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The results shown in the reports are indicative only and depend on the adopted methodology, data selection, parameters, assumptions, and the way risk and return measures are calculated. Actual results may differ materially from historical or simulated results.

The author may hold positions in the instruments discussed or may apply a similar approach in practice. The information contained in the reports may change without prior notice.

Methodology

TradingEdge.Pro's methodology describes a multi-step process for building and validating trading strategies, structured into two parts: strategy development and testing, and practical use. In the testing phase, a strategy is defined as a set of objective rules, validated through initial tests, optimised, and assessed for stability (robustness), and then evaluated using Walk-Forward Analysis. The detailed testing assumptions (including the instrument universe, in-sample/out-of-sample periods, data sources, transaction costs, and execution rules) are described in the "Testing Specification" document. The full methodology and metric definitions are available on the TradingEdge.Pro "Methodology" page.

Bollinger Counter Trend v.1

Investment Strategy Testing Summary

The Bollinger Counter Trend v.1 strategy is a **counter-trend/mean reversion trading technique** that uses **Bollinger Bands** to identify **short-term price extremes** and attempts to capitalize on **price reversion toward the mean.** The premise is simple: if the market has made **an extreme deviation from the mean, there is a statistically increased chance that it will return to more "typical" levels** in subsequent sessions. However, the strategy does not enter immediately upon breaching the outer band (Trigger); it waits for **confirmation of the reversion** by crossing the inner band (Entry), which is intended to limit situations where the price "rides the band" in a strong trend.

Although the strategy is based on **rational assumptions** and attempts to exploit **the stock market effect,** its **effectiveness in real-world trading remains questionable.** It has not even passed **preliminary testing,** meaning **it is not recommended for use in real-world trading.**

Our goal is to have a strategy that remains **profitable and effective across a wide range of parameters,** because the market is a volatile organism, and optimal parameters can change over time. **I can't** emphasize enough that for **a strategy to work** in real-world conditions, it must also perform under **suboptimal parameters** and **conditions.** In short, **it must be stable** to changing market conditions.

I don't know who said these words, but they perfectly capture the problem of many optimizations:

"I've never seen a strategy that didn't work in backtests."

We don't know the future, we don't know future market conditions, but if we know that our strategy **has historically generated acceptable results** in various market conditions and across various parameter ranges, then we are **one step ahead of other** market participants.

Contents

Step 1: Formulate an investment strategy

Bollinger Counter Trend v.1 strategy is based on the Bollinger Channel, which is centered on a **moving average** and has deviations from the center determined by **volatility (standard deviation).** In practice, the system uses **a two-stage band structure:**

- **Trigger Threshold** (outer band) is meant to indicate that the market has reached an "extreme" state,
- **The Entry Threshold** (band closer to the average) is intended to force the price to return before entering a transaction.

This structure is important because **the mere presence of price outside the Bollinger Bands doesn't necessarily mean the market will begin to retrace** – in strong trends, the price may remain outside the band for some time. Therefore, the strategy requires a sequence: **first, a Trigger violation, and only then a return to the Entry.**

Input logic (symmetric):

- **Short:** first the price breaches the upper Trigger band (market "too expensive"), then it comes back and goes below the upper Entry band → entering a short.
- **Long:** first the price violates the lower Trigger band (market "too cheap"), then it comes back and goes above the lower Entry band → entering long.

The exit is defined as **a return to the Exit Threshold,** which is assumed to be closer to the middle of the channel (often at the average itself). This is consistent with the concept of mean reversion: the strategy doesn't attempt to catch the trend, but rather takes profit when the price "normalizes." **The initial stop loss** is set at **the Trigger Threshold,** the same outer band that activated the setup. This means **the Trigger serves a dual purpose:**

- Filters extreme (activated transaction option),
- It sets the boundary at which we consider the market to be still extreme and the transaction is flawed.

The strategy uses:

- **Bollinger Bands (Trigger/Entry/Exit)** – two-step entry and mean-reversion exit;
- **Stop loss = Trigger Threshold** – simple, consistent stop at the extreme level (modification);
- **Precise activation and entry conditions** – separating “extreme” from “confirmation”;
- **Fully mechanical** – the strategy maps directly to testing and automation.

Characteristics of the strategy and its strengths and weaknesses:

- **Strengths:**
    - **Simple, quantitative logic:** extremum → confirmation → reversion to the mean;
    - **Built-in false entry reduction thanks to the Entry condition** (the market must bounce before we enter);
    - **Unambiguous levels:** bands are specific, repeatable and easy to backtest;

- **The stop on Trigger is conceptually consistent** (extremum limit) and does not require additional parameterization.

- **Weaknesses:**
  - In strong trends, **the market can violate the Trigger multiple times and not return to the mean for a long time;**
  - The strategy can be **sensitive to the choice of Trigger/Entry/Exit thresholds,** which increases the risk of matching history;
  - **Band volatility increases during periods of turbulence,** which can shift entry/exit levels and worsen execution;
  - A stop on the Trigger means that in very stretched markets **the loss could be larger before a reversion to the mean occurs.**

The Bollinger Counter Trend v.1 strategy is a tool for traders who want to capitalize on **sudden supply-demand imbalances** and **extreme price impulses** that occur during trends. Although its premise is simple, effective use requires **disciplined rule execution,** consistent **risk management,** and an awareness that trades are executed **against the prevailing trend.** Due to the specific setup and operational risks, the strategy is best suited for investors who understand its profile (less frequent signals, possible quick reversals, volatile results) and can maintain consistency in conditions of increased volatility.

Step 2: Determine investment principles

Below is **the pseudocode** for the **Bollinger Counter Trend v.1 strategy** on daily charts:

1. **Calculating Indicators:**
    a. **SMA (Close Average Days)** – moving average of the closing price.
    b. **StdDev** – standard deviation calculated on the same window as the SMA.
    c. **Trigger Bands** – outer Bollinger Bands at the Trigger Threshold distance from the SMA.
    d. **Entry Bands** – inner Bollinger Bands at the Entry Threshold distance from the SMA.
    e. **Exit Threshold** – exit level (e.g. on SMA or other band).
2. **Generating Entry Signals – Long Position:**
    a. **Setup activation:** the market drops below the lower Trigger Band (extreme signal) during the session.
    b. **Entry Condition:** Once activated, a long position is opened only when the price returns and moves above the lower Entry Band (confirmation of the return).
    c. **Entry method:** entry is made with a buy stop order set at the Entry Band level.
    d. **Stop loss:** set the initial stop at the lower Trigger Band level.
3. **Generating Entry Signals – Short Position:**
    a. **Setup activation:** the market breaks above the upper Trigger Band during the session.
    b. **Entry Condition:** Once activated, a short position is opened only when the price returns and moves below the upper Entry Band.
    c. **Entry method:** entry is made with a sell stop order set at the Entry Band level.
    d. **Stop loss:** set the initial stop at the level of the upper Trigger Band (modification: stop = Trigger).
4. **Generating Output Signals:**
    a. **Take profit:** close the position when the price reaches the Exit Threshold.
    b. **Stop:** Close the position when the price touches the appropriate Trigger Band (stop loss).
5. **Daily Monitoring:**
    a. Update SMA, StdDev and all bands (Trigger/Entry/Exit) every day.
    b. The system checks the setup activation (Trigger violation), entry condition (return to Entry) and exit conditions (Exit or stop).

The above rules are described in a way that allows them to be directly converted into a script in the chosen testing platform, which ensures the accuracy of the historical simulation and the reliability of the test results.

Testing is performed assuming that **the risk of one position is 1.0% of total capital.**

Step 3: Pre-test your investment strategy

Below are some purchase and sale transactions that allow you to verify the following aspects:

- **Correctness of generated signals;**
- **Direction of opening a position;**
- **Moment of opening the position;**
- **The opening price of the position;**
- **Moment of closing the position;**
- **Closing price of the position;**
- **Compliance of the transaction with the theoretical assumptions of the investment strategy.**

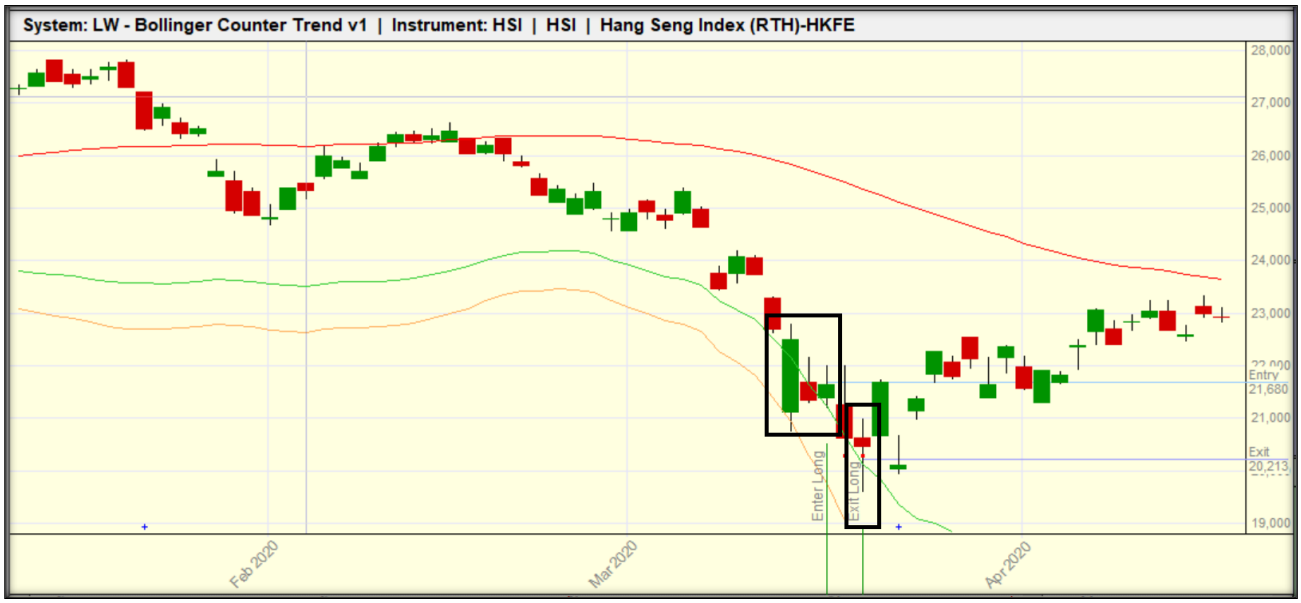
At this stage, **it doesn't matter** whether the trades are **profitable,** what **instrument was used,** or whether they occurred **recently** or **in the distant past.** The key is **to verify that the trades are generated correctly** and in line with the assumptions described in the previous step.

The first transaction was executed on the **coffee futures contract (KC).** At the end of July 2021, **the market made a sharp upward move** and during the session **broke above the upper Trigger Band** (first, larger rectangle) – this was the condition **for activating a short position setup.** The strategy does not open a position immediately after the Trigger Band is breached, but **waits for the price to rebound.** Next, the price began to reverse and passed **below the upper Entry Band** (smaller rectangle), which met the entry condition and **activated a sell stop order at the Entry Band level.** Simultaneously, **the initial stop loss was set at the upper Trigger Band** (red dots).

The position was then held until **the price reached the Exit Threshold** – the profit-taking level (second rectangle on the right). Once this level was reached, the strategy closed the short position (the "Exit Short" line). **The system worked correctly.**

Another example. The trade was conducted on a **futures contract on the Hang Seng Index (HSI).** In mid-March 2020, the market **fell sharply,** and the first candle in the large rectangle broke **below the lower Trigger Band,** triggering a long position setup. The strategy doesn't buy immediately—it waits for the price to revert back toward the mean. **A buy stop order was set for the next session at the lower Entry Band.** The second candle in the large rectangle didn't trigger an entry because its high fell below the Entry Band. Only the third candle rose enough for **its high to break above the Entry Band, triggering a buy stop order** and opening a long position (the "Enter Long" line). According to the system's rules, **the stop loss was set at the lower Trigger Band** (red dots).

Unfortunately, the market quickly turned downward, and two days after entry, **the price dropped to the stop loss level** and the position was closed at a loss ("Exit Long" line). **The system worked correctly.**



Once we are sure that the transactions are generated correctly, we can proceed to the first test of the strategy on the full **in-sample data set.** These tests are performed on **the basic parameters,** which – according to my assessment – should correspond to the assumed goals of the strategy.

First, **we reject strategies that linearly lose capital.** If a strategy exhibits this pattern, it's a clear signal that any parameter optimization is pointless.

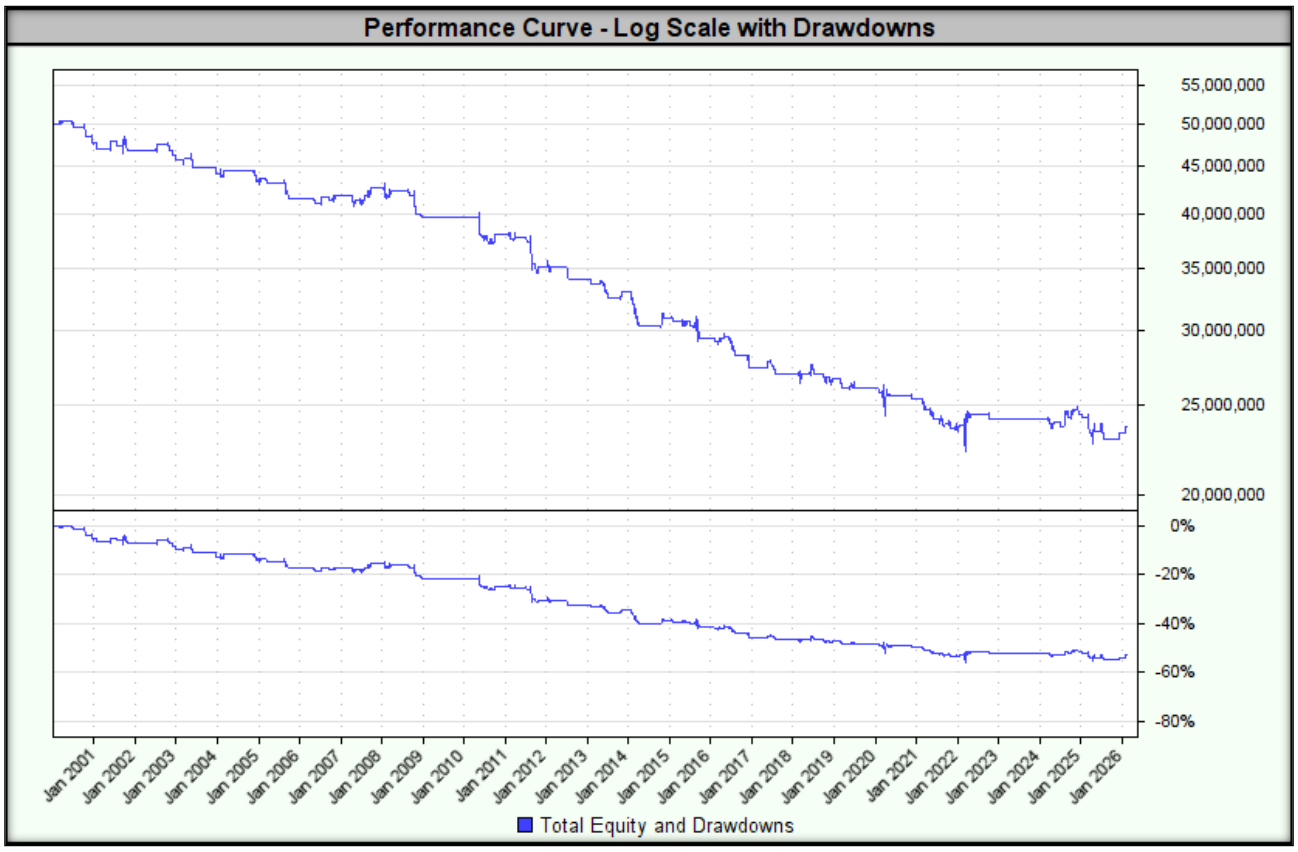
Our basic expectation is that the strategy generates **positive results,** even if they are at a low level.

Tested base parameters:

- **SMA (Moving Average) & StdDev (Standard Deviation):** 50 days;
- **Trigger Bands & Stop loss:** 4xStdDev;
- **Entry Bands:** 3xStdDev;
- **Exit Threshold:** 1xStdDev;
- **Method of opening a position:** sell/buy stop;
- **Position Size:** Fixed Fractional; Risk Equity 1.0% of total capital;
- **Position direction:** long (buy) and short (sell) positions.

The test result is shown below.

Historical or simulated results do not guarantee that similar outcomes will be achieved in the future.



Indicators/Measures	Concluding a transaction at the opening price
CAGR%	-2.82%
MAR Ratio	-0.05
RAR%	-3.25%
R-Cubed	-0.06
Robust Sharpe Ratio	-0.82
Max Drawdown	55.8%
Wins	34.0%
Losses	66.0%
Average Win%	1.25%
Average Loss%	1.16%
Win/Loss Ratio	1.08
Average Trade Duration (days)	11
Percent Profit Factor	0.56
SQN	-
Number of transactions	212

In summary, the system works properly and generates signals as expected. However, **tests on the underlying parameters yielded poor results.** Therefore, **further testing of the strategy is not warranted,** as its use in real-world trading **is highly questionable.**

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Step 4: Optimizing and assessing the stability of the investment strategy

1. **Stability across a wide range of optimized parameters**

The step was skipped due to **failure of previous tests.**

2. **Monte Carlo simulation**

The step was skipped due to **failure of previous tests.**

3. **Stability over a moving time window**

The step was skipped due to **failure of previous tests.**

4. **Long/short stability**

The step was skipped due to **failure of previous tests.**

5. **Stability in the portfolio of financial instruments**

The step was skipped due to **failure of previous tests.**

6. **Money Management (Position Sizing)**

The step was skipped due to **failure of previous tests.**

7. **Strategy Risk Management**

The step was skipped due to **failure of previous tests.**

Step 5: Walk-Forward Analysis

The step was skipped due to **failure of previous tests.**

Step 6: Using the strategy in real time

The step was skipped due to **failure of previous tests.**