TRADING SYSTEMS

*Targeting Price Areas*

The Truth About Volatility

Many indicators can help identify volatility. But can you use them to target specific price areas for entry signals, trailing stops, and profit-taking opportunities?

T ypically, volatility indicators are used to determine the direction, strength, and momentum of a security. The average true range (ATR), one of the more popular volatility indicators, measures volatility by looking at the average price ranges over the past *x* number of periods, taking gaps into account.

The true range indicator is the greatest of the following for each period:

- ■ The distance from today's high to today's low

- ■ The distance from yesterday's close to today's high

- ■ The distance from yesterday's close to today's low.

Most trading software packages include ATR in their list of indicators, which you can usually overlay on top of a bar chart, as can be seen in Figure 1.
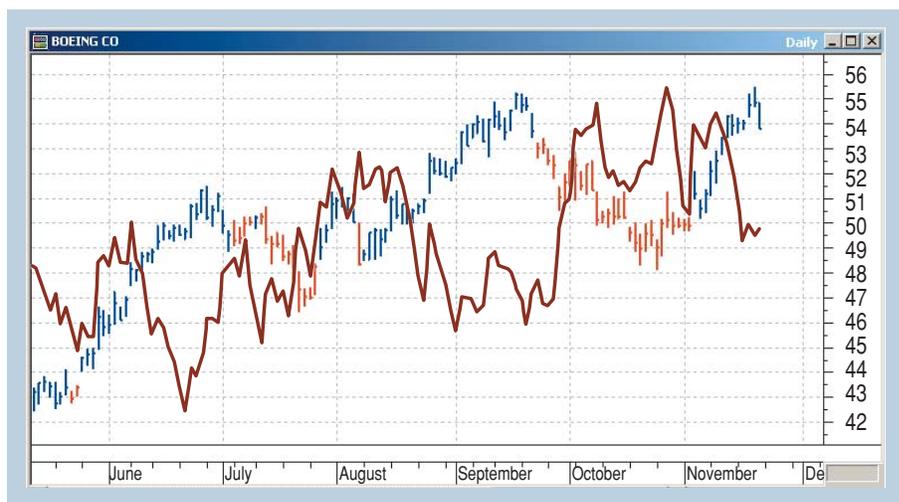
FIGURE 1: POPULAR VOLATILITY INDICATOR. Here you see the average true range (ATR) overlaid on a price chart.

ANALYZE IT

Typically, when analyzing ATR volatility, you would focus on volatility at tops and bottoms and during price consolidation and retracements. However, if you incorporate the ATR into a few simple formulas, you may be able to identify where to enter and exit trades, and make a reasonable profit. Before going any further, I think it's fair to say that I apply my ATR volatility analysis only to securities that are in a rising trend. After all, it is the path of least resistance. Who *wouldn't* want to buy securities when they are rising and sell them when they are no longer in a rising trend?

When is a security in a rising trend?

- ■ When it is making higher highs and higher lows on a weekly chart

- ■ When closing prices are above the 34-week moving average

- ■ When the 34-week moving average is rising.

by Jim Berg
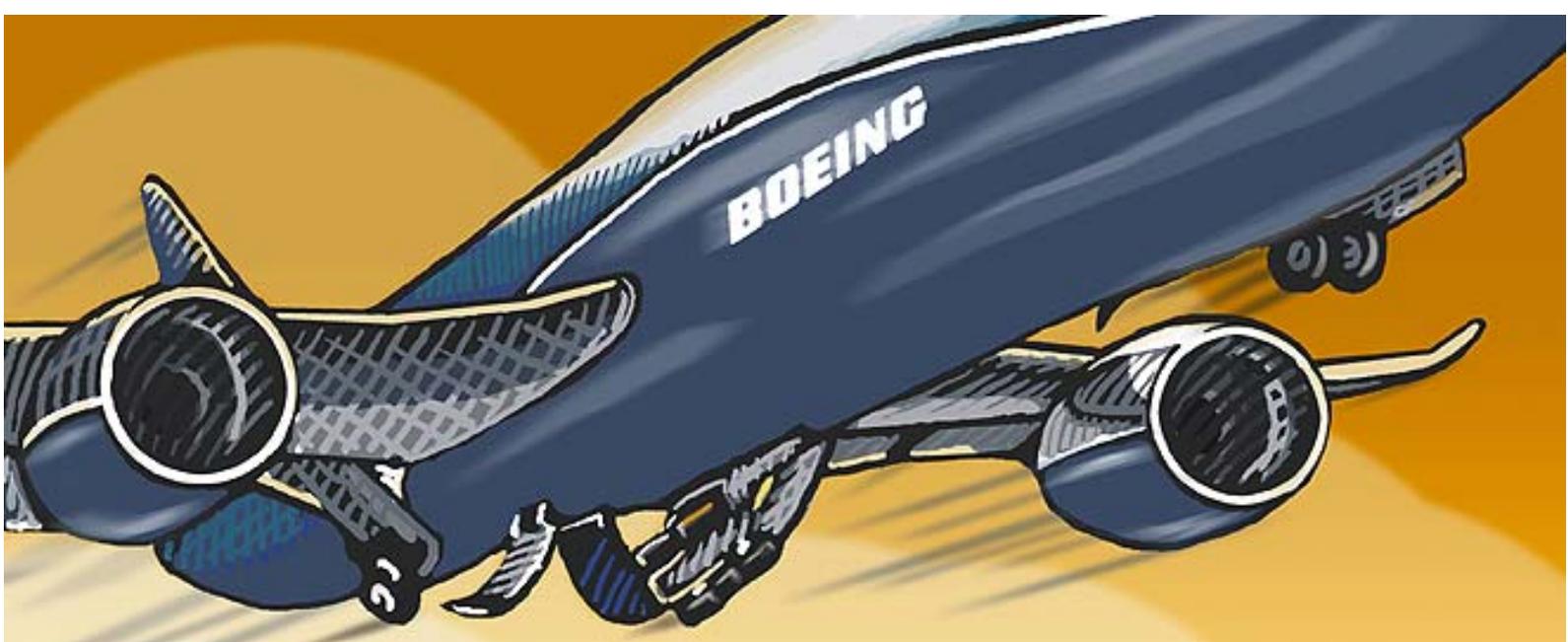
The price movements in the weekly chart of The Boeing Co. (BA) in Figure 2 certainly meet these criteria. If you look at the chart, you'll see that higher highs formed at (A), (B), (C), (D), and (E). Higher lows formed at (F), (G), (H), (I), (J), and (K). Prices closed above the moving average, which started rising in June 2003. The point at which the moving average started rising would have been a good entry point for any long trade, but it's possible to miss that trade. If you did miss the opportunity to enter a trade at this point, where will you find subsequent entry signals?

FIGURE 2: A SECURITY IN A RISING TREND. Price movement meets the criteria for a rising trend.

ENTERING TRADES

Next, I bring up a daily chart and look for temporary oversold conditions in the rising security. To do this I apply the relative strength index (RSI), an oscillator I am sure you are familiar with. The RSI compares the average of rising price change to falling price changes. I use a seven-day time period, but you may choose to use a different one. You can see the RSI plotted in the lower chart in Figure 3.

A security is considered to be potentially oversold when the RSI oscillator drops to 30. As you can see, this occurred on six occasions after the June weekly signal. It happened in July, September, and December 2003, and March, July, and October 2004. The oversold areas are circled.

The addition of the RSI prepares me to purchase shares in BA once prices resume their rising movement. Since I am only going to enter the market after the RSI indicates that price has reached an oversold area, I will always miss the beginning of every move. My entry point occurs when the closing price has moved a distance that is equivalent to twice the average true range of the last 10 days from the recent low. I have programmed my software package to paint the bars blue once this criteria is met and red when the closing price has moved a distance equivalent to twice the ATR of the last 10 days from the recent high.

FIGURE 3: USING ADDITIONAL INDICATORS. If you missed the first opportunity, have no fear. Using other indicators such as the RSI may help you enter at a later stage and still make successful trades.

> **Entry signal:** If the close is greater than the lowest low value (based on the low of the last 20 days) plus twice the 10-day ATR, then enter a long position.
>
> $$C > (LLV(L,20) + 2*ATR(10))$$
>
> **Exit signal:** If the close is less than the highest high value (based on the high of the last 20 days) minus twice the 10-day ATR, then exit your position.

> $$C < (HHV(H,20) - 2*ATR(10))$$
>
> (See sidebar, "Volatility entry advisor for MetaStock."
> *Note:* Exit signal is altered for MetaStock code.)

In Figure 3, you see the RSI oversold areas and the corresponding blue bar volatility entry levels (arrows). I placed my initial stop just under the recent low, but once prices continued to rise, I applied a volatility trailing stop. After two consecutive closes below the trailing stop, I exited the position. I placed the stop at two times the ATR subtracted from the close.

$$C - 2*ATR(10)$$

This indicator rises and falls with the level of volatility and higher or lower closing prices, and hence, I don't want to lower the trailing stop. Instead, I adjust the formula to stay at the

FIGURE 4: VOLATILITY TRAILING STOPS. This trailing stop adjusts so it is at the highest level reached in the last 15 periods.

FIGURE 5: TRADING IN A SHORTER TIME FRAME. In such a situation, you are better off applying the volatility trailing stop on a daily chart.

> **Volatility entries and exits will help maintain the discipline necessary to become a successful trader.**

highest level reached for a period of 15 days or weeks, depending on which time frame I am using for the chart.

$$HHV(C-2*ATR(10),15)$$

In Figure 4, you can see a weekly chart of BA showing the volatility trailing stop. Weekly exit signals were triggered in March and October 2004 on the second consecutive close below the volatility trailing stop. If you are a shorter-term trader, you may prefer applying the volatility trailing stop on a daily chart, just to get quicker exit signals (Figure 5).

JB VOLATILITY PROFIT TAKER
When I am trading for a shorter term, I use an additional indicator that I call the *JB volatility profit taker*. This indicator helps identify profit-taking opportunities by looking to see when a security has moved too far, too fast. It combines a moving average of the highs with ATR volatility:

VOLATILITY ENTRY ADVISOR FOR METASTOCK

C>(LLV(L,20)+2*ATR(10))
C<(HHV(H,20)+2*ATR(10))

TOOLS, EXPERT ADVISOR, NEW, ENTER NAME, HIGHLIGHTS, NEW, NAME(BUY), TYPE IN CONDITION(FORMULA),OK, NEW, COLOR(RED), NAME(SELL), TYPE IN CONDITION(FORMULA), OK

TO APPLY TO CHART: TOOLS, HIGHLIGHT ADVISOR, ATTACH, OK

VOLATILITY TRAILING STOP INDICATOR

C-2*ATR(10)

TOOLS, INDICATOR BUILDER, NEW, ENTER NAME, TYPE IN FORMULA, OK

TO APPLY TO CHART: CHOOSE FROM QUICK LIST, DRAG AND DROP OVER CHART

TRAILING STOP P15

HHV(P,15)

THE VOLATILITY TRAILING STOP INDICATOR(ABOVE) OFTEN HAS FALLING VALUES AND YOU MIGHT NOT WANT TO LOWER YOUR STOP. THE TRAILING STOP P15 INDICATOR WILL MAINTAIN THE STOP AT THE HIGHEST VALUE OVER THE PAST 15 DAYS.

TOOLS, INDICATOR BUILDER, NEW, ENTER NAME, ENTER HHV(P,15) IN FORMULA WINDOW, OK

TO APPLY TO CHART: CHOOSE FROM QUICK LIST, DRAG AND DROP OVER VOLATILITY TRAILING STOP INDICATOR LINE

Combine ATR stop with P15:
HHV(C - 2*ATR(10),15)

VOLATILITY PROFIT INDICATOR

Mov(H,13,E)+2*ATR(10)

TOOLS, INDICATOR BUILDER, NEW, ENTER NAME, TYPE IN FORMULA, OK

TO APPLY TO CHART: CHOOSE FROM QUICK LIST, DRAG AND DROP OVER CHART

—JB

JB Volatility Profit Taker = Mov(H,13,E)

+ 2*ATR(10)

A clear close above the JB volatility profit taker signals a profit-taking opportunity, and I exit the position on the following opening price.

In Figure 6, you see a daily chart of Boeing (BA) showing the trailing stop signals and the profit-taking opportunities. At point A, the RSI(7) reached oversold levels. A volatility entry signal occurred on March 29, 2004 (B). I would purchase shares at the open of the following day at $39.80. The initial stop is below the recent low at $37.97. A profit-taking opportunity occurs on June 16, when the closing price moves above the JB profit taker (C). As a result, I would close the position on the next day's open at $49.58.

Two consecutive closes below the volatility trailing stop signals an exit 13 days later at point (D). In this case, the two exit signals occurred at similar price levels. Keep in mind that the JB profit taker often signals exits after a sharp price rise before a correction, as shown in Figure 7, the chart of United Auto Group (UAG).

APPLYING VOLATILITY

Identifying where to enter and exit a trade is an important component of a successful trading system, but developing a consistent trading system is often a struggle, especially for beginning traders. As we have all learned the hard way, choosing entry points, trailing stops, and profit-taking opportunities, all randomly based on opinion, is fraught with danger. You may believe you are applying common sense when trading what you feel, but as your emotions rise and fall, you *will* lose money. Fear, greed, and denial are not the investment tools you want to use in a disciplined investment strategy. Volatility entries and exits will indeed help maintain the discipline necessary to become a successful trader. You can set specific entries, trailing stops, and profit-taking opportunities.
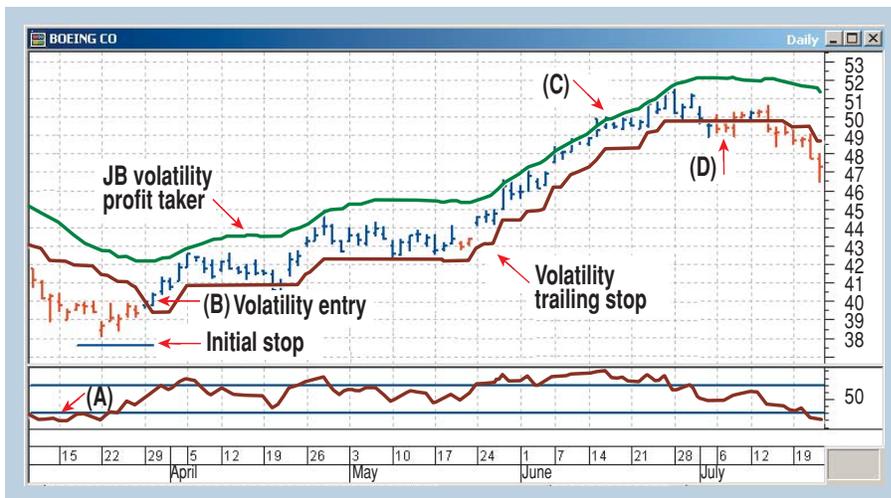
FIGURE 6: JB VOLATILITY PROFIT TAKER. Here you see the trailing stop signals and the profit-taking opportunities.

FIGURE 7: STOPS AND EXIT SIGNALS. The JB volatility profit taker tends to give exit signals after a sharp price rise.

Jim Berg, the author of The Share Trader's Handbook, *is a former broker, private trader, and lecturer with more than 20 years' experience in the investment industry.*

See our Traders' Tips section for program code implementing Jim Berg's technique.

†See Traders' Glossary for definition

S&C