There are literally hundreds of potential variations for you to use. By adjusting the input variables described in the rules, you can customize how the strategy will perform for you. Want more trades? Look at variations with a lower ConnorsRSI entry value or fewer lookback days for the highest high. Bigger average returns? Check out the variations that have the strictest entry criteria (high entry value for ConnorsRSI and high Limit %) and longest durations (ConnorsRSI 20 exit method). Want to get in and out of trades more quickly to reduce overnight risk and free up your capital for other trades? Try the variations that utilize the First Down Close exit method.
3. What about stops (and we include the answer to this in all our Strategy Guidebooks)?

We have published research on stops in other publications including in our book ***Short-Term Trading Strategies That Work***.

What we have found is that stops tend to lessen performance and in many cases they completely remove edges. Yes, it feels good when a stock keeps moving lower and lower and a stop got you out. On the other side, the research which is backed by up to two decades of test results on many short-term trading strategies suggests that stops get hit often and accumulate many, many losses. Few trading strategies can overcome these aggregated losses.

For many traders stops are a must. Psychologically it allows them to take trades, especially difficult trades. Whether you use them or not is a personal choice. On the whole though, the edges you see in this strategy and many other short-term strategies are lower when stops are applied to them. Again this is a personal choice only you can make for yourself. We know successful traders in both camps.

4. Slippage and commission were not used in the testing. Factor them into your trading (the entries are at limit prices so slippage is not an issue) and make sure you're trading at the lowest possible costs. Most firms are now allowing traders to trade for under 1 cent a share, so shop your business, especially if you are an active trader. The online brokerage firms want your business.

We hope you enjoyed this addition to the [Connors Research Trading Strategy Series](#). If you have any questions about this strategy please feel free to email us at info@connorsresearch.com

Appendix:

The ConnorsRSI Indicator

Larry Connors and Connors Research have been developing, testing, and publishing quantified trading strategies since the mid-1990's. During that time, we have had the opportunity to evaluate a great number of different technical indicators and to assess their effectiveness in predicting future price action. Now we've taken the next step and created an indicator of our own: ConnorsRSI. In this chapter we will describe the indicator and provide details on its calculation.

ConnorsRSI is a composite indicator consisting of three components. Two of the three components utilize the Relative Strength Index (RSI) calculations developed by Welles Wilder in the 1970's, and the third component ranks the most recent price change on a scale of 0 to 100. Taken together, these three factors form a *momentum oscillator*, i.e. an indicator that fluctuates between 0 and 100 to indicate the level to which a security is overbought (high values) or oversold (low values).

Before we discuss how to calculate ConnorsRSI, let's review Wilder's RSI. RSI is a very useful and popular momentum oscillator that compares the magnitude of a stock's gains to the magnitude of its losses over some look-back period. Wilder himself believed that 14 periods was the ideal look-back. We often use the shorthand notation RSI(14) for the 14-period RSI. The formula below computes RSI(14) for a series of price changes:

$$RSI = 100 - \frac{100}{1 + RS}$$

RS = Average Gain / Average Loss

Average Gain = [(previous Average Gain) x 13 + current Gain] / 14
 First Average Gain = Total of Gains during past 14 periods / 14

Average Loss = [(previous Average Loss) x 13 + current Loss] / 14
 First Average Loss = Total of Losses during past 14 periods / 14

Note: "Losses" are noted as positive values.

RS = Average of x days up closes / Average of x days down closes

If we wanted to compute RSI for a different number of periods (N), then we would replace 14 in the formula above with N, and replace 13 with N-1. Regardless of the number of periods used in the calculation, the result will always be a number between 0 and 100. Traders who use RSI(14) typically look for values greater than 70 to identify overbought conditions, and values less than 30 to indicate oversold conditions.

Our previous research has shown that using shorter look-back periods makes RSI more effective in predicting short-term price movements. We have published many strategies that utilize RSI(2), as well as several that use RSI(3) and RSI(4). Changing the number of periods also has an effect on the RSI levels

that best identify overbought and oversold conditions. For example, an RSI(2) value of less than 10 is usually a reliable indicator of an oversold condition, while an RSI(2) value over 90 is a good benchmark for an overbought condition.

Now let's turn our attention back to ConnorsRSI. As mentioned previously, ConnorsRSI combines three components, and as you might guess, they are all elements that our research has repeatedly shown to have significant predictive ability:

Price Momentum: As we just discussed, RSI is an excellent way to measure price momentum, i.e. overbought and oversold conditions. By default, ConnorsRSI applies a 3-period RSI calculation to the daily closing prices of a security. We will refer to this value as RSI(Close,3).

Duration of Up/Down Trend: When the closing price of a security is lower today than it was yesterday, we say that it has "closed down". If yesterday's closing price was lower than the previous day's close, then we have a "streak" of two down close days. Our research has shown that the longer the duration of a down streak, the more the stock price is likely to bounce when it reverts to the mean. Likewise, longer duration up streaks result in larger moves down when the stock mean reverts. In effect, the streak duration is another type of overbought/oversold indicator.

The problem is, the number of days in a streak is theoretically unbounded, though we could probably place some practical limits on it based on past experience. For example, we might observe that there have been very few instances of either an up streak or a down streak lasting for more than 20 days, but that still doesn't get us to a typical oscillator-type value that varies between 0 and 100.

The solution is two-fold. First, when we count the number of days in a streak, we will use positive numbers for an up streak, and negative numbers for a down streak. A quick example will help to illustrate this:

Day	Closing Price	Streak Duration
1	\$20.00	
2	\$20.50	1
3	\$20.75	2
4	\$19.75	-1
5	\$19.50	-2
6	\$19.35	-3
7	\$19.35	0
8	\$19.40	1

The closing price on Day 2 is higher than on Day 1, so we have a one-day up streak. On Day 3, the price closes higher again, so we have a two-day up streak, i.e. the Streak Duration value is 2. On Day 4, the closing price falls, giving us a one-day down streak. The Streak Duration value is negative (-1) because the price movement is down, not up. The downward trend continues on

Days 5 and 6, which our Streak Duration reflects with values of -2 and -3. On Day 7 the closing price is unchanged, so the Streak Duration is set to 0 indicating neither an up close nor a down close. Finally, on Day 8 the closing price rises again, bringing the Streak Duration back to 1.

The second aspect of the solution is to apply the RSI calculation to the set of Streak Duration values. By default, ConnorsRSI uses a 2-period RSI for this part of the calculation, which we denote as $RSI(\text{Streak},2)$. The result is that the longer an up streak continues, the closer the $RSI(\text{Streak},2)$ value will be to 100. Conversely, the longer that a down streak continues, the closer the $RSI(\text{Streak},2)$ value will be to 0. Thus, we now have two components -- $RSI(\text{Close},3)$ and $RSI(\text{Streak},2)$ -- that both use the same 0-100 scale to provide a perspective on the overbought/oversold status of the security we're evaluating.

Relative Magnitude of Price Change: The final component of ConnorsRSI looks at the size of today's price change in relation to previous price changes. We do this by using a Percent Rank calculation, which may also be referred to as a "percentile". Basically, the Percent Rank value tells us the percentage of values in the look-back period that are less than the current value.

For this calculation, we measure price change not in dollars and cents, but as a percentage of the previous day's price. This percentage gain or loss is typically referred to as the one-day return. So if yesterday's closing price was \$80.00, and today's price is \$81.60, the one-day return is $(\$81.60 - \$80.00) / \$80.00 = 0.02 = 2.0\%$.

To determine the Percent Rank, we need to establish a look-back period. The Percent Rank value is then the number of values in the look-back period that are less than the current value, divided by the total number of values. For example, if the look-back period is 20 days, then we would compare today's 2.0% return to the one-day returns from each of the previous 20 days. Let's assume that three of those values are less than 2.0%. We would calculate Percent Rank as:

$$\text{Percent Rank} = 3 / 20 = 0.15 = 15\%$$

The default Percent Rank look-back period used for ConnorsRSI is 100, or $\text{PercentRank}(100)$. We are comparing today's return to the previous 100 returns, or about 5 months of price history. To reiterate, large positive returns will have a Percent Rank closer to 100. Large negative returns will have a Percent Rank closer to 0.


The final ConnorsRSI calculation simply determines the average of the three component values. Thus, using the default input parameters would give us the equation:

$$\text{ConnorsRSI}(3,2,100) = [RSI(\text{Close},3) + RSI(\text{Streak},2) + \text{PercentRank}(100)] / 3$$

The result is a very robust indicator that is more effective than any of the three components used individually, and in most cases, also more effective than combining the three components independently.

Receive ConnorsRSI Readings for Free from the TradingMarkets Screener

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Show 25 entries

Price and Technical Data as of 05/20/2013													
Ticker	Close Price	ConnorsRSI	RSI2	RSI4	VR	HV10	HV100	ADX10	U/D	Return2	Return5	StretchMA5	%b
AHL	\$37.42	7.19	2.91	14.98	1	12.78	15.04	17.65	-4	-2.02	-3.31	-2.10	-0.22
BIOS	\$13.21	9.83	0.27	8.45	3	10.25	33.51	24.25	-8	-1.05	-3.93	-1.59	-0.09
BMRN	\$62.43	8.71	5.01	20.13	3	38.11	29.74	23.70	-4	-3.21	-9.32	-5.14	-0.09
CCU	\$31.25	5.91	1.77	9.74	2	21.40	18.23	18.79	-3	-4.08	-6.16	-4.15	-0.34
CMCSA	\$41.52	6.41	4.35	16.80	1	17.92	18.87	27.26	-3	-3.15	-3.87	-3.03	-0.37
CMCSK	\$39.86	7.14	3.88	17.11	1	17.88	17.18	31.56	-3	-3.21	-3.44	-2.98	-0.41
CPB	\$45.78	8.62	6.76	24.09	1	25.53	15.85	39.07	-3	-4.33	-1.36	-3.43	-0.48
CYNO	\$23.67	8.93	2.66	12.07	2	19.53	28.35	29.32	-4	-3.90	-5.66	-3.77	-0.23
DDC	\$14.98	8.71	0.48	7.69	--	12.99	0.00	25.08	-6	-0.93	-5.37	-1.27	0.04
EC	\$43.47	9.84	1.52	7.37	2	12.21	23.49	62.55	-3	-3.03	-2.64	-2.27	-0.41

The S&P 500 Low-Volatility Growth Portfolio

Are You Looking For Growth In Bull Markets & Safety In Bear Markets From Your Investments With S&P 500 Stocks?

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The S&P 500 Low-Volatility Growth Portfolio delivers trading signals for S&P 500 stocks, providing you an optimized balance of both growth and safety for your capital.

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Sample simulated historical back-test results from The S&P 500 Low-Volatility Growth Portfolio.

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
2001	3.29%	2.07%	2.14%	0.94%	0.22%	-1.44%	3.04%	0.65%	-1.38%	0.61%	1.37%	1.72%	+13.93%
2002	3.13%	0.36%	3.51%	0.61%	1.67%	0.49%	0.14%	2.40%	-0.85%	2.21%	0.25%	1.31%	+16.23%
2003	1.28%	0.13%	-0.73%	4.03%	5.92%	2.09%	1.40%	5.38%	-0.79%	4.36%	3.26%	4.29%	+34.90%
2004	1.19%	3.82%	0.49%	-1.53%	3.03%	2.69%	-1.65%	1.46%	1.72%	0.18%	4.23%	3.74%	+20.94%
2005	0.54%	3.69%	0.90%	-0.62%	3.17%	0.78%	4.49%	-1.07%	2.00%	-0.63%	3.87%	1.43%	+19.99%
2006	3.58%	2.39%	2.11%	1.54%	-3.22%	2.06%	1.54%	2.21%	2.51%	3.04%	-0.50%	2.48%	+21.41%
2007	1.89%	1.11%	1.91%	4.19%	2.30%	-1.11%	-0.36%	4.91%	2.57%	2.32%	-1.27%	-0.07%	+19.79%
2008	-3.89%	1.19%	-1.05%	1.70%	1.58%	-0.88%	2.18%	-0.53%	-0.53%	-1.46%	0.06%	0.01%	-1.76%
2009	0.03%	0.14%	-0.11%	0.00%	2.03%	0.64%	2.14%	3.32%	4.67%	-0.27%	3.55%	3.89%	+21.77%
2010	-1.49%	3.46%	4.54%	1.95%	-3.48%	-2.60%	5.31%	-1.26%	3.66%	4.49%	2.41%	2.66%	+20.93%
2011	0.87%	4.08%	3.09%	2.86%	0.82%	-0.33%	-2.24%	-3.00%	1.86%	3.64%	0.25%	0.74%	+13.11%
2012	1.28%	2.36%	2.51%	1.99%	-1.70%	3.82%	3.15%	0.33%	0.95%	-0.57%	0.29%	0.87%	+16.23%
2013	3.99%	0.48%	-	-	-	-	-	-	-	-	-	-	+4.49%

You Already Learned This Over the Past Decade... 'Buy and Hold' is Dead!

You understand that markets change -- as they have over the past decade. In order to take advantage of changing market conditions, The S&P 500 Low- Volatility Growth Portfolio is constantly reviewed, monitored, and updated by Connors Research.

The back-test results indicate that The S&P Low-Volatility Growth Portfolio consistently outperforms the S&P 500 on "buy & hold".

Sample equity curve for \$100K invested in The S&P 500 Low-Volatility Growth Portfolio vs. the S&P 500.

