

## Bollinger Bands

What are they? Bollinger Bands are a pair of trading bands representing an upper and lower trading range for a particular market price. A market price or currency pair is expected to trade within this upper and lower limit as each band or line represents the predictable range on either side of the moving average. The lines are plotted at standard deviation levels above and below the moving average. This trading band technique was introduced by John Bollinger in the 1980s.

Why use them? Bollinger Bands can be very useful trading tools, particularly in determining when to enter and exit a market position. For example: entering a market position when the price is midway between the bands with no apparent trend, is not a good idea. Generally when a price touches one band, it switches direction and moves the whole way across to the price level on the opposing band. If a price breaks out of the trading bands, then generally the directional trend prevails and the bands will widen accordingly.

### ***Key features of Bollinger Bands:***

1. A move originating at one band tends to go all the way to the other band.
2. Sharp moves tend to happen when the bands contract and tighten towards the average, when the price is less volatile. The longer the period of less volatility then the higher the propensity for a breakout of the bands.
3. When there is a breakout of the band, then the current trend is usually maintained.
4. A top or a bottom outside the band that is followed by a top or a bottom inside the band indicates a trend reversal.

### ***Configuration and Confirmations***

The most commonly used and hence default bands are drawn 2 standard deviations away from a 20 period simple moving average. This is for intermediate-term analysis. However, the number of periods and standard deviations can be varied. John Bollinger himself states “Choose one that provides support to the correction of the first move up off a bottom. If the average is penetrated by the correction, then the average is too short. If, in turn, the correction falls short of the average, then the average is too long. An average that is correctly chosen will provide support far more often than it is broken.”

The Chart below is a 4-hour chart depicting the EUR/USD pairing. You can see that while the price generally remains within the band, there are a number of breakouts, particularly when the bands are in a narrow range. Some breakout trends are not sustained and the price action is quickly restored to within the band range. If the breakout does represent a real market shift then a continuation of this trend is generally upheld and the Bollinger bands automatically widen to accommodate this.

Bollinger Bands should be used as a measure together with other measures, most notably the Average Directional Index (ADX), RSI and Stochastic indicators.



## The 15 Rules of Bollinger Bands

1. Bollinger Bands provide a relative definition of high and low.
2. That relative definition can be used to compare price action and indicator to arrive at rigorous buy and sell decisions.

3. Appropriate indicators can be derived from momentum, volume, sentiment, open interest, inter-market data, etc.
4. Volatility and trend have already been deployed in the construction of Bollinger Bands, so their use for confirmation of price action is not recommended.
5. The indicators used for confirmation should not be directly related to one another. Two indicators from the same category do not increase confirmation. Avoid colinearity.
6. Bollinger Bands can also be used to clarify pure price patterns such as M-type; tops and W-type bottoms, momentum shifts, etc.
7. Price can, and does, walk up the upper Bollinger Band and down the lower Bollinger Band.
8. Closes outside the Bollinger Bands can be continuation signals, not reversal signals--as is demonstrated by the use of Bollinger Bands in some very successful volatility-breakout systems.
9. The default parameters of 20 periods for the moving average and standard deviation calculations, and two standard deviations for the bandwidth are just that, defaults. The actual parameters needed for any given market/task may be different.
10. The average deployed should not be the best one for crossovers. Rather, it should be descriptive of the intermediate-term trend.
11. If the average is lengthened the number of standard deviations needs to be increased simultaneously; from 2 at 20 periods, to 2.1 at 50 periods. Likewise, if the average is shortened the number of standard deviations should be reduced; from 2 at 20 periods, to 1.9 at 10 periods.
12. Bollinger Bands are based upon a simple moving average. This is because a simple moving average is used in the standard deviation calculation and we wish to be logically consistent.
13. Be careful about making statistical assumptions based on the use of the Standard deviation calculation in the construction of the bands. The sample size in most deployments of Bollinger Bands is too small for statistical significance and the distributions involved are rarely normal.
14. Indicators can be normalized with %b, eliminating fixed thresholds in the process.

15. Finally, tags of the bands are just that, tags not signals. A tag of the Upper Bollinger Band is NOT in-and-of-itself a sell signal. A tag of the lower Bollinger Band is NOT in-and-of-itself a buy signal.

To learn more about Bollinger Bands, check out the book by John Bollinger – ‘Bollinger on Bollinger Bands’ or go to John’s website at [www.bollingerbands.com](http://www.bollingerbands.com).