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# Understanding Bollinger Bands: A Key Technical Analysis Tool for Investors

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**DEFINITION:**

Bollinger Bands are a technical analysis tool developed by John Bollinger in the 1980s to help investors and traders gauge market volatility and identify when securities are poised to rise or fall.

## What Are Bollinger Bands?

Bollinger Bands, a popular tool among investors and traders, help gauge the volatility of stocks and other securities to determine if they are over- or undervalued. Developed in the 1980s by financial analyst John Bollinger, the bands appear on stock charts as three lines that move with the price. The center line is the stock price's 20-day simple moving average (SMA). The upper and lower bands are set at a certain number of standard deviations, usually two, above and below the middle line.

The bands widen when a stock's price becomes more volatile and contract when it is more stable. Many traders see stocks as overbought as their price nears the upper band and oversold as they approach the lower band, signaling an opportune time to trade. <sup>[1]</sup>

While valuable, Bollinger Bands are a secondary indicator that is best used to confirm other analysis methods. Below, we guide you through how to interpret Bollinger Bands, when the tool is best used, and what other indicators are best matched with it.

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an asset and potential overbought or oversold conditions by plotting two standard deviations away from a simple moving average.

- When a stock's price is close to the upper Bollinger Band, it might be overbought; if it's near the lower band, it might be oversold, signaling potential trading opportunities.
- Bollinger Bands work best as a secondary indicator, providing confirmation when used alongside other tools like relative strength index (RSI) and moving average convergence divergence (MACD).
- Widening bands indicate rising market volatility and may precede significant price moves, while narrowing bands suggest decreasing volatility and a possible impending breakout.
- Trading platforms often include Bollinger Bands as a feature, allowing easy visualization of price movements and adaptability to different market conditions.



Credit: Investopedia / Joules Garcia



## Meet John Bollinger: The Innovator Behind Bollinger Bands

John Bollinger, CFA, CMT, has been a major influence in technical analysis and is best known for developing Bollinger Bands in the 1980s. Bollinger combined his background in mathematics and engineering with financial market analysis to create this tool, which uses a moving average and the statistical measure of standard deviation to assess the volatility and trends of stock prices. <sup>[2]</sup> The tool has since become a staple in technical analysis. He is also the founder of Bollinger Capital Management, a money management company, and has been a prominent commentator and analyst on market conditions. <sup>[3]</sup>

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## How to Build Bollinger Bands for Market Analysis

The three lines that make up Bollinger Bands are based on a security's price moves. The center line is the intermediate-term trend and is typically a 20-day [SMA](#) of the closing prices. The upper and lower bands are plotted a distance from the SMA set by a certain number of standard deviations, usually two, above and below the center line. <sup>[4]</sup>

To calculate the bands, decide on the number of periods for the SMA and standard deviations for the upper and lower bands. While the settings can be adjusted based on your strategy, most times, you would use a 20-day SMA and two standard deviations. <sup>[5]</sup>

The upper band is found by adding two standard deviations to the center SMA line, while the lower band is calculated by subtracting two standard deviations from the center line. The bands automatically widen when price volatility increases and narrow when volatility goes down. <sup>[6]</sup>

You don't need to break out your calculator and graph paper: Many popular trading platforms, like TradingView, include this technical indicator as a standard feature. Thus, you can easily overlay Bollinger Bands onto price charts. You can also usually customize the Bollinger Bands' settings (increasing or lowering the periods and standard deviations) to fit your needs.

Because the bands are two standard deviations from the SMA, they show when prices are statistically high or low. Many traders consider the area near the upper band to be overbought territory—the price is poised to fall—and a potential resistance level where sellers may step in. Conversely, the area near the lower band is often seen as oversold—the price is poised to go up—and a potential support level where buyers could enter the market. <sup>[6]</sup>

## Trading Strategies Using Bollinger Bands

[Option traders and investors](#) use Bollinger Bands to assess market volatility and identify potential entry and exit points. The tool is premised on the idea that prices tend to remain within the bands' upper and lower limits.

One use is [trend analysis](#). If the middle band moves up, it suggests an uptrend; a downward movement suggests otherwise. In addition, the width of the bands reflects market volatility. Narrow bands indicate less volatility, which means a significant price move could be imminent. This is known as a "squeeze." Conversely, wide bands indicate more volatility. <sup>[7]</sup>

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price touches or falls outside the lower band, the asset may be oversold, indicating a possible buying opportunity.

The bands can also help find price targets. For instance, after a price "bounces" off the lower band, the upper band becomes a potential exit point if the price trend reverses. Likewise, after a price move that touches the upper bands, the lower band becomes a possible target if a reversal occurs.

Another strategy is "Bollinger Bounce," based on prices returning to the middle band. Traders may buy or sell based on the rebound from the upper or lower bands toward the middle band, especially in a ranging market. <sup>[8]</sup>

Below is a table of different ways the Bollinger Bands can move, what they indicate, and how traders often react. We then go through these moves in more detail so you understand the strategies better.

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 lower band	Potentially oversold (poised to go up)	Buying or tightening stop-loss 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,	Signals a potential breakout	Enter long positions; set stop-loss orders below recent lows

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with increased volume		
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 <a href="#">trend-following strategies</a>
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

## Understanding Price Movements Within Bollinger 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. <sup>[2]</sup>

Setting the bands two standard deviations from the SMA creates a range expected to hold about 95% of price movements. 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. <sup>[4]</sup>

## Deciphering Signals From the Upper Bollinger Band

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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. <sup>[6]</sup>

For investors using [mean reversion](#) strategies, the upper band can act as a price target in a ranging market. <sup>[9]</sup> 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. <sup>[10]</sup>

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.

### Analyzing Signals From the Lower Bollinger Band

The lower band helps identify oversold conditions and serves as a reference for mean reversion or 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. <sup>[4]</sup>

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. <sup>[8]</sup>

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

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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. <sup>[10]</sup>

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.

### Interpreting Expanding Bollinger Bands

Widening bands signal rising volatility due to an increase in price standard deviation. Thus, the price moves are more significant than in the recent past. <sup>[4]</sup>

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. <sup>[11]</sup>

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.

### Understanding the Impact of Contracting Bollinger Bands

When bands contract, it suggests less market volatility with more contained price movements and possibly lower trading volume. This reduced volatility period can be seen as a time of [consolidation](#). <sup>[12]</sup>

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.

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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.

## Evaluating the Reliability of Bollinger Bands

The tool's effectiveness varies based on the asset, settings, and other factors: <sup>[4]</sup>  
<sup>[5]</sup>

- **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. <sup>[10]</sup>
- **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. <sup>[13]</sup> 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?

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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 help traders assess market volatility and identify potential trade opportunities by framing price movements within dynamic boundaries. These bands, centered around a simple moving average and adjusted for standard deviations, highlight situations when securities are statistically overbought or oversold. Traders often pair Bollinger Bands with other technical indicators, like the RSI or MACD, to enhance trade decisions and confirm signals. This tool's adaptability to volatility makes it essential for analyzing trends, setting price targets, and identifying breakouts or reversals. However, it is most effective when combined with additional analyses to mitigate the risk of false signals.

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