

Bollinger Band: Leading Indicator

Bollinger Bands, a popular tool among investors and traders, helps gauge the volatility of stocks and other securities to determine if they are over- or undervalued.

- The bands widen when a stock's price becomes more volatile and contract when it is more stable.
- Don't trade during sideways trend in Bollinger bands.
- If after the contraction of band price is moving outside the band it indicate that the price will move in that direction for sometime.



Pull back in prices indication as the green candle is completely outside the Bollinger band and only the lower is touching th upper band of Bollinger band.

- As long as the price is moving in a lower direction touching the lower band of Bollinger band, it indicates the downtrend.



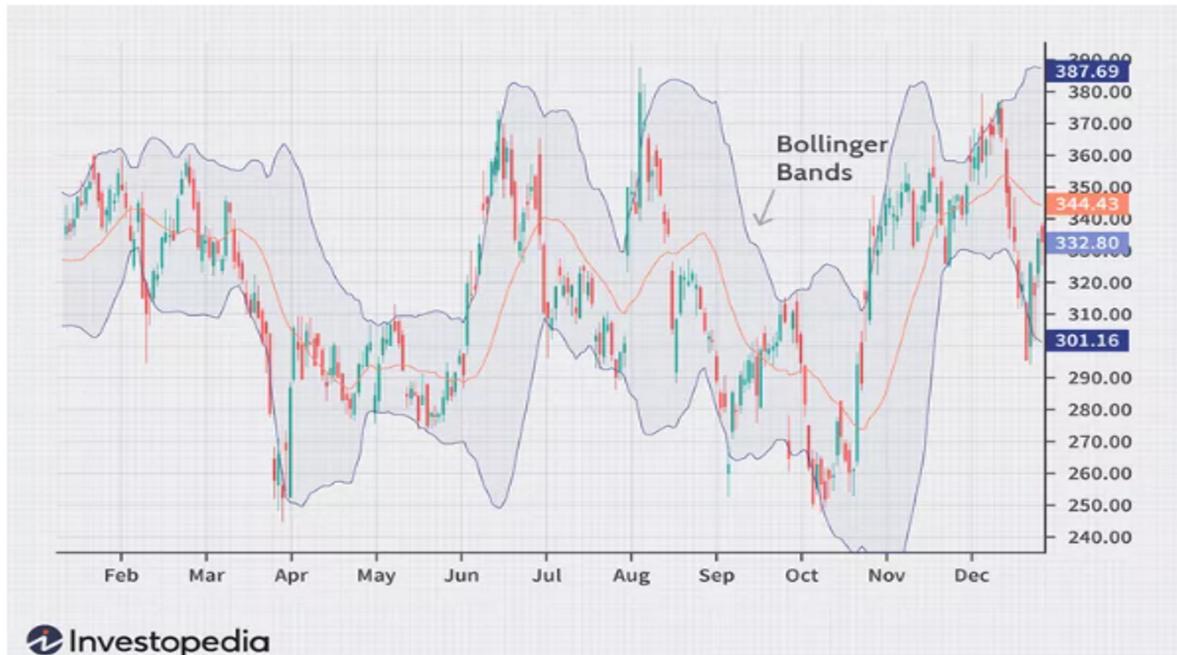
Fake Signal Example:



Sharp change in the price crossing the 20 EMA line and going up but after touching the upper band it is moving in the opposite direction.

Note: In this case we have to do the support & resistance analysis before taking decision.

but also how volatile the price movement is. Bollinger bands consist of two bands—an upper band and a lower band—and a moving average that are generally plotted on the price movement of a chart. Bollinger bands are typically based on a 20-period moving average. This moving average runs through the middle of the two bands. The upper band is plotted 2 standard deviations above the 20-period moving average. The lower band is plotted 2 standard deviations below the 20-period moving average.



Bands get close together (tighten)	→ A big price move might happen soon. This shows the market is quiet, but a breakout could be coming.
Price goes outside the bands	→ The current trend is likely strong and may continue in the same direction.
Price hits a high/low <i>outside</i> the bands, then another high/low <i>inside</i> the bands	→ This may be a sign that the trend is weakening and could reverse soon.

The three Bollinger bands for N-day are calculated as -

$$\text{Central Band} = \text{SMA}(N)$$

$$\text{Upper Band} = \text{Central Band} + k \times \sigma(N)$$

$$\text{Lower Band} = \text{Central Band} - k \times \sigma(N)$$

Here, $\sigma(N)$ is the standard deviation of the closing price for last N days.

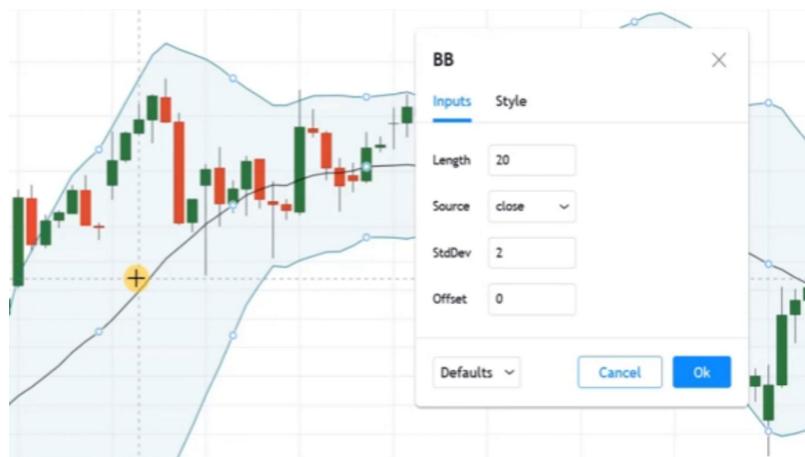
k is a parameter to be set by the user, which is usually set to 2.

Bollinger Bands Cheat Sheet

Bollinger Band Action	What This Indicates	Potential Reaction
Upward middle band	Indicates an uptrend	Buy or hold long positions
Downward middle band	Suggests a downtrend	Sell or hold short positions
Narrow bands (squeeze)	Less volatility; potential for significant price move	Prepare for a breakout; consider entry points
Price touching or moving outside the upper band	Potentially overbought (poised to fall in price)	Consider selling, shorting, or tightening stop-loss orders
Price touching or falling outside the	Potentially oversold (poised to go up)	Buying or tightening stop-loss

lower band		orders
Price bounces off the lower band	The upper band becomes a potential exit point if the trend reverses	Consider taking profits or setting up a trailing stop-loss
Price touches the upper band	The lower band becomes a potential target if the reversal occurs	Consider taking profits or setting a trailing stop-loss
Price rebounds from upper or lower bands toward the middle band	Potential buying or selling opportunity, especially in ranging markets ("Bollinger Bounce")	Enter long or short positions; set stop-loss orders
Price move starting at the upper band and continuing outside it, with increased volume	Signals a potential breakout	Enter long positions; set stop-loss orders below recent lows
Decisive move below the lower band, with high volume	Could mean a breakdown or the start of a new bearish trend	Enter short positions; set stop-loss orders above recent highs
Widening bands after a squeeze	Could indicate an imminent breakout	Prepare for entry, watch for confirmation signals
Widening bands	Signals increase in volatility and the potential beginning of a strong price trend	Adjust risk management; consider trend-following strategies
Tightening bands (squeeze)	Suggests a period of lower volatility and consolidation; often a precursor to a major price move or breakout	Prepare for a breakout; consider entry points; tighten stop-loss orders
Longer squeeze	Could indicate a more potent breakout coming	Prepare for a larger price move; increase position size
Tightening bands	Could mean there's no consensus in the market about the future price direction	Adjust risk management; wait for clearer signals before entering positions





Uses of Bollinger Band

- ▶ Indicate Volatility
- ▶ Tells about Breakouts
- ▶ Continuation of Trend
- ▶ Achieve Trend Reversal Signal

Moves Within the Bands

Using two standard deviations in constructing Bollinger Bands is based on the statistical properties of the normal distribution and the concept of volatility. In this context, standard deviation measures how far prices typically deviate from SMA, the middle band.²

By setting the upper and lower bands two standard deviations away from the SMA, Bollinger Bands create a range expected to contain approximately 95% of the security's price movements over a given period. This assumption is based on the statistical rule that about 95% of the data points will fall within two standard deviations of the mean for a normally distributed data set. Choosing two standard deviations provides a statistically significant measure of volatility while remaining practical for market analysis. The bands can adapt to changes in volatility, making them suitable for various market conditions.

When prices move outside the upper or lower bands, this suggests that the security is trading at a statistically high

or low level relative to its recent price history. This indicates potentially overbought or oversold conditions, respectively. However, prices can remain outside the bands for extended periods during strong trends.¹

Signals at the Upper Band

By examining the relationship between the price and the upper band, you can look for overbought conditions, check for potential price reversals or a slowdown in momentum, find out when volatility is expanding, set price targets based on mean reversion strategies, and determine the strength of a trend.⁴

When the price touches or pushes through the upper band, this is often read as the security is overbought. This is because the asset is priced higher than its typical valuation range, indicating a potential reversal or slowdown in momentum.

When the price reaches or goes above the upper band, this indicates increased volatility. Since Bollinger Bands adjusts to volatility, a widening gap between the upper and lower bands means that the market is experiencing wider price fluctuations, which could be due to economic and market news, earnings reports, and other market events.

For investors using [mean reversion](#) strategies, the upper band can act as a price target in a ranging market.⁷ If the price oscillates between the upper and lower bands without a clear trend, hitting the upper band can signal to sell or go short because traders expect the price to move back toward the middle band or below.

In addition, when there's a strong uptrend, the price might repeatedly touch or stay above the upper band for extended periods. This persistence above the upper band might indicate strong buyer enthusiasm and signal that the trend is likely to continue. However, traders and investors often look to confirm this with other indicators or techniques.⁸

The upper band can also be the site for a breakout. A price move that starts at the upper band and continues to push outside of it can signal one, especially if there's been an increase in trading volume. This indicates that the asset is starting a new trend or accelerating an existing one. You could use this signal to trade in the direction of the breakout.

Signals at the Lower Band

The lower band of the Bollinger Bands helps identify oversold conditions. It is also a reference line for those using mean reversion strategies or looking for potential reversals. If prices stay below this band, this could mean the start of a new bearish trend, especially if there's a lot of trading volume.

When the price of an asset touches or falls below the lower band, this could mean the asset is undervalued or that the selling pressure has gone too far, potentially leading to a reversal or pause in the downward trend.¹

Just as touching the upper band signals an increase in volatility, the price reaching the lower band indicates greater volatility in the context of a downward move. However, when the bands narrow after a period of wide fluctuation, there's decreased volatility, which might mean a significant price move as the price consolidates.⁶

For investors employing mean reversion strategies or looking for bounce-back opportunities, the lower band can be used as a target for buying prospects. The rationale is that if the price has moved down to the lower band, it might rebound toward the middle band or higher, especially in a ranging market without a strong downtrend.⁵

That said, if the price stays below the lower band, this signals a strong downtrend. Continual contact with the band or new lows below could indicate the bearish sentiment is strong and likely to continue. However, you should confirm this with other indicators to avoid false signals or traps.⁸

A decisive move below the lower band can signify a [breakdown](#) or the start of a new bearish trend, especially if the volume is high and there are other bearish signals. Since further declines could occur, you can use this as a potential signal to sell or enter a short position.

What Widening Bands Mean

When the bands widen, this signals an increase in volatility because the standard deviation of the price increases. Thus, the price moves are more significant than in the recent past.¹

Economic announcements, earnings reports, geopolitical events, or sudden shifts in market sentiment can be behind these changes. Traders see increased volatility as an opportunity for substantial gains and a risk of greater losses.⁹

The widening of the bands could signal the beginning of a substantial price trend. As volatility increases, the chance of a significant and sustained price move in one direction also increases. However, you should confirm this with other indicators or price patterns before proceeding.

When the bands widen after a period of contraction during a "squeeze," many consider this a sign that a breakout is about to occur. While the bands themselves do not indicate the direction of the breakout, investors can assess the potential direction by comparing the price's movement to the bands and other indicators.

The increased volatility signaled by widening Bollinger Bands might prompt investors to reassess their risk management strategies. They might cut their positions or diversify their holdings to manage the higher risk associated with greater price fluctuations.

What Tightening Bands Mean

A contraction of the bands suggests that the market is experiencing less volatility. Price movements are more contained, and there may be less trading volume or market interest in the short term. This reduced volatility period can be seen as a time of [consolidation](#).¹⁰

While tightening bands indicate less volatility, market analysts often consider this a precursor to major price moves or breakouts. Traders monitor squeezes closely since they suggest the market is building energy for a significant change. The longer the squeeze, the more potent the subsequent breakout is expected to be. This is based on the principle that periods of low volatility are frequently followed by periods of high volatility. However, this doesn't mean you'll know where the breakout will head.

During a tightening period, traders may adjust their risk management strategies, such as pulling in stop-loss orders to reflect lower volatility while preparing for a potential increase ahead.

The tightening of Bollinger Bands could also mean there's no consensus among market participants about the future direction of the price. This indecision can result in the price oscillating within a tighter range until new information arrives or the market forces a breakout.

How Reliable are Bollinger Bands?

The effectiveness of this tool depends on the asset involved, the settings used, and other factors:¹⁴

- **Asset involved:** Each security has different volatility characteristics, affecting how well the tool helps with predictions. Assets that typically experience sudden shifts in volatility might not have the expected behavior within the bands.
- **Parameters:** The default setting for Bollinger Bands is a 20-period SMA with bands set at two standard deviations away. However, this may not be the best option for all trading scenarios or time frames. Adjusting

the settings could improve their effectiveness but requires a good understanding of the markets and assets.

- **Other indicators:** Bollinger Bands are most effective when used with different tools and indicators. For instance, volume indicators and momentum oscillators like the relative strength index ([RSI](#)) or moving average convergence divergence ([MACD](#)) can give the needed context or help confirm signals from the Bollinger Bands.⁸
- **Outlier situations:** The bands are based on a statistical measure of standard deviation, which assumes that asset price returns follow a normal distribution. However, financial markets are known for having fat tails that sometimes lead to unexpected moves beyond the bands.

What Technical Indicators Are Similar to Bollinger Bands?

There are several, including the [Keltner channels](#), moving average envelopes, the Donchian channels, the average true range, and the standard deviation indicator.¹¹ Each tool offers a different view of the market's changes.

What Are Some Limitations To Using Bollinger Bands?

First, Bollinger Bands are a [lagging indicator](#), which means they respond to rather than predict price changes, potentially informing you of changes after they've already happened. In addition, they can generate false signals during highly volatile market periods when the bands expand. Third, the standard settings of Bollinger Bands (20-day simple moving average and two standard deviations) might not be the best for all trading scenarios. Finally, Bollinger Bands are often more effective when used with other indicators, such as volume or momentum oscillators. Relying only on Bollinger Bands without further confirmation can lead to poor trading decisions.

How Can I Avoid False Signals From the Bollinger Bands?

You should consider using them with other technical analysis tools to confirm trends and signals.

Employing [momentum oscillators](#) like the RSI or MACD can help identify whether the market is overbought or oversold as prices reach or break through the bands. In addition, volume indicators can tell you about the strength behind a move, as significant price changes with a high volume could confirm signals from the Bollinger Bands. You can also adjust the settings of the Bollinger Bands by increasing the period of the moving average or the number of standard deviations, which might filter out less significant price moves.

The Bottom Line

Bollinger Bands is a versatile technical analysis tool that can provide greater clarity about market volatility and price trends. By framing price movements with upper and lower boundaries set at standard deviations around a central moving average, the indicator adapts to volatility in real-time, offering a visual representation of how prices are moving relative to historical norms. While it's valuable for highlighting potential reversals, breakouts, and trend strengths, Bollinger Bands is usually more effective when used with other indicators and methods.