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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.



V-Thrusts v.1

Investment Strategy Testing Summary

The **V-Thrusts v.1 strategy** is Jeff Cooper's swing trading technique. In its long version, it combines a **trend filter based on the Donchian channel** with an **impulse to a new multi-week high**, followed by a **multi-session correction of significant amplitude** (a decline from the peak by several times **the ATR; Average True Range**). The signal activates a **Reversal Day** at the end of the correction, and entry is achieved through a **buy stop** above the high of the reversal day. We define risk with a fixed stop below **the correction lows**, and the position is closed **after several sessions** (time-exit). The strategy has a mirror variant for short selling.

While the strategy's logic seems sound, it hasn't even passed initial testing because the number of test trades is so low that it's impossible to draw any reliable conclusions. Therefore, it's 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

Investment Strategy Testing Summary	3
Step 1: Formulate an investment strategy	5
Step 2: Determine investment principles.....	6
Step 3: Pre-test your investment strategy	8
Step 4: Optimizing and assessing the stability of the investment strategy	12
1. Stability across a wide range of optimized parameters	12
2. Monte Carlo simulation.....	12
3. Stability over a moving time window	12
4. Long/short stability.....	12
5. Stability in the portfolio of financial instruments	12
6. Money Management (Position Sizing)	12
7. Strategy Risk Management.....	12
Step 5: Walk-Forward Analysis.....	13
Step 6: Using the strategy in real time.....	14



Step 1: Formulate an investment strategy

V-Thrusts v.1 strategy joins **the ongoing trend** after a strong price impulse and a **deep, short correction** culminating in a **Reversal Day**. **The trend context** is confirmed by the price entering **the upper band of the Donchian Channel** (for longs) and the establishment of a **new multi-week high**. The market then performs a **multi-session correction** with a range several times **the ATR (Average True Range) calculated from the high to the low of this sequence**. **At the end of this correction, a Reversal Day** occurs (a day when the price drops below the previous session's low and then rises above the previous day's high). Entry is executed **with a buy stop order 1 tick** above the high of the reversal day, and a **stop loss** is set **at the low of the entire correction**. The position is closed **several sessions** after entry, unless a stop has already been triggered.

Short version is analogous: downtrend (lower Donchian band), **new multi-week low**, several times **ATR** upward correction lasting several sessions, **Reversal Day** down, sell stop 1 tick below its minimum, stop above the correction maximum, time-exit several sessions.

The strategy uses:

- **Trend filter (Donchian channel)** – price in the upper (long) or lower (short) band of the channel;
- **Momentum Impulse** – new multi-week high/low;
- **“V” correction** – a correction lasting several sessions with a total range of several times the ATR relative to the high/low;
- **Reversal Day** – precise turning point;
- **Trigger T+1** – buy/sell stop 1 tick above/below the high/low of the reversal day;
- **Constant risk management** – stop loss at the extreme of the entire correction;
- **Timed exit** – closing a position after several sessions.

Characteristics of the strategy and its strengths and weaknesses:

- **Minimalistic, easy to program** – a few simple rules ensure transparency and low computational costs;
- **Natural mean-reversion environment** – large instruments often rebound after a sharp decline within a trend;
- **Entry after a confirmed reversal following a significant correction** – often a favorable reward/risk ratio;
- **Fewer transactions in sideways trends** – in the absence of clear multi-day extremes, the system remains out of position for a long time;
- **High correction amplitude increases nominal stop distances** – strict control of position size is necessary.

V-Thrusts v.1 strategy, while simple, provides a **solid foundation for building algorithmic portfolios**. However, it requires **discipline and strict adherence to risk management methods**.



Step 2: Determine investment principles

Below is the pseudocode for the **V-Thrusts v.1 strategy** on daily data:

1. Calculating Indicators:

- a. **XXX-Donchian** – Donchian channel with XXX session window.
- b. **ATR(40)** – Average True Range over 40 sessions, used to measure correction amplitude.
- c. **Y-DayLowestLow** – the lowest price from the last Y sessions (including the current one).
- d. **Y-DayHighestHigh** – the highest price from the last Y sessions (including the current one).
- e. **Reversal Day (RD)** – Reversal Session:
 - i. **Long position:** a bullish candle whose low and high are below/above the low/high of the previous day's candle, respectively.
 - ii. **Short position:** a bearish candle whose low and high are below/above the low/high of the previous day's candle, respectively.

2. Generating Entry Signals – Long Position:

- a. **Trend:** Y days ago the maximum price of the instrument formed a XXX-day high (XXX-day Donchian channel).
- b. **Correction:** This high was followed by a downward correction, the low of which is the lowest price of the last Y sessions (Y-DayLowestLow), and its amplitude is at least $Z \times \text{ATR}(40)$ (where Z is the ATR multiplier).
- c. **Ending Signal:** Current session meets Reversal Day (RD) condition up.
- d. **Entry:** Set a buy stop order 1 tick above the high of the Reversal Day (RD) candle; the order is active only on the next session.

3. Generating Entry Signals – Short Position:

- a. **Trend:** Y days ago the minimum price of the instrument formed a XXX-day low (XXX-day Donchian channel).
- b. **Correction:** After this bottom, there was an upward correction whose high is the highest price in the last Y sessions (Y-DayHighestHigh) and its amplitude is at least $Z \times \text{ATR}(40)$ (where Z is the ATR multiplier).
- c. **Ending Signal:** Current session meets Reversal Day (RD) condition down.
- d. **Entry:** Set a sell stop order 1 tick below the low of the Reversal Day (RD) candle; the order is active only on the next trading session.

4. Generating Output Signals:

- a. **Timed exit:** if the stop loss has not been activated earlier, close the position after the WW sessions from the entry date (closing the position at the opening price of the next day after the WW session has expired).

5. Stop Loss Management:

- a. **Long position:** set stop loss 1 tick below the Reversal Day (RD) low.
- b. **Short position:** Set stop loss 1 tick above the Reversal Day (RD) high.

6. Daily Monitoring:

- a. Every day calculate the values: XXX-Donchian, ATR(40), Y-DayLowestLow, Y-DayHighestHigh and check for the occurrence of Reversal Day.



- b. The system verifies entry/exit conditions and sets appropriate buy stop/sell stop orders for the following day; keeps a day counter to the WW session for active positions.

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.

Tests are 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 an S&P 500 index futures contract (e-mini). At the end of May 2024, prices formed a **new 100-day high** (the first candle in the left-hand rectangle), after which prices entered a multi-day correction. **For a buy signal to be generated**, the correction's minimum must be a 5-day low (orange line on the chart), it must have a range of 2.5 times the ATR (the ATR value is located below the price chart), and a Reversal Day (RD) formation must occur. **These conditions were met five days after the formation of a new 100-day high** (the sixth candle in the left-hand rectangle), which generated a signal to open a long position. The following day, we placed a buy stop order one tick above the high of the Reversal Day candle and a stop loss order one tick below the low of that candle. The position was opened the following day **(the seventh candle in the left-hand rectangle). The system worked correctly.**

The strategy assumes **closing the position after 10 days or when a defensive order is triggered**. Since the stop loss order wasn't reached within the ten-day period, we close the position on the eleventh day at the opening (the second candle in the right-hand rectangle). **The system worked correctly.**



The second transaction was executed on an S&P 500 index futures contract (e-mini). At the end of January 2008, prices formed a new 100-day low (the first candle in the left-hand rectangle), after which prices entered a multi-day correction. For a sell signal to be generated, the correction's maximum must be a five-day high (orange line on the chart), it must have a range of 2.5 times the ATR (the ATR value is located below the price chart), and a Reversal Day (RD) formation must occur. These conditions were met three days after the formation of a new 100-day low (the fourth candle in the left-hand rectangle), which generated a signal to open a short position. The following day, we placed a sell stop order one tick below the low of the Reversal Day candle and a stop loss order one tick above the high of that candle. The position was opened the following day (the fifth candle in the left-hand rectangle). The system worked correctly.

The strategy assumes closing the position after 10 days or when a defense order is activated. On the third day after opening the position, the defense order was activated (the candle in the right-hand rectangle). The system worked correctly.





Once we are sure that the trades are generated correctly, **we can move on to the first test of the strategy on the full in-sample dataset**. These tests are conducted on **baseline parameters** that, in my opinion, should align with the strategy's stated goals.

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.

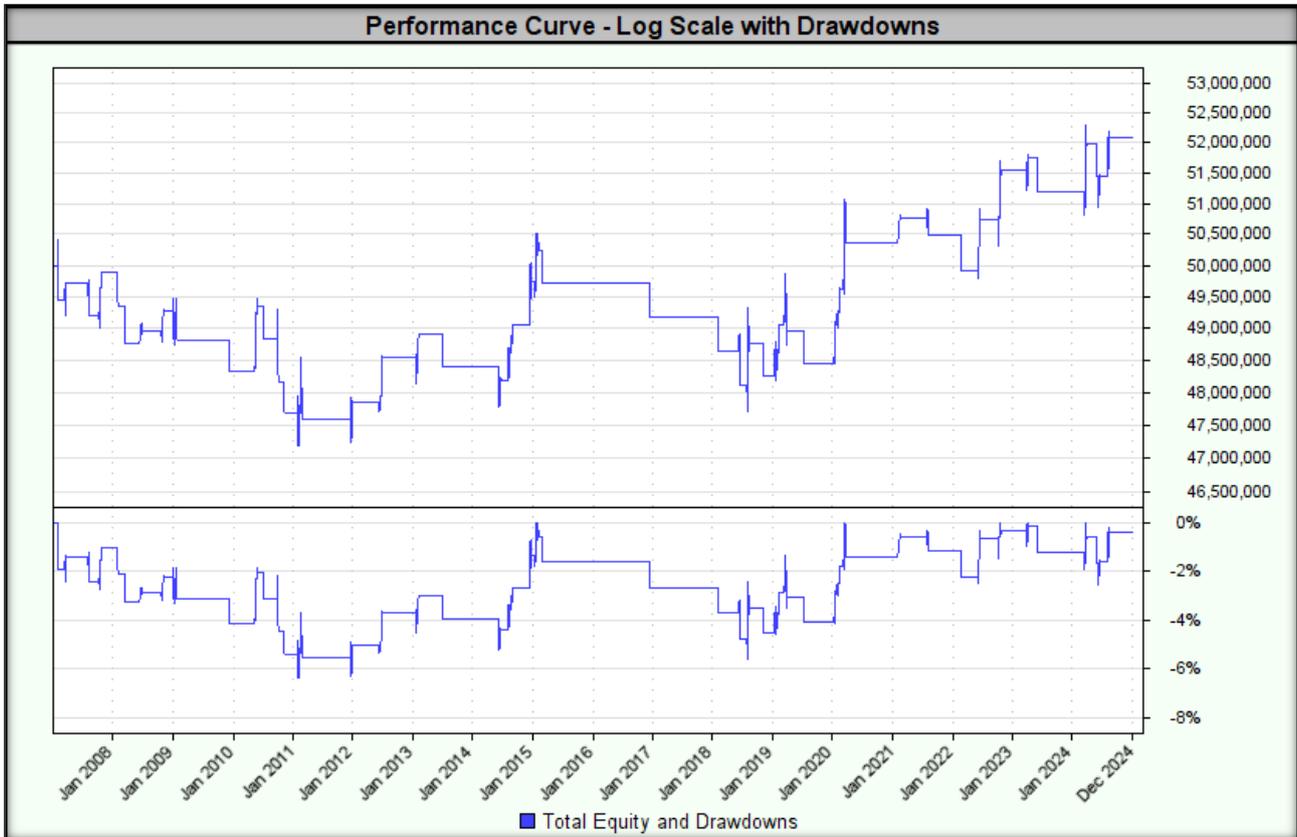
Our basic expectation is that the strategy generates **positive results**, even if they are at a low level.

Tested base parameters:

- **Donchian Canal:** 100 days;
- **Y-DayLowestLow/Y-DayHighestHigh:** lowest/highest price of the last 5 sessions;
- **Correction range:** $2.5 \times \text{ATR}(40)$;
- **Reversal Day formation** – the low of the candle is below the low of the previous day, and the high is above the high of the previous day;
- **Position opening method:** buy/sell stop one tick above/below the high/low of the Reversal Day candle (for long/short position respectively);
- **Order validity:** the order remains active only during the next session;
- **Stop loss:** one tick below/above the low/high of the Reversal Day candle (for long/short position respectively);
- **Closing the position:** 10 days after opening (11th day for opening);
- **Position direction:** long and short;
- **Position sizes:** corresponding to a risk of 1.0% of total capital.

The test result is shown below.

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



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%	0.23%
MAR Ratio	0.04
RAR%	0.30%
R-Cubed	0.02
Robust Sharpe Ratio	0.16
Max Drawdown	6.4%
Wins	55.4%
Losses	44.6%
Average Win%	0.97%
Average Loss%	1.03%
Win/Loss Ratio	0.94
Average Trade Duration (days)	10
Percent Profit Factor	1.17
SQN	0.12
Number of transactions	56

In summary, the system worked properly and generated signals as expected. **However, the number of test transactions is low, which prevents us from drawing reliable conclusions. This means that the reliability of this strategy leaves much to be desired, and at this stage we are ending testing and refraining from further development of the strategy.**



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 the preliminary tests.

2. **Monte Carlo simulation**

The step was skipped due to failure of the preliminary tests.

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

The step was skipped due to failure of the preliminary tests.

4. **Long/short stability**

The step was skipped due to failure of the preliminary tests.

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

The step was skipped due to failure of the preliminary tests.

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

The step was skipped due to failure of the preliminary tests.

7. **Strategy Risk Management**

The step was skipped due to failure of the preliminary tests.



Step 5: Walk-Forward Analysis

The step was skipped due to **failure of the preliminary tests.**



Step 6: Using the strategy in real time

The step was skipped due to **failure of the preliminary tests.**