

*How Wide Is Your Band?*

# Volatility Oscillator

*It's versatile—you can use it to identify overbought/oversold levels, divergences, and trends. Here are some ways you can use it.*

**T**he *volatility oscillator* is an indicator that measures the percentage of standard deviation. The volatility oscillator (VolatOsc) is based on the idea of trading bands, which is something that was developed by John Bollinger. VolatOsc decreases as standard deviation narrows and increases as standard deviation widens. VolatOsc fluctuates above and below the zero line. The indicator also has volatility bands placed above and below the zero line. Even though the VolatOsc is unbounded, you can use it to identify overbought and oversold levels. Divergences between price and the indicator can also generate trading signals. And you can use VoltOsc to identify the general trend.

## CALCULATING IT

You can calculate the VoltOsc with the following steps:

1. Calculate standard deviation, which is usually set at 20 periods.
2. Divide standard deviation by the 20-day simple moving average (SMA), which normalizes the value. The lookback period for the standard deviation is the same as for the SMA. Normalized standard deviation is multiplied by 100 to move the decimal point two places.
3. Volatility bands are placed above and below the zero line and equal the highest normalized standard deviation for 20 periods.
4. Volatility oscillator values are positive when the three-day SMA is higher than the 20-day SMA. VolatOsc values are negative when the

three-day SMA is lower than the 20-day SMA. VolatOsc values equal zero when the three-day SMA equals the 20-day SMA.

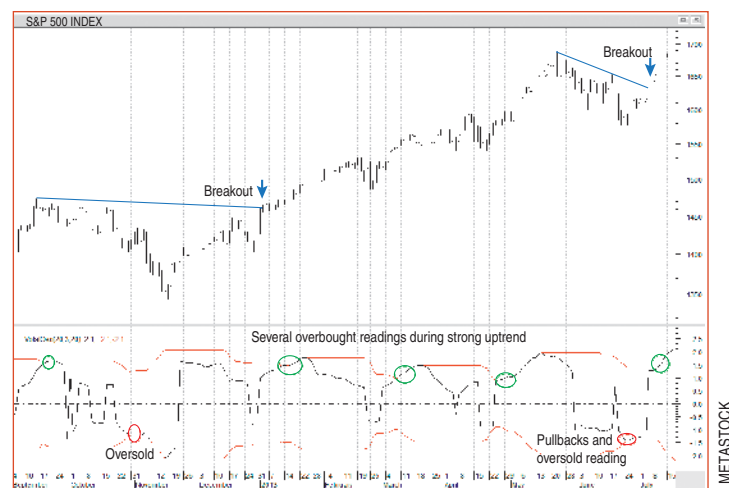
The values 20, 3, and 20 are the typical default settings used with the VolatOsc, but other values can be substituted depending on your trading style and goals.

If the second parameter equals zero, it means that the closing price is used instead of the three-day SMA.

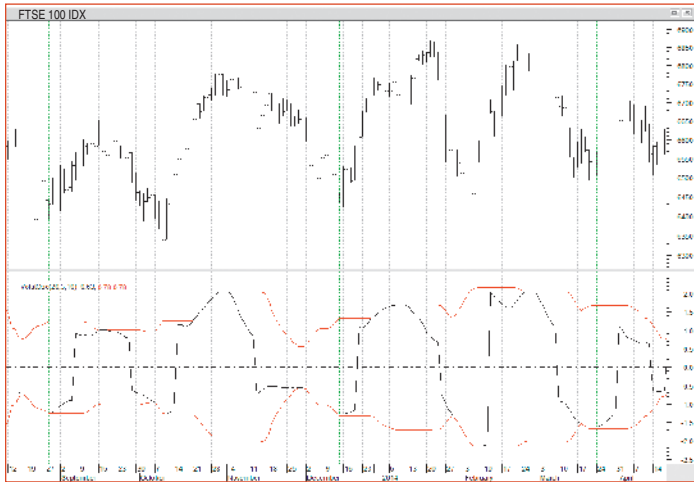
An example of calculating VolatOsc (20,3,20) in Excel can be found in the Excel spreadsheet available at the STOCKS & COMMODITIES website at [www.Traders.com](http://www.Traders.com) in the Article Code section. I used the function STDEVP in Excel to calculate the 20-day standard deviation. There are various ways to apply VolatOsc. Here's a look at some examples.

## OVERBOUGHT OR OVERSOLD

VolatOsc is overbought when it touches the upper band. Conversely, VolatOsc is oversold when it touches the lower band. On the chart of the S&P 500 index in Figure 1 with VolatOsc(20,3,20), notice the indicator became oversold at the end of October to



**FIGURE 1: S&P 500 INDEX WITH VOLATOSC (20,3,20).** It's typical for momentum oscillators to become overbought (oversold) and remain so during a strong up (down) trend.



**FIGURE 2: FTSE 100, AUGUST 2013–APRIL 2014.** Signals work better when VolatOsc (20,3,10) starts to diverge from the band after its touch. It generated a bad signal when index continued to move higher in January 2014 (dotted red vertical line).

November 2012. The S&P 500 trendline breakout was confirmed when VolatOsc touched the upper band in the middle of January of 2013. It signaled the end of a consolidation. Despite this overbought reading, the index did not decline. Instead, the S&P 500 Index continued higher. Two more overbought readings occurred before the index declined in June 2013. The VolatOsc then moved from overbought to oversold territory. After the trendline breakout and the VolatOsc touch of upper band in July, the uptrend resumed. It's typical for momentum oscillators to become overbought (oversold) and remain so during a strong up (down) trend.

Overbought and oversold readings for VolatOsc may be useful in a sideways move within a range. In Figure 2 you see that the London Financial Times Index (FTSE 100) traded between 6,316.91 and 6,865.86 from August 2013 to April 2014. Signals work better when VolatOsc starts to diverge from the band after



**FIGURE 3: DAILY CHART OF DJIA WITH VOLATOSC (15,3,15) FROM AUGUST 2011–FEBRUARY 2012.** VolatOsc became oversold (blue ellipse) after the pullback in November 2011. It coincided with the Fibonacci retracement 50%–60% level after the DJIA surged in October. This provided an entry point to participate in uptrend.

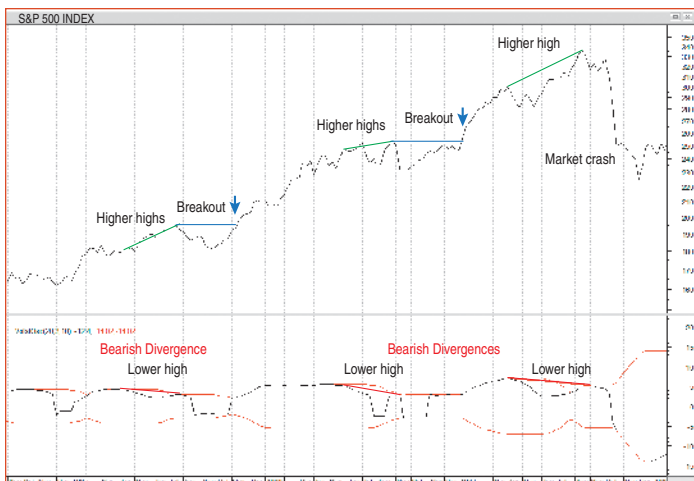
its touch. It generated a bad signal when index continued to move higher in January 2014 (see dotted red vertical line).



## DIVERGENCES

Divergences form when a new high or low in price is not confirmed by the VolatOsc. In other words, a bullish divergence forms when price records a lower low but the VolatOsc forms a higher low. It could foreshadow a bullish reversal. A bearish divergence forms when price records a higher high and the VolatOsc forms a lower high. It could foreshadow a bearish reversal.

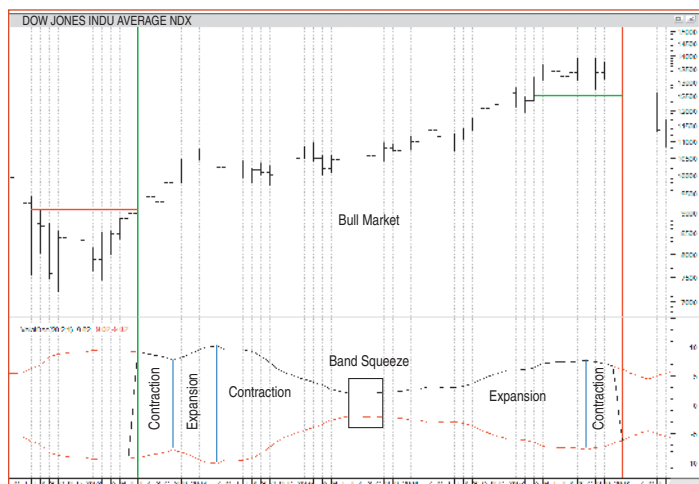
Once a divergence takes hold, chartists should look for a confirmation to signal a reversal. A bearish divergence can be confirmed when prices break a support level or if the VolatOsc touches the lower band. A bullish divergence can be confirmed



**FIGURE 4: WEEKLY CHART OF S&P 500 INDEX WITH VOLATOSC (20,3,10) FROM SEPTEMBER 1984–JANUARY 1988.** There were three bearish divergences over a 40-month period. The third from March–August 1987 foreshadowed the market crash of 1987.



**FIGURE 5: RUSSELL 2000 INDEX WITH VOLATOSC (20,3,20) AND BOLLINGER BANDWIDTH (20,2).** After the VolatOsc band squeeze and a relatively low Bollinger BandWidth (red ellipse), the Russell 2000 Index broke its trendline and triggered a bearish signal in early September 2001.



**FIGURE 6: DJIA WITH VOLATOSC (20,2,1) DURING THE BULL MARKET FROM 2003–2008.** VolatOsc expanded and contracted periodically before and after the band squeeze.

if price breaks above a resistance level on the price chart or if VolatOsc touches the upper band.

On the daily chart of the Dow Jones Industrial Average (DJIA) with VolatOsc (15,3,15) from August 2011 to February 2012 in Figure 3, you'll see that VolatOsc formed a higher low as the index formed a lower low in August to early October 2011. DJIA confirmed the bullish divergence when prices broke out above the resistance level in the same month. Also note VolatOsc became oversold (see blue ellipse) after the pullback in November 2011. It coincided with Fibonacci retracement 50% to 60% level after the DJIA surged in October. This provided an entry point to participate in uptrend.

The weekly chart of the S&P 500 index in Figure 4 shows the VolatOsc (20,3,10) from September 1984 to January 1988. There were three bearish divergences over a 40-month period. There were bearish divergences from March to July 1985 and May to August 1986 as the index moved to a higher high. However, the VolatOsc formed a lower high both those times. After small pullbacks in July to November 1985 and September 1986 to January 1987, the uptrend continued. A bearish divergence formed from March to August 1987, which foreshadowed the market crash of 1987.

### VOLATILITY OSCILLATOR SQUEEZE

The width of the band tells a lot. A narrow VolatOsc band is relative. You should estimate VolatOsc bandwidth values relative to prior VolatOsc bandwidth values over a period of time (five to 12 months, for example). VolatOsc bandwidth readings are considered narrow as they approach the lows of this range. VolatOsc bandwidth readings narrow when price flattens or moves within a relatively narrow range.

Relatively narrow VolatOsc bandwidth values can foreshadow a significant advance or decline. After a narrow bandwidth period, a price surge and subsequently the VolatOsc touching the band signals the start of a new move. A new advance could start with a narrow bandwidth and a subsequent VolatOsc touch of the upper band. Conversely, a new decline could



**FIGURE 7: WEEKLY CHART OF DJIA.** VolatOsc (20,3,10) contracted during the 1994 bear market.

start with a narrowness and a subsequent VolatOsc touch of the lower band.



### COMPARE WITH BOLLINGER BANDWIDTHS

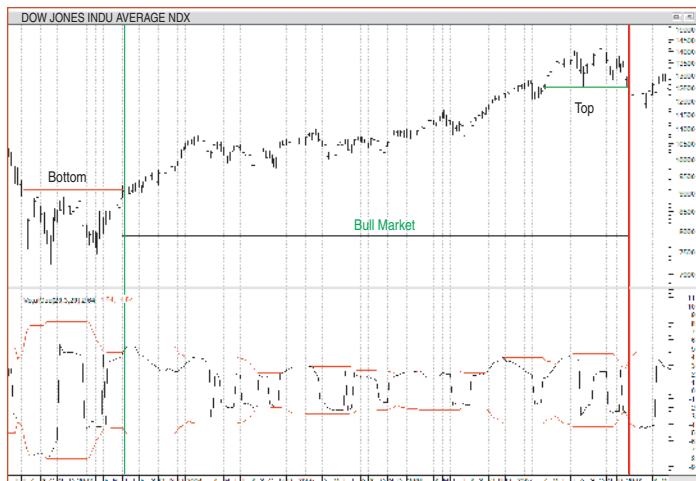
The chart in Figure 5 shows the Russell 2000 Index with VolatOsc (20,3,20) and Bollinger BandWidth (20,2). Let's compare the two. After VolatOsc band squeeze and a relatively low Bollinger BandWidth value (see red ellipse), the Russell 2000 Index broke its trendline and triggered a bearish signal in early September 2001. Keep in mind that you can apply the squeeze concept to weekly charts.

### CONTRACTION/EXPANSION DURING TRENDS

The monthly chart in Figure 6 shows DJIA with VolatOsc(20,2,1) during the bull market from 2003 to 2008. VolatOsc expanded and contracted periodically before and after the band squeeze. The weekly chart of DJIA in Figure 7 shows how VolatOsc (20,3,10) contracted during the 1994 bear market.

**A bull market can start when price breaks above a resistance level and VolatOsc touches the upper band. A break below a support level and VolatOsc touching the lower band could signal the beginning of a bear market.**





**FIGURE 8: WEEKLY CHART OF DJIA WITH VOLATOSC (20,3,20) DURING THE BULL MARKET FROM 2003–2007.** The index broke above a resistance level (red horizontal line) and VolatOsc touched the upper band in June 2003 (vertical green line), signaling the start of a bull market. In January 2008, DJIA broke below a support level (green horizontal line) and VolatOsc touched the lower band, signaling the start of the January 2008 bear market.

How do you identify a trend? A bull market can start when price breaks above a resistance level and VolatOsc touches the upper band. Conversely, a break below a support level and VolatOsc touching the lower band could trigger the beginning of a bear market.

In Figure 8 you see the weekly chart of the DJIA with VolatOsc (20,3,20) during the bull market from 2003 to 2007. The index broke above a resistance level (red horizontal line) and VolatOsc touched the upper band in June 2003 (vertical green line). This signaled the start of a bull market. Then in January 2008, DJIA broke below a support level (green horizontal line) and VolatOsc touched the lower band. This alerted you to the beginning of the January 2008 bear market.



**FIGURE 9: DAILY CHART OF DJIA WITH VOLATOSC (20,3,20) DURING THE BULL MARKET FROM 2004–2007.** Even though VolatOsc touched the lower band in March 2005, DJIA broke support (horizontal green line) in mid April 2005. Using VolatOsc signals in conjunction with price analysis can help you avoid bad signals.

In Figure 9 you see the daily chart of DJIA with VolatOsc (20,3,20) during the bull market from 2004 to 2007. When VolatOsc touches of lower band (vertical green dotted lines) it could suggest entry points for participating in the uptrend. But if you take a look at March 2005, even though VolatOsc touched the lower band in March 2005, DJIA broke support (horizontal green line) in mid April 2005. VolatOsc was oversold in May and July 2006 before index broke resistance (horizontal red line) in the middle of August 2006. This gives you an example of how using VolatOsc signals in conjunction with price analysis helps to avoid bad signals.

The daily chart in Figure 10 shows the S&P 500 index with VolatOsc (20,3,20) during the bear market from 2000 to 2003. When VolatOsc touches the upper band (vertical red dotted lines) it provides entry points to participate in a downtrend. Even though the indicator touched the higher band at the end of April 2001, the index moved higher. Three signals were generated when the index made three highs from November 2001 to March 2002 and met resistance (horizontal red line). These are identified by the vertical red dotted lines. The downtrend continued after a break of the support level at the end of April 2002. The other three signals were from October 2002 to January 2003, which were confirmed with the break of the support level at the end of January 2003 during the bottoming process. It generated false signals at the end of March and at the beginning of May 2003, which was toward the end of the bear market.



### TO SUM IT UP

VolatOsc is a versatile momentum oscillator that can be used to identify overbought/oversold levels, divergences, or trends. The indicator becomes overbought or oversold when it touches an upper or lower band. VolatOsc does not catch the exact top or bottom, but it can help filter out insignificant moves and focus on the larger trend.



**FIGURE 10: DAILY CHART OF S&P 500 INDEX WITH VOLATOSC (20,3,20) DURING THE BEAR MARKET FROM 2000–2003.** Three signals were generated when the index made three highs from November 2001 to March 2002 (vertical red dotted lines) and met resistance (horizontal red line). The downtrend continued after a break of the support level at the end of April 2002.



A bearish divergence can be confirmed when prices break a support level or when VolatOsc touches the lower band. It could be the start of a downtrend. A bullish divergence can be confirmed when price breaks above a resistance level on the price chart or when VolatOsc touches the upper band. It could be the beginning of a bull market.

It's necessary to use weekly or monthly charts for long-term signals. VolatOsc should be used in conjunction with other indicators or price analysis.

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*The spreadsheet mentioned in this article is available in the **Article Code** section of our website, [www.Traders.com](http://www.Traders.com).*

## FURTHER READING

Apirine, Vitali [2017]. "Moving Average Stochastic," *Technical Analysis of STOCKS & COMMODITIES*, Volume 35: May.

—— [2017]. "Exponential Standard Deviation Bands," *Technical Analysis of STOCKS & COMMODITIES*, Volume 35: February.

—— [2016]. "Higher Highs & Lower Lows," *Technical Analysis of STOCKS & COMMODITIES*, Volume 35: February.

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