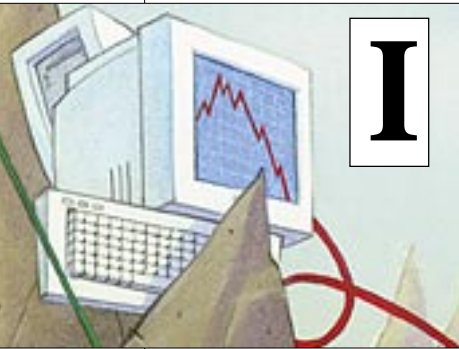


# Peaks And Troughs

*The oldest ways of chart analysis had to work in the days before computers (B.C.). There's no reason they shouldn't work now. Here's a look at peaks and troughs, a classic form of chart analysis that worked B.C. and work now.*

by Martin J. Pring



**I**

have always thought that, in general, the simplest techniques work the best. High up in this category, and perhaps the most underrated, is the concept of *peak and trough analysis*, a technique first brought to our attention as a tenet of Dow theory. While the theory itself has lost much of its luster in recent years, the peak and

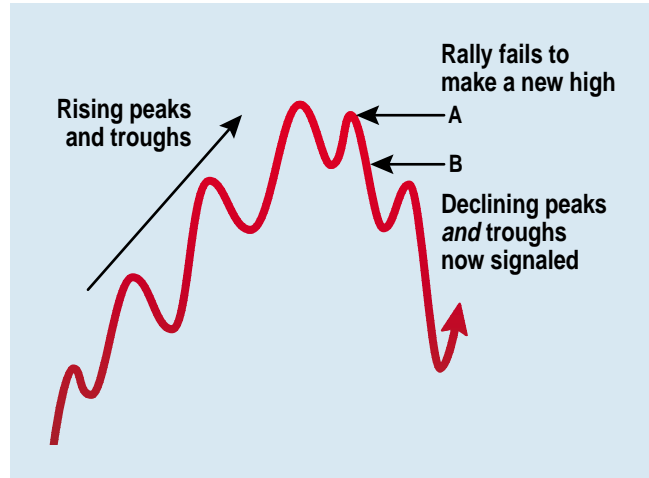
trough part of it has not. It is arguably the most important building block of technical analysis.

When you look at almost any chart, it's fairly evident that prices do not go up and down in straight lines, but move in zigzag patterns instead. During a bull trend, a rally is interrupted by a correction in which part of the advance is retraced. This is then followed by another rally, after which a subsequent correction follows, and so on.

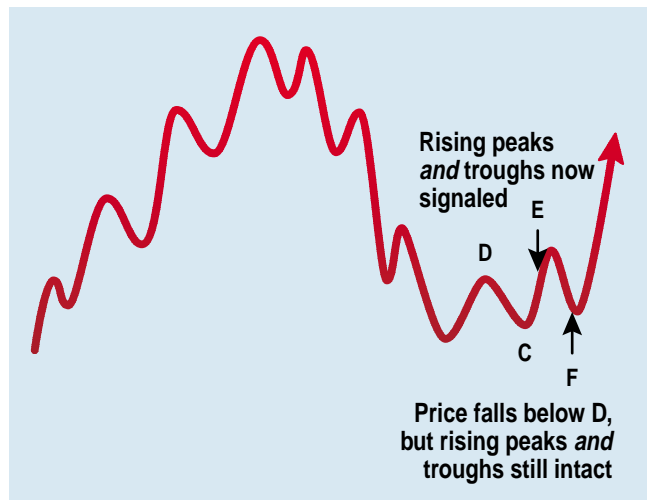
These are the peaks and troughs. As long as a trend experiences a series of rising peaks and rising troughs, it is considered to be intact. However, when the series of rising peaks and troughs is replaced by a series of declining peaks and troughs, the prevailing trend has reversed.

Figure 1 shows a series of rising peaks and troughs. When a subsequent rally fails to make a new high for the move (A), this alerts us the trend may have changed. It is not until the price slips below the previous bottom (B), however, that the price action reveals a declining peak and trough. The trend, according to this technique, is now deemed to be bearish.

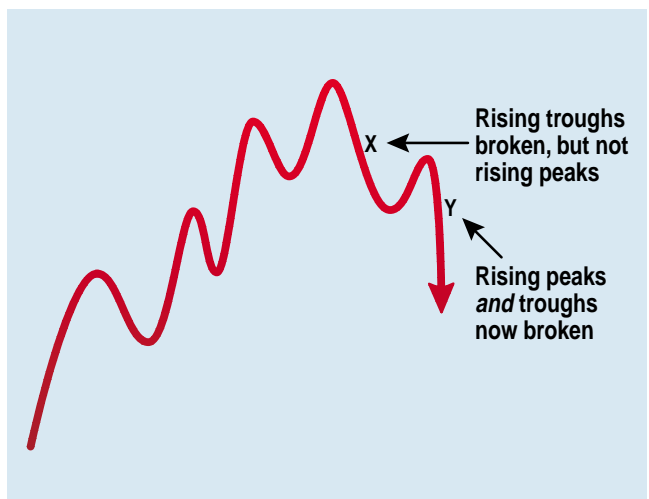
In a bear trend, prices continue their downward zigzag (Figure 2) until the latest trough fails to make a new low for the move (C). The subsequent rally takes the price above the previous high (D), and the series of declining peaks and troughs gives way to a series of rising ones. The actual signal takes place at E, when it is evident that the price has made a new high. At that point, we do not know where the next peak will occur, but we do know it is likely it will be higher than the previous one.



**FIGURE 1: USE PEAKS AND TROUGHS TO DETERMINE TREND.** As peaks and troughs rise, trend is up. As they fall together, trend is down.



**FIGURE 2: A NEW TREND.** A trading range, or "line" in Dow parlance, is broken when both peaks and troughs start to rise.



**FIGURE 3: REVERSAL.** An uptrend is reversed when both peaks and troughs head south.

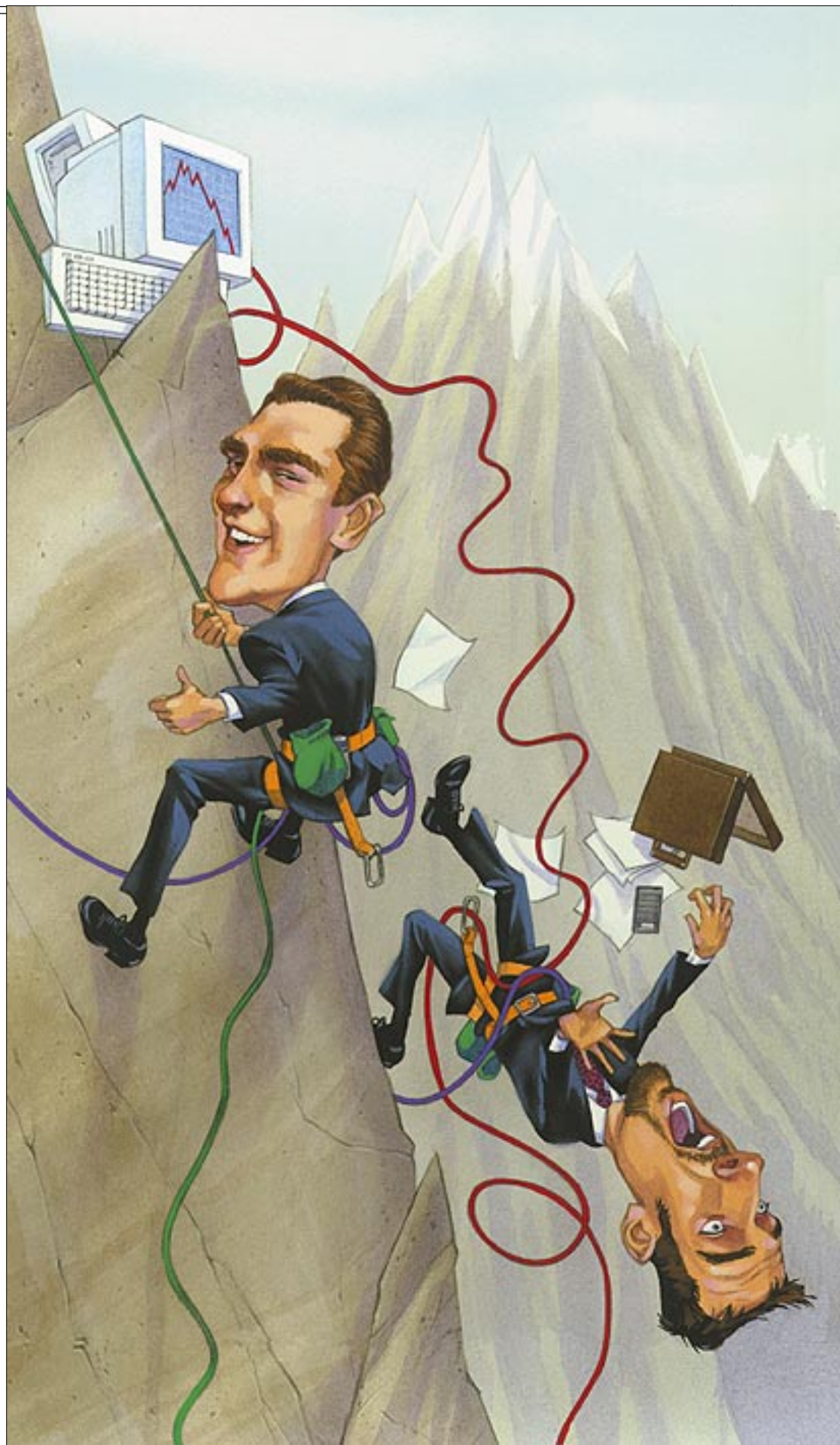
As you can see from the price action at point F, there is nothing to stop the price from falling below the trend reversal signal (E), but pricing will still be consistent with a rising trend.

### HALF-SIGNALS

On occasion, we are left in doubt whether a trend has reversed. In Figure 3, we see that at point X the latest trough breaks below its predecessor, but not the latest peak — and only half a signal has been given. What is now required is for a fresh rally to peak below the previous top and for the price to slip below the previous low at point Y. This is a much less timely signal because the price will have already fallen from the final high; but by the same token, the probabilities of it being a valid reversal are that much greater. Anyone not waiting for the signal at Y would have run the risk of being left out of a powerful rally such as the hypothetical one shown in Figure 4. In that instance, prices rose and made a new peak, indicating the trend had never reversed in the first place. Half-signals also appear when a trend reverses from down to up.

Peak and trough analysis should be treated as only one indicator among many in a technical arsenal. You would not normally rely solely on a moving average crossover, oscillator signal, or trendline violation to justify entering a trade; similarly, peak and trough should be used in conjunction with other indicators.

The difference with peak and trough analysis is that indicator for indicator, it generally offers a stronger signal than most trend-following techniques. This is because technical analysis is very much concerned with the psychology that underlies price movements. The fact that a reversal from a downtrend to an



uptrend requires a successful test of a low followed by a move to a new high, and offers a strong psychological signal that confidence and optimism have returned to the marketplace. The same is true from a down to up reversal.

### LINES OR CONSOLIDATIONS

Sometimes, reactions within a trend develop as a sideways movement, where the price experiences a trading range. Figure 4 shows some ranging action following an advance. (The same could be said in a declining market.) These trading ranges are also known as *lines* (as originally referred to in Dow theory).

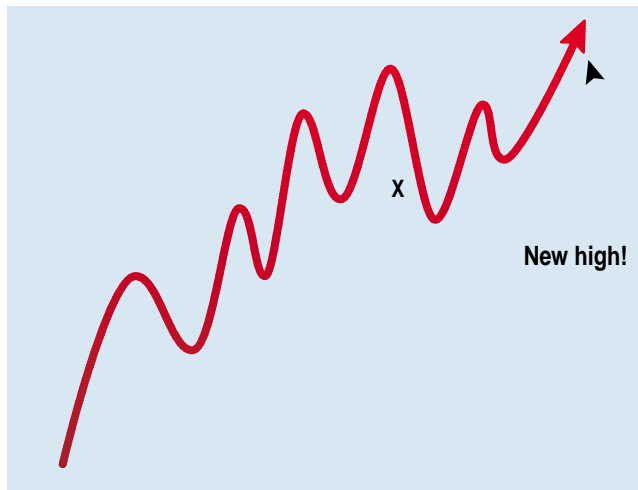
Whenever the price experiences a breakout from such a trading range, it has the same effect as if the range were a rally or reaction. This means it is possible for a breakout from a trading range to either act as a peak and trough buy or sell signal, or a reconfirmation of the prevailing trend. In effect, when the price breaks out of a line (range), it is violating several minor turning points that are really support or resistance areas. Taken together, they represent the equivalent of more significant peaks or troughs.

### WHAT'S A LEGITIMATE PEAK AND TROUGH?

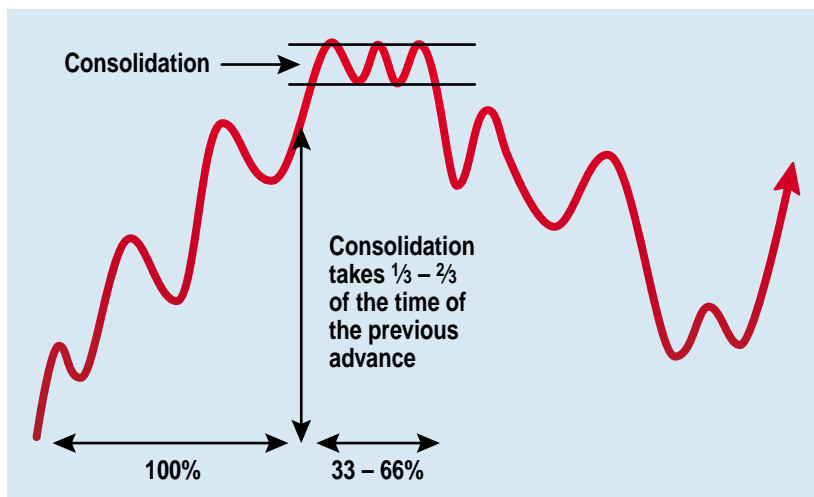
Most of the time, the various rallies and reactions are distinct enough so that it is relatively easy to identify their turning points as legitimate peaks and troughs. A reaction to the prevailing trend should retrace approximately one-third to two-thirds of the previous move. Thus, the rally from the trough low to the subsequent peak in Figure 5 is 100%. The ensuing reaction should then fall between a one-third to two-thirds correction or retracement of that move; on occasion, it can reach to 100%. Technical analysis is far from precise, but if a corrective move is less than the minimum one-third, then the peak or trough in question is suspect.

A line is a fairly controlled period of profit-taking or digestion of losses, so the depth of the trading range may fall short of the minimum approximate one-third retracement requirement (Figure 6). In such instances, the correction qualifies more on the basis of time than magnitude. It is important to note that we are dealing with psychology here — in this case, the bullish psychology associated with the runup in prices. That sentiment needs to be tempered, either with a price reaction or with time.

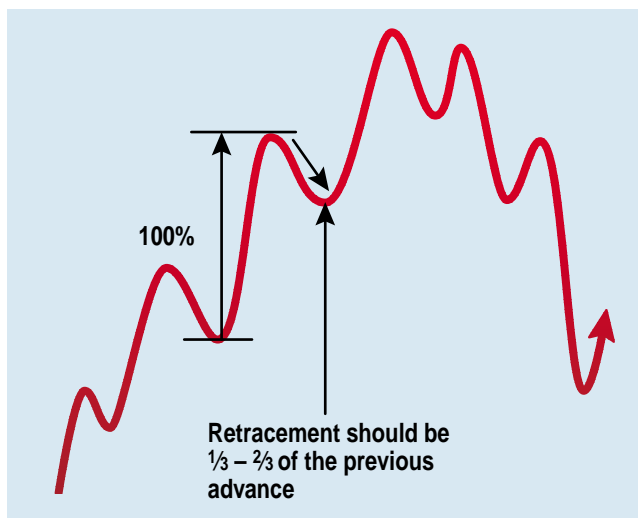
A rule of thumb you might want to use is for the correction to last between one-third and two-thirds of the time taken to achieve the previous advance or decline. In Figure 5, the time length between the low and the high for the move represents 100%. The consolidation prior to the breakout constitutes roughly two-thirds, or 66% of the time taken to achieve the advance — ample time to consolidate gains and move on to a new high.



**FIGURE 4: HALF-SIGNAL.** At X, a lower trough occurs, but subsequently, the high is taken out and the alert for a downtrend is canceled. Half-signals are not as reliable as full concordance of peak and trough movement.

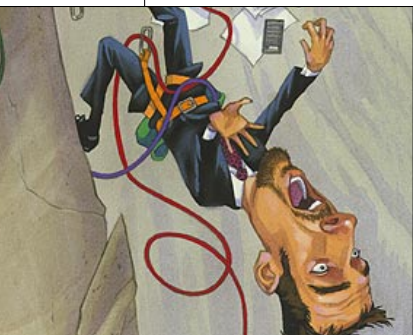


**FIGURE 5: CONSOLIDATION.** As a rule, consolidation will take from one-third to two-thirds the time of a preceding advance or decline. But then —



**FIGURE 6: RETRACEMENT.** The classic retracement ranges between one-third and two-thirds of the previous move.

These are only rough guidelines, and in the final analysis, it is a judgment call based on experience and common sense, intuition, and perhaps most important, a review of other factors such as volume and support and resistance principles. I used an example of a rising market, but these same principles work the same way in a declining trend; rallies should retrace one-third to two-thirds of the previous decline.



### THE SIGNIFICANCE OF PEAKS AND TROUGHS

The significance of a valid peak/trough reversal will depend on the type of trend. The longer the trend, the greater the significance of the peak/trough reversal will be. A series of rallies and reactions that show up on the hourly charts will be no-

where near as significant as a reversal in a series of intermediate peaks and troughs, where the rallies and reactions might last for several months. If we observe a reversal in a series of intermediate rallies and reactions, then we would be able to infer a primary trend, where the expected decline or advance could last for a year or more.

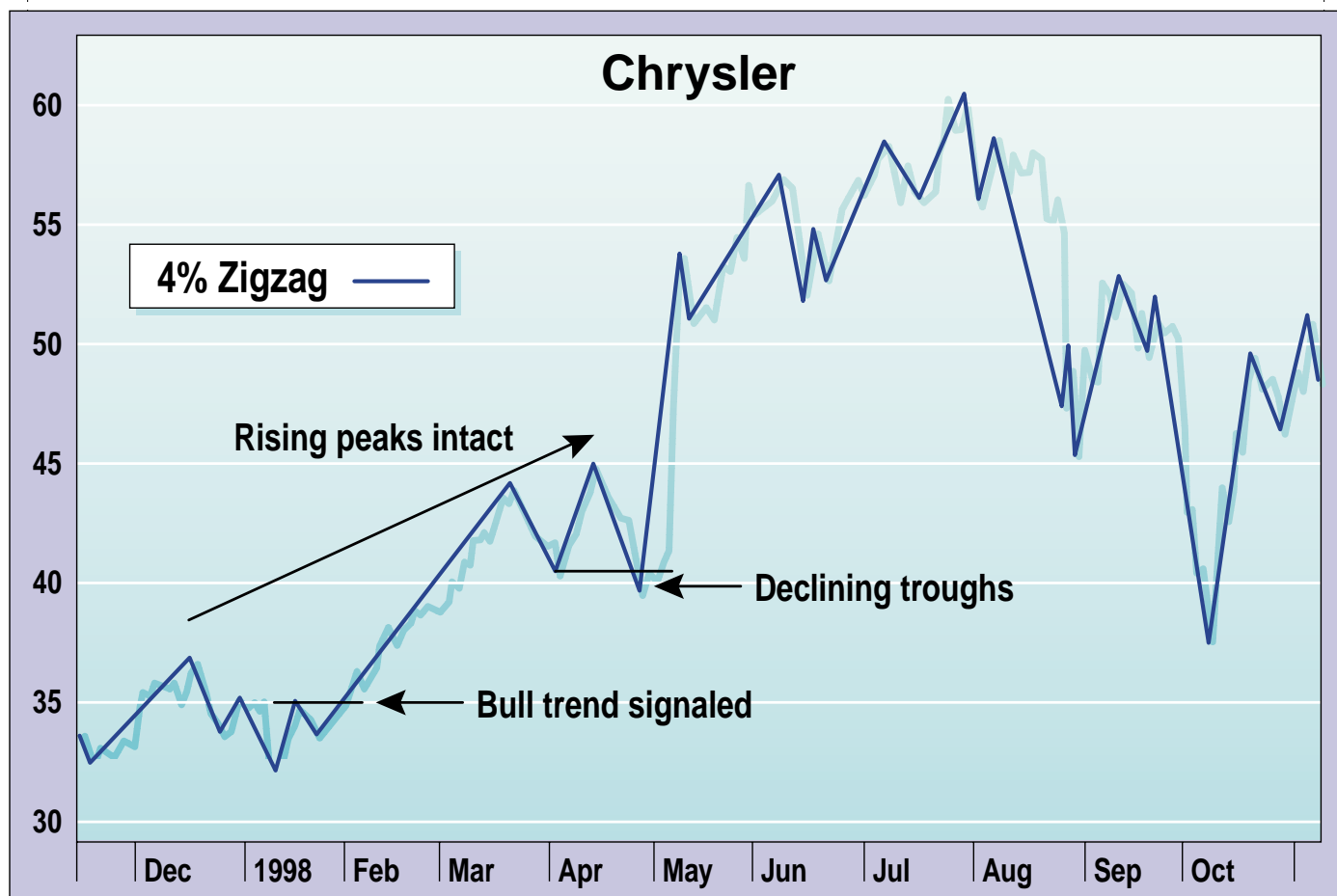
### EXAMPLE

Figure 7 shows Chrysler together with a 4% zigzag†. The zigzag is a tool provided in MetaStock, and it allows us to plot the data in a wave format. In this case, I have chosen a 4% parameter, which means that every time the price reverses by 4%, a new wave is plotted. This provides a simple objective format for showing peaks and troughs.

In Figure 7, the bull trend was signaled when the late January 1998 low held above the early January bottom. This was confirmed in early February, when the zigzag moved above the mid-January high. Some doubt concerning the direction of the trend crept in as April came to a close,

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because the low was below the previous low. However, there was no sign of lower peaks, since the mid-April high was the high for the move. This is why it does not usually pay to go with half-signals. It was not until early August that a rally



**FIGURE 7: CHRYSLER.** Bull and bear trends in Chrysler stand out using peak-and-trough analysis. The overlay is a 4% zigzag from MetaStock's indicator arsenal.

peak did not make a new high, and this was confirmed with a new low, signaling a new bear trend. I cannot say that things will work out this well every time, because they will not. However, it is surprising how well this simple tool can help in improving trading results.

### IN SUMMARY

- 1 Price trends are not usually straight-line affairs, but consist of a series of rallies and reactions.
- 2 Downtrends are signaled when a series of rising peaks and troughs gives way to declining peaks and troughs.
- 3 Uptrends are signaled when a series of declining peaks and troughs gives way to rising peaks and troughs.
- 4 When only a peak or trough trend is reversed, half-signals are signaled. Half-signals are not as reliable as full signals when both are reversed.
- 5 Valid peaks and troughs are created when the price moves to a new high or low for the move, or when a reaction to the then-prevailing trend retraces approximately one-third to two-thirds of the previous move. A retracement may be smaller in magnitude, provided it takes between one-third to two-thirds of the time taken to complete the previous move.
- 6 The longer it takes to develop the peak and trough, the

greater the significance of the reversal signal when it is given.

*Martin J. Pring founded the International Institute for Economic Research in 1981. He is the author of several books, including the classic Technical Analysis Explained, and Introduction To Technical Analysis, the first technical analysis multimedia CD-ROM. He pioneered the introduction of videos as an education tool for technical analysis in 1987, and was the first to introduce educational interactive CDs in this field.*

### SUGGESTED READING

- International Institute for Economic Research, <http://www.pring.com>.
- Pring, Martin J. [2000]. *Breaking The Black Box, A CD-ROM Tutorial*, International Institute for Economic Research.
- \_\_\_\_ [1998]. *Introduction To Technical Analysis*, McGraw-Hill Book Co.
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†See Traders' Glossary for definition

