

# Pipe **BOTTOM** reversals

Pipe bottoms are highly visible chart patterns that often precede sizable reversals. But beware of imposters when searching for high-probability patterns.

BY THOMAS N. BULKOWSKI

**A**nalysis of double bottoms indicates that patterns in which the bottoms are closer together perform better than those in which the bottoms are far-

ther apart. This makes sense because two bottoms a year apart are less likely to be thought of as a double bottom than bottoms three months apart.

Taking this to the extreme, what happens if the bottoms are a week apart? Answering that question leads to the discussion of pipe patterns.

The pipe bottom is a reversal pattern that appears as two adjacent price bars on a weekly chart. Pipe 4 in Figure 1

(below) is a good example. The bars should have similar (but not necessarily equal) price lows, and the bottoms of the bars should be highly visible — not camouflaged by a nearby bar trading near the same level. A buy signal occurs when price closes above the highest high in the two-week pattern. Figure 1 shows several examples of pipe bottoms.

## Identifying the pattern

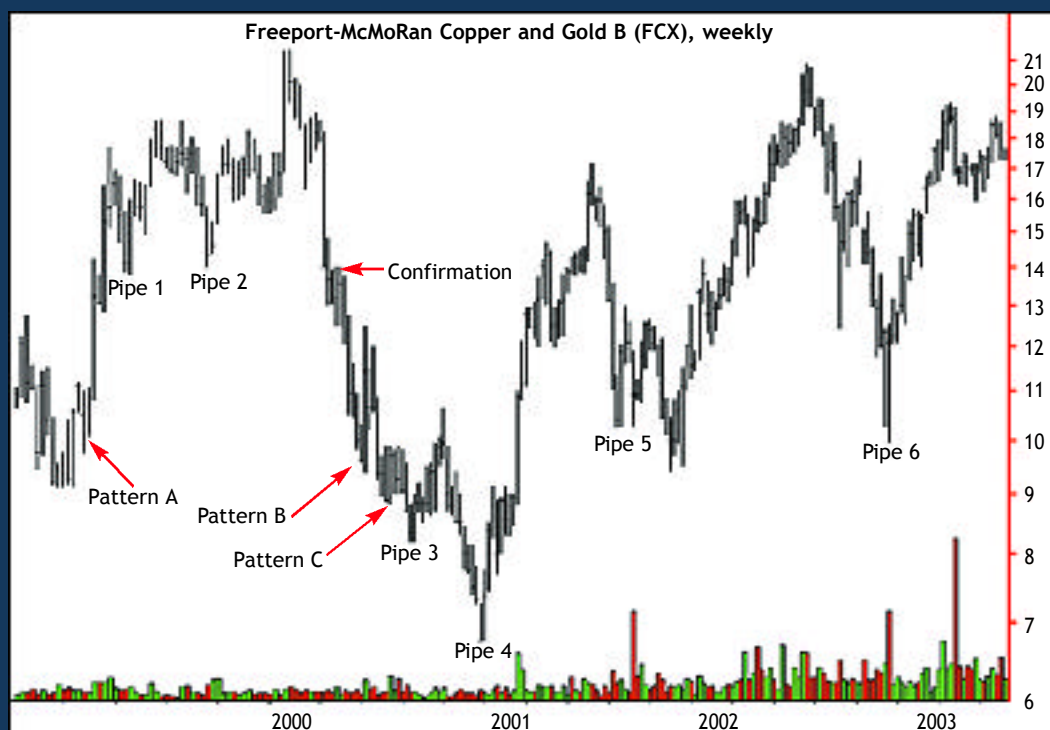
Table 1 (opposite page) shows guidelines for identifying the best pipe bottoms. These are not rules chiseled in stone, so allow variations in your pattern selections based on market context.

Pipe bottoms should be traded on the weekly time frame because those that occur on daily charts don't perform as well as their weekly counterparts. Pipes usually reverse the prevailing price trend, often appearing at the base of V-shaped bottoms (those bottoms preceded and followed by sharp, dramatic down and up moves, respectively, as was the case with pipe 6 in Figure 1).

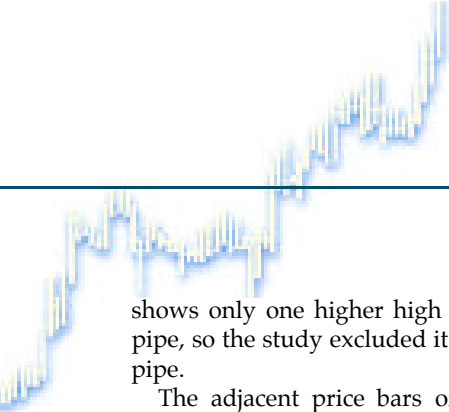
The study used to identify pipe patterns for this article used a two-week filter, meaning the two weeks preceding the pipe needed to make lower highs. This guaranteed the pipe was occurring in at least a short-term downtrend. Pattern A

**FIGURE 1** PIPE OR NO PIPE?

*Pipe bottoms have several key characteristics. Pipes 1 through 6 are valid pipe bottoms, but patterns A, B and C have flaws.*



Source: Proprietary software (Thomas Bulkowski)



shows only one higher high before the pipe, so the study excluded it. It is not a pipe.

The adjacent price bars of the pipe should overlap, especially the portions of the bars below the surrounding price lows. Pipes 1, 3 and 6 in Figure 1, for example, have “good” overlap: the range of one bar does not fall dramatically outside the range of the other bar. However, pipes 4 and 5 are also valid because the bottom portions of the bars have good overlap, even though the tops do not. There is no set percentage or dollar value for how much overlap is enough, but the pipe examples in the figures in this article can serve as a guide.

Pipes should be unusually long, certainly longer than most other price spikes over the past year. This is not a crucial guideline, but it tends to weed out marginal and unobvious patterns. Also, the pipe should be highly visible — there shouldn’t be any nearby bars at price levels close to the pipe-pattern low. Pipe 4 in Figure 1 is a good example: The twin bars of the pipe are distinct from the immediately surrounding price action. Even pipe 1 has three weeks of higher price action before the wide range bar that trades at the same level as the pipe lows.

Now consider potential pipe-pattern C. The bars right before and after this potential pipe descend nearly as low as the spike-lows of the pipe (making the pattern part of a congestion period), invalidating the pattern. This is an important point: If a pipe is not obvious, people may not trade it, resulting in anomalous behavior.

Pipe pattern performance increases when volume is higher on the left spike than on the right spike, which occurs 53 percent of the time. In bull markets, a pipe with higher left-spike volume is followed by an average rise of 48 percent,

**TABLE 1** PIPE BOTTOM CRITERIA

*The following guidelines (except for Confirmation) are not hard-and-fast rules, but they are useful for identifying higher-probability pipe patterns.*

| Criterion              | Guideline                                                                                     |
|------------------------|-----------------------------------------------------------------------------------------------|
| Time frame             | Pipe bottoms appearing on weekly charts perform best.                                         |
| Preceding price action | Look for a downward price trend: At least two weeks of higher highs must precede the pattern. |
| Spike overlap          | Look for two adjacent bars that share prices.                                                 |
| Long spike             | Look for spikes that are longer than spikes over the past year.                               |
| Visibility             | The twin spikes of the pipe should stand out and not be part of a congestion region.          |
| Higher left volume     | Pipes with higher volume on the left spike than on the right perform better.                  |
| Confirmation           | Always wait for confirmation — a close above the highest high in the pipe.                    |

**FIGURE 2** UNEQUAL LOWS

*Pipe bottoms with unequal low prices, such as pipe 1, tend to outperform pipes with equal lows.*



Source: Proprietary software (Thomas Bulkowski)

vs. 42 percent for pipes with higher right-spike volume. In bear markets, the results are 32 percent and 27 percent, respectively.

### Confirming the pattern

A pipe bottom should be traded only when confirmed. This is a rule, not a

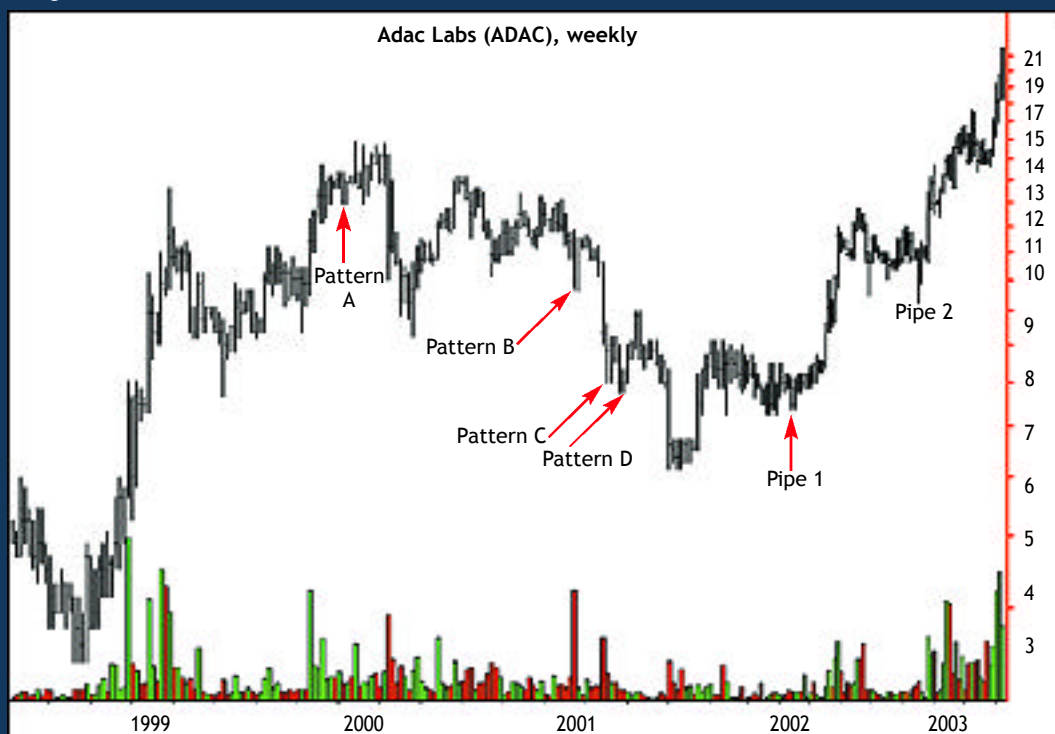
guideline — don’t violate it. Confirmation occurs when price closes above the pattern’s highest high.

Pattern B in Figure 1 shows what can happen if you don’t wait for confirmation. The stock fails to trade above the higher of the potential pipe’s adjacent

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### FIGURE 3 PICKING OUT THE PIPES

Patterns A, B, C and D appear to be pipe bottoms, but only pipes 1 and 2 satisfy all the criteria guidelines.



Source: Proprietary software (Thomas Bulkowski)

TABLE 2 PIPE BOTTOM STATISTICS

Analysis of 1,131 pipe bottoms over 12 years reveals the pattern has a relatively low failure rate and often precedes significant rallies.

| Description                                                        | Bull | Bear |
|--------------------------------------------------------------------|------|------|
| Number of patterns studied                                         | 873  | 258  |
| Followed by reversal                                               | 523  | 128  |
| Followed by consolidation                                          | 350  | 130  |
| 5-percent failure rate                                             | 4%   | 3%   |
| 10-percent failure rate                                            | 14%  | 16%  |
| 15-percent failure rate                                            | 21%  | 26%  |
| Number of post-pattern rallies larger than 45%                     | 39   | 27   |
| Average rally                                                      | 45%  | 30%  |
| Days to ultimate high                                              | 194  | 100  |
| Rally following pipes with equal lows                              | 43%  | 28%  |
| Rally following pipes with unequal lows                            | 45%  | 30%  |
| Rally following pipes with right spike close above left spike high | 44%  | 25%  |

bars. If you entered in anticipation of an up move before confirmation, you would have been caught as the stock continued down, forming lower lows. This is not an isolated example; many pipe patterns fail to confirm.

#### In the pipeline

In Figure 2 (p. 29), pipe 1 forms at the bottom of a downtrend. The bottom por-

tions of the spikes have good overlap, but their lows are uneven. Statistics indicate patterns with uneven lows perform better than those with equal (or nearly equal) lows.

What about the other pattern criteria? The pipe "sticks out," meaning visibility is good; price does not interfere with the view to the immediate left and right. Also, the left-spike volume is substan-

tially higher than the right-spike volume. Don't automatically exclude a pipe with higher right-spike volume pattern, but recognize its performance may suffer.

Finally, pipe 1 occurs when price closes above the taller of the two spikes (the second one, in this case) the week after the pipe. Pipe 2 has the same characteristics as pipe 1, except confirmation takes place three weeks after the second bar of the pipe.

What about pattern A? The downward price spikes two and three weeks before the pattern are of concern because they obscure the potential pipe to a degree. However, because the pipe spikes are long

enough and the pattern occurs at the base of a V-shaped bottom, this is a valid pipe.

In Figure 3 (above), pattern A is not part of a downtrend and it is not preceded by two lower highs, so it is not a pipe. Pattern B appears in a downtrend, but price fails to close above the pattern's highest high. No confirmation, no pattern validation. Similarly, pattern C does not confirm before price drops below the pipe low, so it, too, is an invalid pattern.

Pattern D's spike length is not long enough to make it stand out, violating the visibility criterion. Patterns B and C have longer spikes than pattern D, and there are other single spikes (sometimes called tails) over the prior year that also are longer.

Pipes 1 and 2, however, satisfy the identification guidelines and are valid pipe bottoms.

#### Pipes by the numbers

A study of 1,131 pipe bottoms in about 200 stocks from mid-1991 to May 2003 provided the basis of the statistics in Table 2 (above left), which are broken down into bull and bear markets. The bull market lasted from July 1991 to the peak in the S&P 500 index in March 2000. The bear market period consisted of everything

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#### FIGURE 4 POST-PIPE VOLATILITY

When the second bar of a pipe pattern has a higher low than the first bar, price sometimes rallies dramatically (at first), only to reverse direction shortly thereafter.



Source: Proprietary software (Thomas Bulkowski)

after that day through the end of the analysis period.

Most of the pipe bottoms resulted in price reversals. Sometimes a brief dip preceded the pattern and the prevailing trend did not change after the pattern. The pipes in those situations acted as consolidations or continuations of the price trend. Fewer reversals appeared in the bear market period than in the bull market period. Stocks in bull markets accounted for 873 patterns in nine years, while bear markets had 258 pipes in three years. Thus, expect fewer pipes in a bear market.

The failure rates reflect the percentage of stocks that fail to rise 5, 10 or 15 percent after confirmation. Failure rates were based on measuring the rise from the confirmation price (the higher of the two spike highs) to the highest high (the "ultimate high") before a 20-percent price decline. Four percent of the pipe bottoms failed to rise by 5 percent and 14 percent failed to rally 10 percent. Compared to other chart pattern types, these failure rates are respectable.

How many pipes showed post-pattern rallies of at least 45 percent? In a bull market, 39 percent climbed at least that far, and just over a quarter — 27 percent — in a bear market performed that well, which are good results.

Like failures, the study measured rallies from the confirmation price to the ultimate high. For bull markets, the average rally was 45 percent; in bear markets, it was 30 percent.

In bull markets, it took more than six months (194 days) for price to reach the ultimate high, but only three months (100 days) in bear markets. Comparing the average rally with days to the ultimate high, the rally in a bull market lasts twice as long and climbs 50 percent higher (a change from 30 percentage points in a bear market to 45 percentage points in a bull market). This also implies the rallies in bear markets are shorter and steeper.

An earlier study of pipe bottoms showed pipes with unequal bottoms performed better than pipes with lows that shared the same price. This study confirms that research.

What is the post-pattern performance when the right spike closes above the left spike high, as shown in Figure 4 (above)? The assumption was that this upward-momentum pattern would result in above-average performance. It didn't.

The figure shows the likely reason: When prices shoot upward, as they did in this case, they often decline nearly as fast, giving back the majority of the gains.

Table 2 shows the right-close-above-left-high pattern underperformed the average rise in bull and bear markets by 1 and 5 percent, respectively.

#### The complete picture

Pipe bottoms occur frequently and have comparatively low failure rates and high average rallies, but you have to be selective when choosing patterns for trading. Look for obvious examples per the identification guidelines and wait for confirmation before buying. If price shoots up, watch for the momentum to turn and sell before your gain evaporates.

Look for pipes with volume higher on

the left spike, uneven bottoms and unusually long spikes — the shortest spike should be several times the average length of spikes over the prior year. Buy pipes on the weekly time frame, combined with the exit method of your choice to take profits. 📌

For information on the author see p. 12.

#### Additional reading

**Books by Thomas Bulkowski**  
*Trading Classic Chart Patterns*  
(John Wiley & Sons, 2002)

*Encyclopedia of Chart Patterns*  
(John Wiley & Sons, 2000)

**Active Trader articles:**  
"Grabbing the bull by the horns,"  
September 2003, p. 46

"Head-and-shoulders bottoms: More than meets the eye," August 2003, p.32

"Tom Bulkowski's scientific approach," September 2002, p. 32

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