

Understanding RSI(2)

By Michael Carr

The relative strength index, or RSI, is a popular technical indicator. It has an interesting history.

RSI is an oscillator that moves between (or oscillates) between values of 0 and 100 based on the price action. It's calculated so that the indicator moves towards 0 when prices are falling and 100 when the price is moving higher. The formula is shown below.

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

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

The formula uses a special type of moving average to find the average gain and loss. It's a Wilder moving average and is similar to an exponential moving average.

The formula and the concept behind RSI are helpful to traders. But the traditional calculation has some problems.

That formula shows the default parameters for the calculation, which is 14 days. Why is it 14 days? Well, according to J. Welles Wilder who created RSI, that's half the time between new moons.

Wilder developed the indicator for commodities markets and believed the cycles of the moon had an impact on commodity prices, especially agricultural markets.

However, I don't believe the time between new moons should be the basis of trading decisions.

Wilder published his book, *New Concepts in Technical Trading Systems*, in 1978. By the 1990s, Larry Connors had demonstrated that shorter periods of time were useful for traders.

The chart below compares the traditional 14-day calculation (in the middle of the chart) to the 2-day RSI, or RSI(2), at the bottom.



The 14-day RSI uses 70 to define an overbought extreme, and values below 30 are considered oversold. They are shown as dashed lines.

Overbought means prices have moved too fast to the upside (too fast, too far) and a short-term decline is now expected. Oversold means prices moved too far, too fast to the downside, and an upside move is expected.

Overbought and oversold indicators rely on the idea that prices are like a rubber band. When stretched too far, the rubber band snaps back.

The indicator attempts to duplicate the rubber band. In mathematical terms it relies on the idea that prices are mean reversing everything in the short run, and a move up should be followed by a move down and vice versa.

The middle part of the chart above shows no signals. The indicator never reached an overbought or oversold extreme.

The story is different for the RSI(2) at the bottom of the chart. The overbought level is moved to 90 and oversold is at 10.

When the indicator crosses those lines, a reversal does follow most of the time. The shorter calculation period makes the indicator more responsive to the market action.

Since we expect a reversal, the strategy is simple. We want to buy puts on overbought stocks, and we want to buy calls for oversold stocks.

Specifically,

- Buy a call when $RSI(2) < 5$ and price $>$ previous high if the close is above the 200-day moving average.
- Buy a put when $RSI(2) > 95$ and price $<$ previous low.

Rules for exits are slightly more complex:

- Immediately after entry, set an order to sell at a price that is 50% above your entry price. This 50% profit target uses a limit order.
- If the option is priced at more than \$1 when you open the trade, apply a 40% trailing stop.
- If the option is priced at less than \$1 when you enter the trade, a stop is not used.
- If the trade has been open for three days, exit at the next open.

This strategy has a long record of success and can be combined with multiple other strategies to develop a diversified trading plan.

Regards,



Michael Carr

Editor, *Precision Profits*

Money and Markets

P.O. Box 8378

Delray Beach, FL 33482 USA

USA Toll Free Tel.: (866) 584-4096

Email: <http://moneyandmarkets.com/contact-us>

Website: www.moneyandmarkets.com

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