



# Spike-low bottoms

Historical testing of a one-bar price pattern reveals a useful confirmation signal the day after the pattern. Find out the probabilities of catching a reversal.

BY CURRENCY TRADER STAFF

**N**owhere is the adage “If it looks too good to be true, it probably is” more applicable than in trading. Promises of 90-percent win rates and easy millions are marketing hype aimed at the unwary masses. Any trader who has spent enough time in the markets to develop successful trading techniques knows how rare viable ideas are — for every useful methodology, 10 (or 20, etc.) others have likely been consigned to the dustbin of history.

Price chart analysis can be particularly deceptive. The human eye is hardwired to see what it wants to see — namely, profitable trade opportunities that are usually obvious only in retrospect — and overlook pitfalls. It’s only when a price pattern is quantified and tested that its warts become apparent.

For example, looking at Figure 1 might lead you to believe that selling on the close of bars with highs noticeably higher than the immediately preceding highs and buying on the close of bars with lows noticeably lower than the immediately preceding lows would be a good entry technique.

Actually defining “noticeably higher/lower” casts an unfavorable light on this trade premise. Figure 2 shows what happens if we define noticeably higher or lower as a high 32 pips above the previous high or a low 33 pips below the previous low — which are the smallest respective differences of the selected bars from Figure 1.

Yes, several worthwhile entry points are identified, but so are many more useless “signals.”

However, this doesn’t mean the original pattern concept cannot identify useful trade points or be used as the basis of a trading strategy. Perhaps it simply means there’s more work to be done.

### What are we trying to exploit?

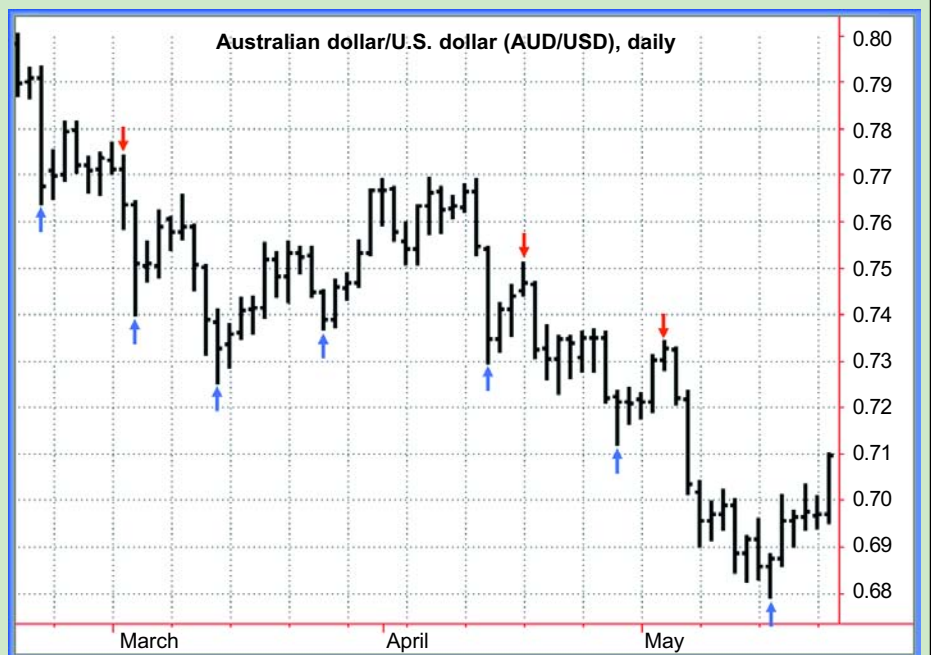
Analysis software makes it easy (too easy, some might argue) to crunch numbers a million different ways — optimize trade signals, find very spe-

cific patterns and market conditions, etc. Unfortunately, this often results in developing trade ideas that have no basis in logic or reality — they are simply coincidences that computing power has tricked us into thinking have significance. This is what money-manager Nassim Taleb referred to as being “fooled by randomness.”

To avoid this problem, it’s helpful to first define the *type* of price behavior you’re trying to capture and determine whether the trade premise it implies makes sense. In this case, what initially grabbed our attention were the price

FIGURE 1 — FIRST IMPRESSIONS

*Visual chart analysis is risky because our eyes are drawn to retrospective trade “opportunities” and tend to overlook risks and other flaws.*



Source: TradeStation

reversals, which we noticed were often preceded by bars that had “spiked” significantly higher or lower than their preceding bars.

It’s not difficult to understand what this behavior represents and whether it’s a logical trade idea. It makes sense that a price move might be capped by a strong thrust that would overextend or “exhaust” the market just before it changed direction. This means what we are trying to exploit is price exhaustion. What we need to do is define and test price spikes to determine if they are advantageous reversal signals.

### Defining the pattern

The strategy outlined here attempts to identify bottoms (and buying points) using a specific definition of a spike-low bar. Figure 3 shows an example the Australian dollar/U.S. dollar rate (AUD/USD). After making lower highs, lower lows and lower closes for several days, AUD/USD fell sharply during the Feb. 8 trading session, only to rally intraday and close very near the high of the day (using 5 p.m. as the close of the session).

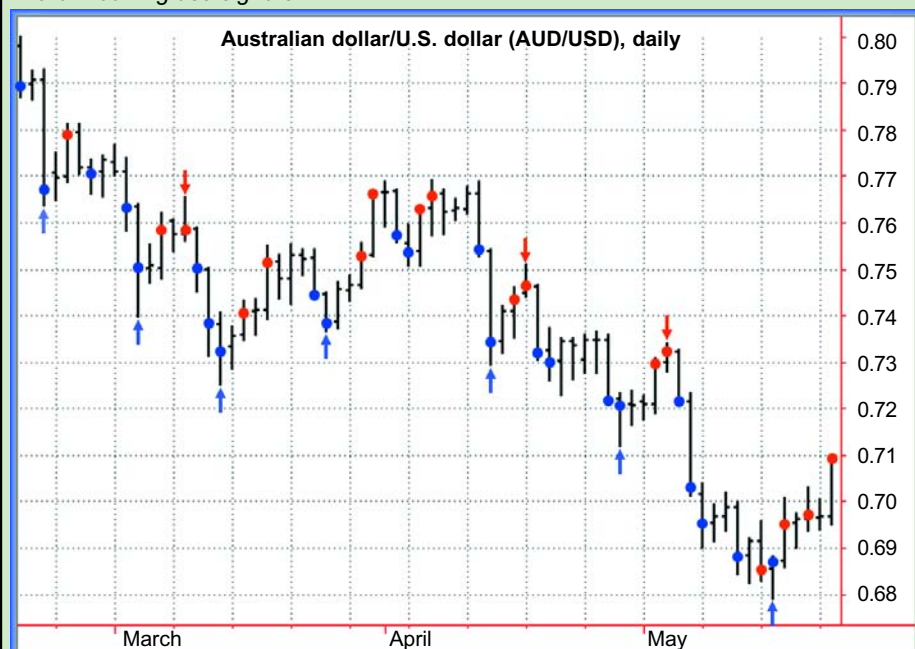
Let’s first consider the broader market conditions: AUD/USD had been consolidating since late-November 2004 after a huge rally that started in September. The market had made higher lows on Dec. 10, 2004 and Jan. 8, 2005 and lower highs on Dec. 21 and Jan. 28, as price kept swinging in an increasingly tight range. Chartists — noticing this price behavior — would likely be inclined to speculate whether the Feb. 8 low was going to mark another higher low in this consolidation. (See the [Forex Diary in the February issue of \*Currency Trader\*](#) to read about a trade related to this consolidation.)

Now let’s look at the price spike itself. We compared it to similar characteristics that separated bars that

*continued on p. 26*

**FIGURE 2 — THE TRUTH OF THE MATTER**

*Using specific criteria to define bars with highs and lows that are “noticeably” higher than the preceding bars identifies a few useful trade opportunities but far more meaningless signals.*



Source: TradeStation

**FIGURE 3 — SPIKE-LOW DAYS**

*The marked bars met specific criteria for declining a certain amount below the previous bar but reversing intraday to close high within the daily range. These “spike-low” bars will form the basis of a trading strategy that attempts to catch bottoms in the AUD/USD rate.*



Source: TradeStation



**TABLE 1 — SPIKE-LOW BAR STATISTICS**

*Days 1 through 4 showed the most potential for positive moves; days 5 through 8 had a mildly negative bias.*

	Day 1	LUM	LDM	D2	LUM	LDM	D3	LUM	LDM	D4	LUM	LDM	D5	LUM	LDM
<b>Avg.</b>	0.20%	0.74%	-0.51%	0.14%	1.04%	-0.73%	0.32%	1.17%	-0.88%	0.24%	1.42%	-1.03%	-0.03%	1.55%	-1.26%
<b>Med.</b>	0.03%	0.53%	-0.34%	0.04%	0.78%	-0.65%	0.19%	0.99%	-0.88%	0.22%	1.21%	-0.88%	-0.14%	1.21%	-0.88%
<b>Max.</b>	3.19%	4.50%	0.00%	2.70%	4.50%	0.00%	3.49%	5.99%	0.00%	2.92%	5.99%	0.00%	3.25%	5.99%	-0.14%
<b>Min.</b>	-1.13%	0.00%	-1.76%	-2.19%	0.01%	-2.29%	-1.38%	0.01%	-2.88%	-2.86%	0.01%	-3.04%	-3.88%	0.01%	-4.48%
<b>%&gt;0</b>	<b>52.00%</b>			<b>52.00%</b>			<b>56.00%</b>			<b>64.00%</b>			<b>44.00%</b>		
	D6	LUM	LDM	D7	LUM	LDM	D8	LUM	LDM	D9	LUM	LDM	D10	LUM	LDM
<b>Avg.</b>	-0.25%	1.61%	-1.48%	-0.33%	1.73%	-1.79%	-0.15%	1.76%	-1.82%	0.05%	1.83%	-1.94%	0.16%	2.09%	-2.35%
<b>Med.</b>	-0.50%	1.21%	-1.21%	-0.07%	1.35%	-1.73%	-0.29%	1.38%	-1.73%	0.17%	1.39%	-1.73%	-0.44%	1.54%	-1.96%
<b>Max.</b>	3.26%	5.99%	-0.14%	4.34%	5.99%	-0.14%	3.94%	5.99%	-0.14%	4.03%	5.99%	-0.14%	6.71%	7.30%	-0.67%
<b>Min.</b>	-2.72%	0.01%	-4.48%	-3.54%	0.19%	-4.48%	-3.33%	0.19%	-4.48%	-5.33%	0.19%	-5.83%	-6.60%	0.19%	-7.96%
	D11	LUM	LDM	D12	LUM	LDM	D13	LUM	LDM	D14	LUM	LDM	D15	LUM	LDM
<b>Avg.</b>	0.25%	2.20%	-2.23%	0.09%	2.32%	-2.32%	0.54%	2.47%	-2.39%	0.67%	2.57%	-2.44%	0.78%	2.73%	-2.50%
<b>Med.</b>	0.47%	1.54%	-1.84%	0.04%	1.64%	-1.84%	0.73%	1.84%	-1.96%	1.09%	1.88%	-1.96%	1.09%	1.88%	-1.96%
<b>Max.</b>	6.45%	7.54%	-0.14%	5.64%	7.54%	-0.14%	7.85%	8.17%	-0.14%	7.79%	8.31%	-0.14%	9.19%	9.69%	-0.14%
<b>Min.</b>	-5.11%	0.20%	-7.96%	-5.32%	0.30%	-7.96%	-5.12%	0.30%	-7.96%	-4.87%	0.30%	-7.96%	-6.28%	0.30%	-7.96%
	D16	LUM	LDM	D17	LUM	LDM	D18	LUM	LDM	D19	LUM	LDM	D20	LUM	LDM
<b>Avg.</b>	0.88%	2.93%	-2.54%	0.70%	2.98%	-2.63%	0.70%	3.02%	-2.72%	0.73%	3.08%	-2.79%	1.02%	3.26%	-2.86%
<b>Med.</b>	0.58%	1.88%	-1.96%	0.50%	1.88%	-2.16%	0.83%	1.88%	-2.35%	1.52%	2.11%	-2.35%	1.46%	2.58%	-2.35%
<b>Max.</b>	9.91%	10.32%	-0.14%	9.17%	10.46%	-0.14%	8.57%	10.46%	-0.14%	8.62%	10.46%	-0.14%	7.93%	10.46%	-0.14%
<b>Min.</b>	-5.85%	0.30%	-7.96%	-6.68%	0.30%	-7.96%	-6.44%	0.30%	-7.96%	-5.32%	0.30%	-7.96%	-5.23%	0.30%	-7.96%

preceded reversals or corrections from those that did not. We used the following definition for the pattern:

1. Today's low must be at least 25 pips lower than the previous low.
2. Today's low must be lower than the previous 10 lows.
3. Today's close must be in the top 25 percent of the bar's range.

This definition attempts to capture specific price behavior. First, the bar's low must not only be lower than the preceding bar by a certain amount, it must also be lower than the previous 10 lows. This ensures the market has been declining before the spike-low bar, which increases the potential for a bottom to form. If we used only the first criterion, the bar could simply be a one-day aberration in a series of uptrending bars. Second, the high close indicates buyers came in and dominated trading in a bearish environment — not necessarily a guarantee

of a reversal, but a sign conditions for one could be developing.

We initially used more rigid pattern criteria, but found too few past examples in the analysis period of January 1998 to February 2005. If you can only find a handful of similar patterns, you have two strikes against you: You can't be as confident in the conclusions you draw from the pattern than you could if you had many examples, and even if the pattern was reliable, it doesn't provide many trade opportunities.

Table 1 shows the average and median returns based on entering on the close of the bars that satisfied these criteria (25 bars total) and exiting on the closes of each of the following 20 days. Also shown are the largest intraday up moves and down moves (LUM and LDM, respectively) that occurred at each interval, which show how much potential profit and risk existed. Finally, the percentage of positive returns (% > 0) are shown for days 1 through 10.

For example, the average move from

the close of the spike-low bar to the subsequent close (day 1) was .20 percent; the median move was .03 percent. The maximum positive close-to-close move was 3.19 percent and the maximum negative close-to-close move was -1.13 percent. The average largest up move from the close of the spike-low bar to day 1's high was .74 percent, while the average largest down move from the close to day 1's low was -.53 percent. The single largest close-to-high move was 4.5 percent and the largest close-to-low move was -1.76 percent. Day 1's close was higher 52 percent of the time.

One of the most obvious aspects of Table 1 is the general tendency for gains in days 1 through 4 (both the average and median returns for each day are positive, and the winning percentages climb from a low of 52 to 64 percent) followed by losses in days 5 through 8.

Although the probable gains implied by the average and median figures are

not particularly large (assuming we would not be lucky enough to sell at the absolute highs), they still point to the potential for the market to move higher after spike-low bars.

### Following up on follow through

One way to approach this information would be to simply construct a trading strategy that went long on the close of qualifying spike-low bars. The statistics regarding the close-to-close moves and intraday maximum up and down moves could be used to set logical stop-loss and exit levels.

day 1 closed lower, AUD/USD tended to continue to lose ground. This simple observation — that the direction of the close on day 1 provides an indication of the continued success of the pattern — can be used a simple filter.

Table 2 shows the statistics for days 1 through 10 when day 1 closed higher than the entry day. Days 2 through 6 had larger gains — and higher probabilities of gains — than the same days in Table 1. Also, the typical largest down moves are smaller, which means in these instances the potential reward is greater and the potential risk is reduced. As a result, a lower close on

median value was -.29 percent. The following rules incorporate this new information to establish appropriate stop-loss and profit-target levels:

1. Go long on the close of a spike-low day.
2. Exit with a loss if day 1 closes below the entry price.
3. Exit with a profit if price rallies by 1.7 percent. (This number is just below the more conservative median figure, which is used to improve the odds of success.)
4. Exit any trade that is still open by the close of day 4.

**TABLE 2 — WHEN DAY 2 CLOSES HIGHER**

*Of the 25 trades included in Table 1, 13 closed higher the day after entry (Day 1). The upside tendency through day four shown in Table 1 is even more pronounced here.*

	Day 1	LUM	LDM	D2	LUM	LDM	D3	LUM	LDM	D4	LUM	LDM	D5	LUM	LDM
<b>Avg.</b>	0.76%	1.16%	-0.21%	0.69%	1.58%	-0.34%	0.79%	1.72%	-0.46%	1.03%	2.04%	-0.49%	0.82%	2.21%	-0.61%
<b>Med.</b>	0.53%	0.71%	-0.20%	0.68%	1.44%	-0.20%	0.69%	1.44%	-0.28%	1.13%	1.73%	-0.29%	1.07%	1.73%	-0.59%
<b>Max.</b>	3.19%	4.50%	0.00%	2.70%	4.50%	0.00%	3.49%	5.99%	0.00%	2.92%	5.99%	0.00%	3.25%	5.99%	-0.14%
<b>Min.</b>	0.03%	0.32%	-0.59%	-0.55%	0.46%	-0.99%	-0.94%	0.48%	-1.29%	-0.60%	0.73%	-1.29%	-1.37%	0.73%	-1.77%
<b>%&gt;0</b>	<b>100.00%</b>			<b>84.62%</b>			<b>76.92%</b>			<b>84.62%</b>			<b>53.85%</b>		
	D6	LUM	LDM	D7	LUM	LDM	D8	LUM	LDM	D9	LUM	LDM	D10	LUM	LDM
<b>Avg.</b>	0.51%	2.29%	-0.77%	0.58%	2.42%	-0.99%	0.58%	2.45%	-1.00%	0.88%	2.50%	-1.06%	1.48%	2.93%	-1.56%
<b>Med.</b>	-0.06%	1.73%	-0.65%	0.20%	1.73%	-0.65%	0.35%	1.73%	-0.65%	0.43%	1.73%	-0.65%	0.84%	1.73%	-1.38%
<b>Max.</b>	3.26%	5.99%	-0.14%	4.34%	5.99%	-0.14%	3.94%	5.99%	-0.14%	4.03%	5.99%	-0.14%	6.71%	7.30%	-0.67%
<b>Min.</b>	-1.64%	0.73%	-1.96%	-2.67%	0.73%	-3.28%	-1.61%	0.73%	-3.28%	-1.32%	0.73%	-3.28%	-2.18%	0.85%	-3.28%

For example, from days 1 through 4, the average largest up move was 1.42 percent and the average largest down move was -1.03 percent. The LUM number could be used as a profit target and the LDM number could be used as the initial stop-loss. (A more conservative approach would be to use the smaller median LUM of 1.21 percent.)

However, a closer look at the performance statistics suggests a way to isolate better trade opportunities and design an improved trade strategy. When day 1 closed higher than the entry day, the gains were more likely to persist over subsequent days. When

day 1 can be used as an initial stop: Hold only those positions that close higher on day 1.

The table also shows both the typical gain and the odds of a gain decrease on day 5. Also, day 6 has a negative median close-to-close move (-.06 percent), even though the average gain is positive (.51 percent) — a sign of instability. It still seems as if the best combination of largest typical move and odds of success are greatest in days 2 through 4. On day 4, the average LUM was 2.04 percent and the median LUM was 1.73 percent. The average LDM was -.49 percent and the

Applying these rules to the 25 original spike-low pattern examples resulted in 12 trades being stopped out on day 1 for a total loss of 486 pips (\$4,860.00). Of the 13 remaining trades, seven hit the 1.7 percent profit target, four were exited on the close of day four with smaller profits, and two were exited on the close of day 4 with losses. The total profit was 1303 pips (\$13,030.00), for a net profit of \$13,030.00 - \$4,860.00 = \$8,150.

The rules obviously leave room for modification. Figure 4 sorts the day 4 LUMs and shows that 7 of 13, or 54

*continued on p. 28*



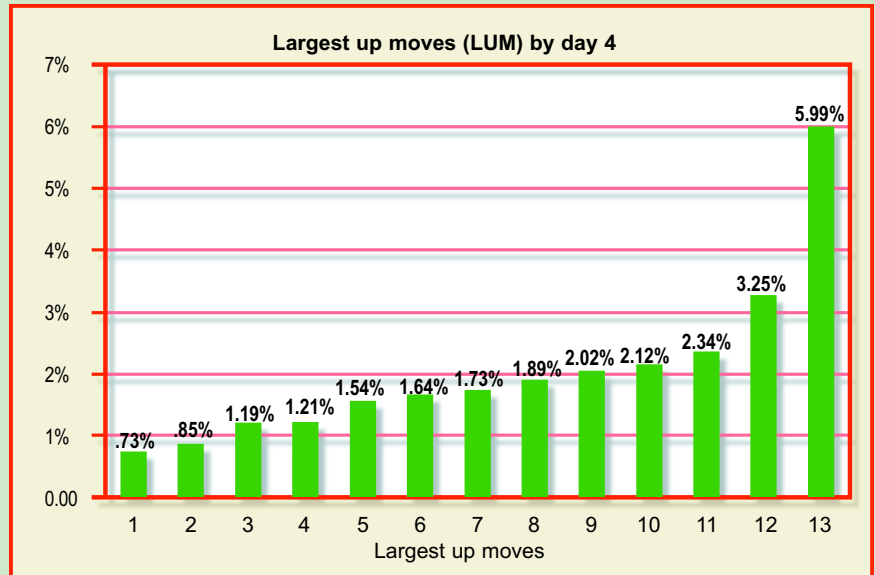
percent, were 1.73 percent or larger. However, 9 of 13, or 69 percent, were 1.54 percent or larger, which means the strategy's winning percentage could be increased by accepting a more modest profit target. (Notice also that only four of the signals produced LUMs above 2.04 percent, which was the average LUM by day 4.) This type of analysis can be used to gauge the likelihood the strategy will reach different profit targets on different days and adjusting a position as necessary.

Finally, another worthwhile idea to explore is whether the profit target actually helps the system, or whether an alternate approach — say, a trailing stop — would give the strategy more of an opportunity to capitalize on the large moves that can occur from time to time.

*This month's Forex Trade Diary describes a trade based on this strategy.*

**FIGURE 4 — LARGEST UP MOVES BY DAY 4**

*Of the 13 trades that satisfied the criterion of closing higher the day after entry, nine produced up moves larger than 1.5 percent by day 4. There was one exceptionally large trade (5.99 percent).*



Source: TradeStation

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