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INDICATORS

Historical Volatility And Pattern Recognition

A market tends to move swiftly from periods of price consolidation to new levels. Here's *how to recognize the setup before a market moves out of a short-term consolidation, from the authors of Street Smarts: High Probability Short-Term Trading Strategies.*

by Laurence A. Connors and Linda Bradford Raschke

In *Street Smarts*, we introduced a trading strategy we use to pinpoint which markets are likely to move dramatically. In this article, we will share this strategy with you.

Markets oscillate from periods of low volatility to high volatility and back. Our research indicates that after periods of extremely low volatility, volatility tends to increase and price may move sharply. This increase in volatility tends to correlate with the beginning of short- to intermediate-term moves in price. We have found that we can identify which markets are about to make such a move by measuring the historical volatility and the application of pattern recognition. But before we go further, let's define a few concepts, beginning with our measurement of volatility.

A FEW DEFINITIONS

Historical volatility is the standard deviation of day-to-day logarithmic closing price changes (see sidebar, "Calculating historical volatility"), expressed as an annualized percentage. In simple terms, historical volatility is the degree to which prices fluctuate over a period. For example, a six-day historical volatility reading of 10% for a security trading at a price of $100 means that for the past six days, its annualized range would have been between $110 and $90 one standard deviation (68%) of the time.

A high-volatility reading indicates that the security is very volatile, while a low-volatility reading signals the lack of volatility. You can use different lookback periods. Often, in short-term lookbacks, such as six days, the historical volatility will fluctuate while the longer-term analysis, such as 100 days, will remain relatively stable. We have found that large price moves occur when the six-day historical volatility reading is less than 50% of the 100-day reading.

Next, we will detail the price patterns:

NR4, which stands for "narrow range 4," is simply today's range (the difference between the high and low) and is the narrowest daily range relative to the previous three days' daily ranges compared individually (Figure 1). This pattern was discussed by Toby Crabel in his *Day Trading with Short-Term Price Patterns*, and his research indicated that markets tend to experience larger than normal moves after NR4 days.

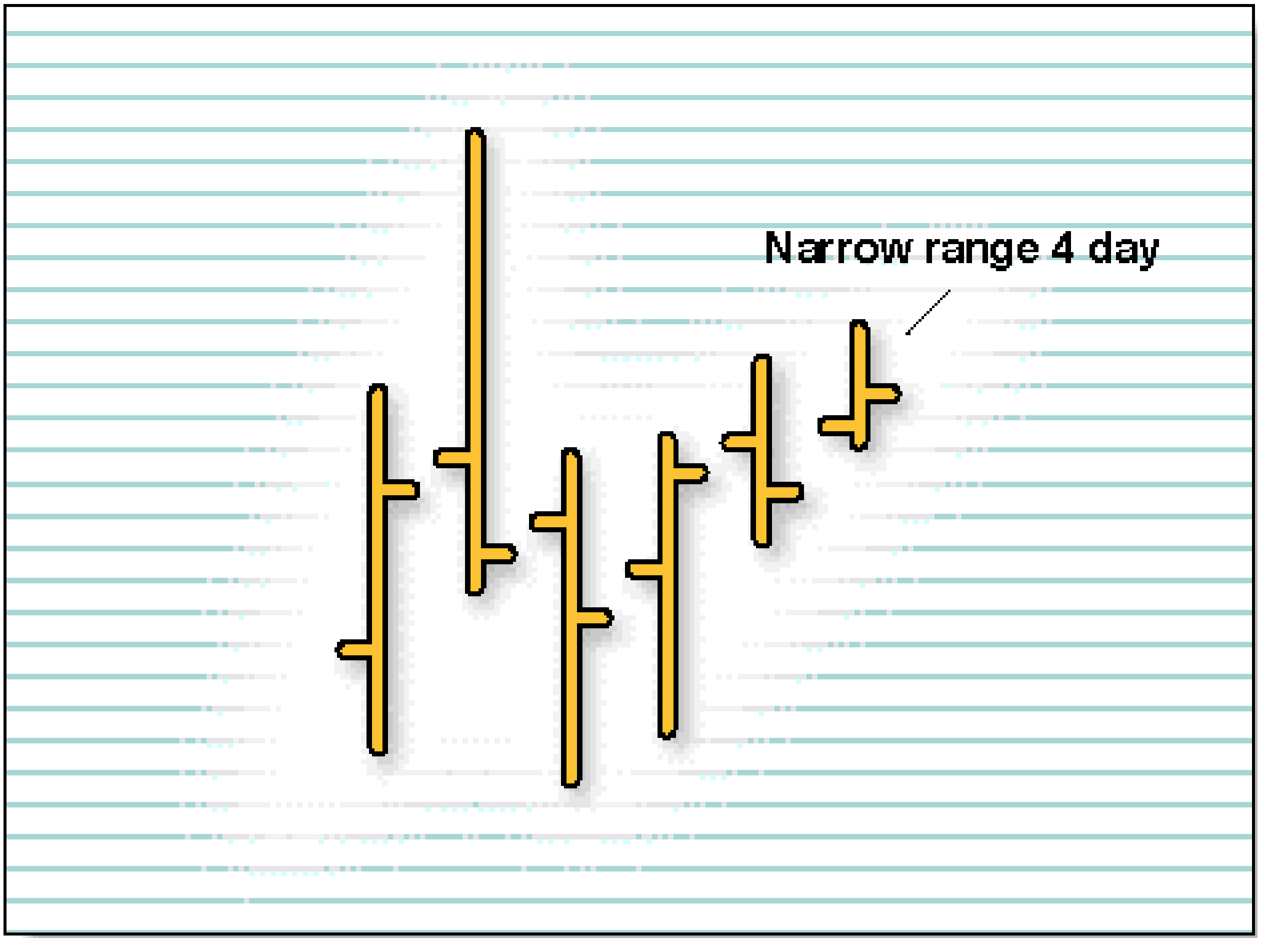

FIGURE 1: NARROW RANGE 4. *This day's range (the difference between the high and low) is the narrowest daily range relative to the previous three days' daily ranges compared individually.*

An inside day occurs when today's high is lower than yesterday's high and today's low is higher than yesterday's low (Figure 2). Crabel's research found that markets tend to experience larger than normal moves after this pattern.

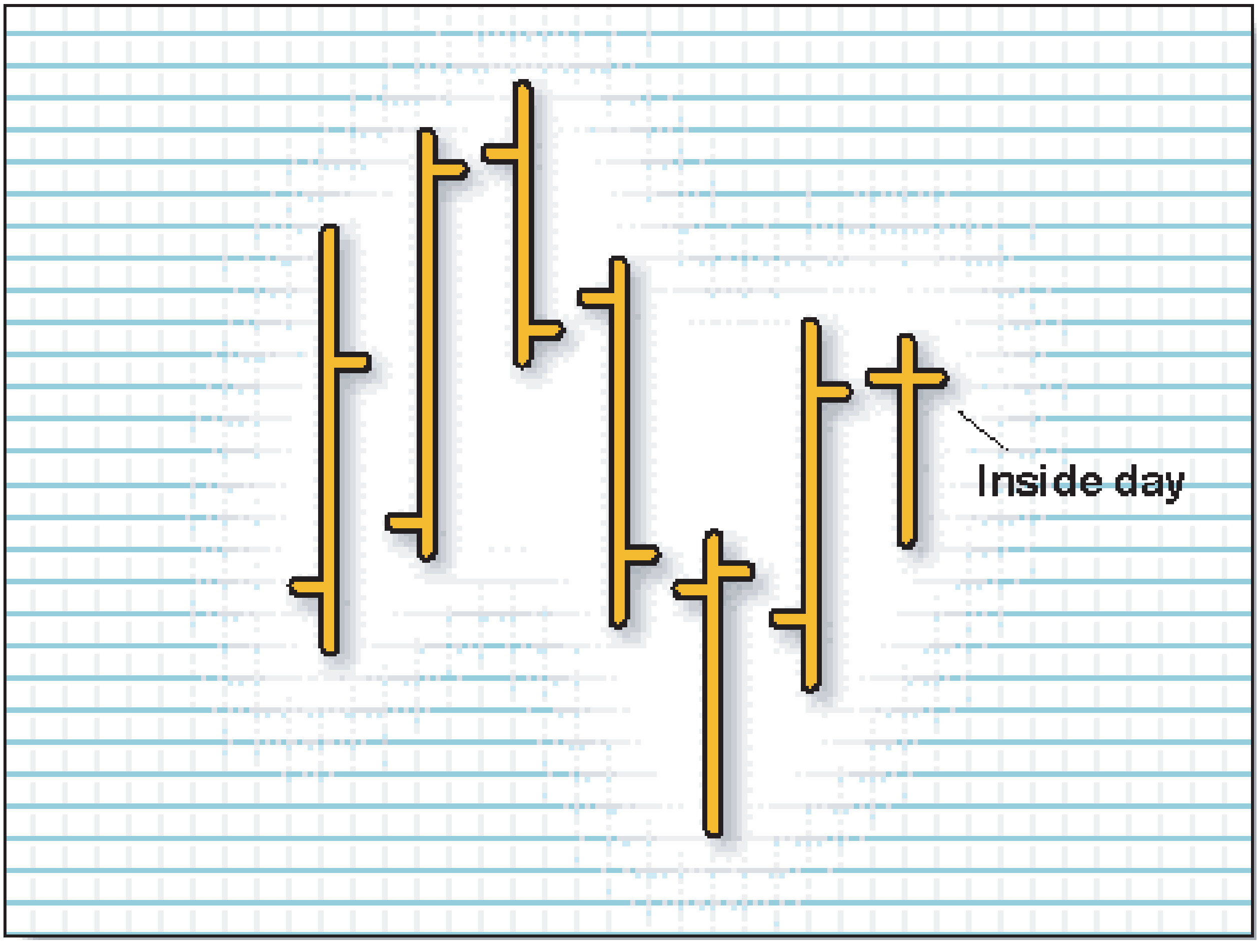

FIGURE 2: INSIDE DAY. *This day's trading low to high is within the previous day's trading low to high.*

THE SETUP

By combining a historical volatility pattern with either an NR4 pattern or an inside day pattern, you will be able to identify situations where a high-probability market is about to move. Here are the rules for the trade:

1. Calculate the ratio of the six-day historical volatility reading to the 100-day reading. We are looking for the six-day/100-day reading to be under the 50% level (that is, the six-day historical volatility reading is less than half of the 100-day historical volatility reading).

2. If rule 1 is met, then today (referred to as day 1) must be either an inside day or an NR4 day. When both rules 1 and 2 are met, a setup for a market move is established.

3. On day 2, place a buy-stop one tick above day 1's high and a sell-stop one tick below day 1's low.

4. If your buy-stop is filled, place an additional sell-stop one tick below day 1's low (the reverse applies if your sell-stop is hit first). This additional sell-stop is done on the entry day only and expires on the close of this day. If you are put into a trade, then use a trailing stop to lock in your profits.

Now let's look at some examples. Our first is April heating oil futures (Figure 3). On February 12, the ratio of the six-day historical volatility to the 100-day historical volatility reading dropped to less than 50%. In addition, the trading range for that day qualified as both an inside day and an NR4 day. The next day, February 13, the market moved dramatically higher by nearly two cents and closed at the highs for the day. The risk on the trade was just over half a cent.

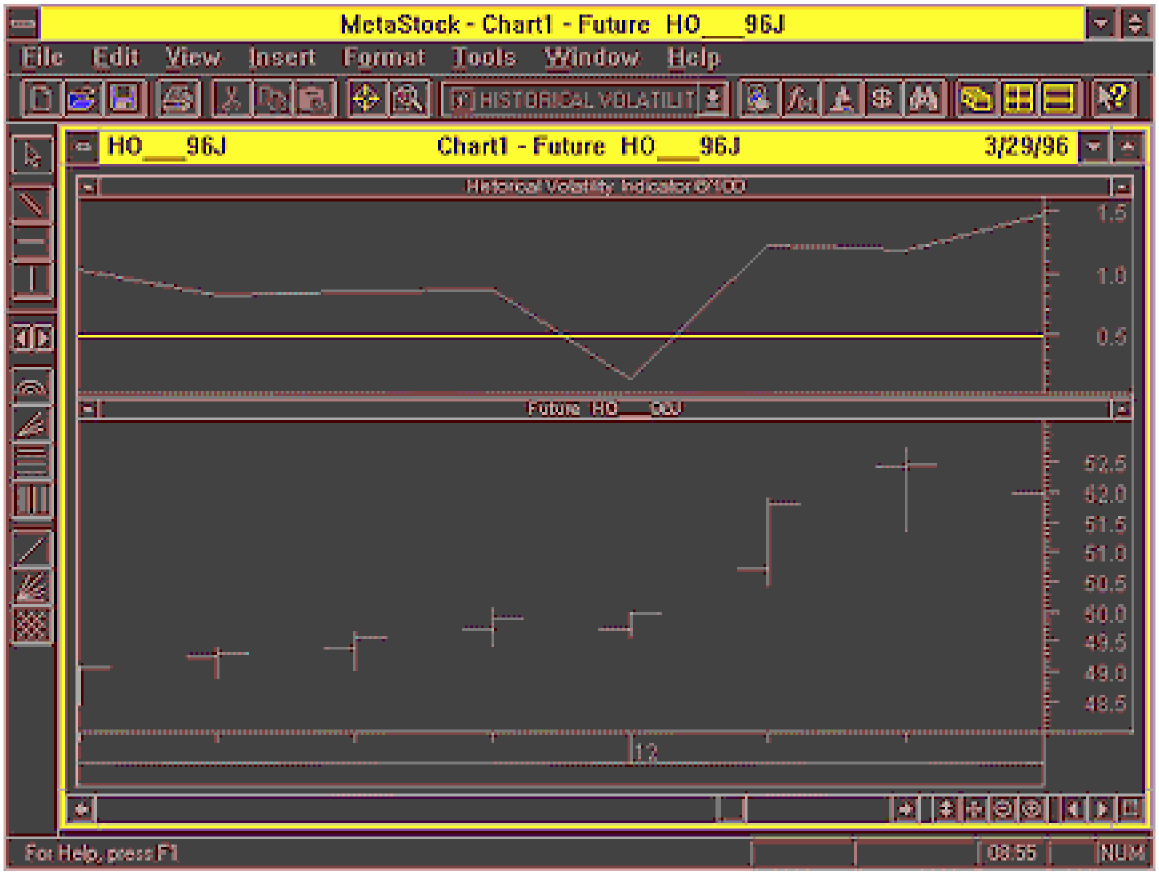

FIGURE 3: APRIL HEATING OIL. *On February 12, the ratio of the six-day historical volatility to the 100-day historical volatility reading dropped to less than 50% (top chart). In addition, the trading range for that day qualified as both an inside day and an NR4 day. The next day, February 13, the market moved higher.*

Our second example is May coffee (Figure 4). On February 22, the ratio of the six-day historical volatility to the 100-day historical volatility reading was less than 50%. The trading range for the day qualified as an NR4. On February 23, May coffee fell precipitously.

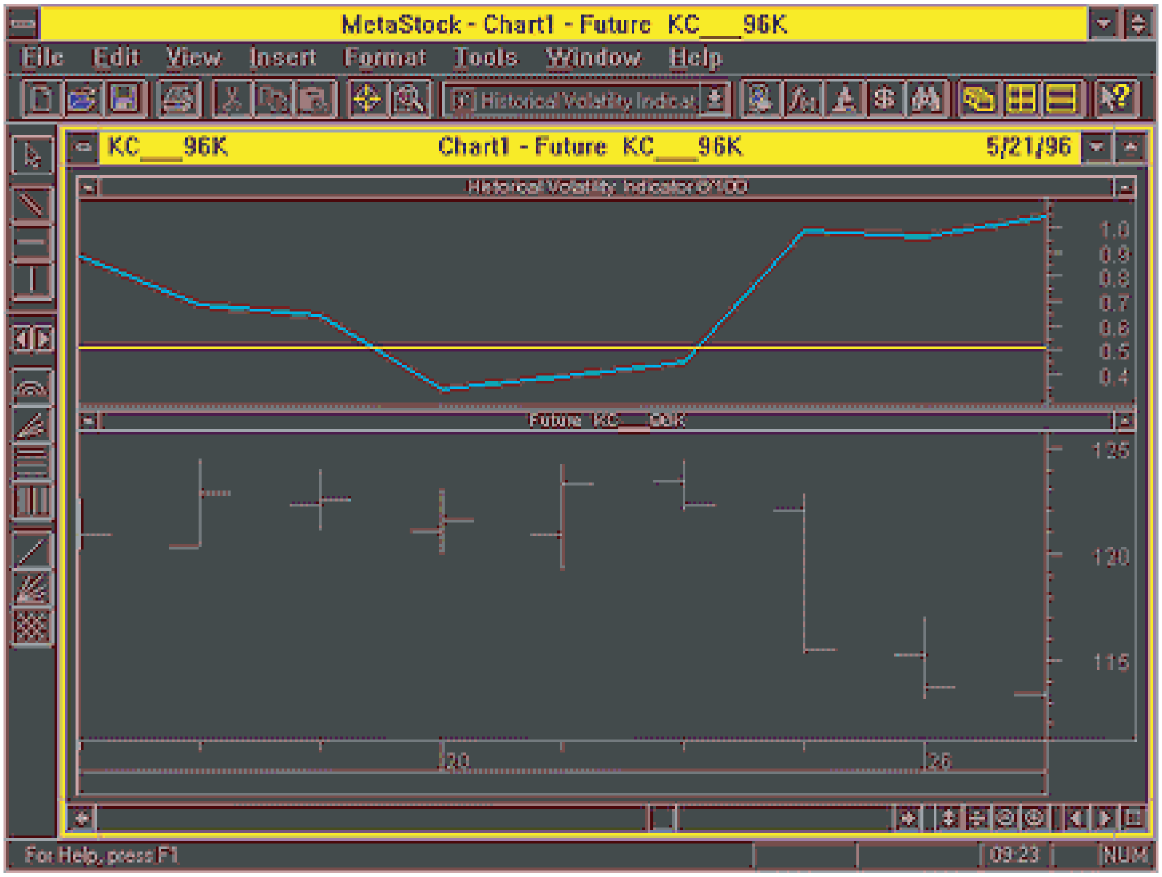

FIGURE 4: MAY COFFEE.

CONCLUSION

This trading strategy uses both a quantitative technique (historical volatility) and pattern recognition (inside days and NR4 days) to identify markets that have reached a period of short-term stability. Experienced traders know that it is from those short-term consolidation periods that markets can move dramatically. By combining these two techniques, you have the ability to spot these trading opportunities.

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RELATED READING

Connors, Laurence A., and Linda Bradford Raschke [1995]. *Street Smarts: High Probability Short-Term Trading Strategies,* M. Gordon Publishing Group, Oceanview Financial Research, 6243 Tapia Drive, Malibu, CA 90265, 310 589-3165.

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