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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.

1-2-3 Pullbacks v.2

Investment Strategy Testing Summary

The 1-2-3 Pullbacks v.2 strategy is a **swing trading** technique that looks for **short-term corrections (pullbacks) in a very strong uptrend** or downtrend, as measured by a high ADX indicator value. The key assumption of the strategy is **to open a position after the three-day pause in the movement ends** - exactly when the price is preparing to return to the dominant trend.

Compared to 1-2-3 Pullbacks v.1 this strategy requires a **1-2-3 Pullback** candlestick formation had not only three consecutive days of lower lows, but also lower highs (for the long position; similarly for the short position).

Although the strategy logic seems correct, **it <u>did not pass even the initial test, because on in-sample data it linearly loses capital.</u>** This means that <u>**it is not recommended to use it in real transactions.**</u>

Our goal is to have a strategy that remains **profitable and effective over a wide range of parameters,** because the market is a changing organism and the optimal parameters can change over different periods. <u>**I cannot** emphasize enough that for **a strategy to work** in real conditions, it must also work on **suboptimal parameters** and in **suboptimal conditions.**</u> In a word - **it must be stable** to changing market conditions.

I don't know who said these words, but they perfectly reflect 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

The 1-2-3 Pullbacks v.2 strategy was developed by **Jeff Cooper** as a short-term system based on **the ADX (Average Directional Index)** and the formation of **three consecutive corrective candles.** Its purpose is to enable the trader **joining an already existing, strong trend** at a time when the instrument **is temporarily "resting".**

The strategy uses:

- **ADX** to confirm trend strength (filter: ADX > 30),
- **+DI/-DI relationship** to determine direction (predominance of +DI for longs, -DI for shorts),
- **Price formation 1-2-3** (three-day pullback or 2 days + inside day) to the precise moment of entry.

The strategy includes both **long (buy) and short (sell) positions,** depending on whether the instrument is moving in an upward trend (+DI advantage for longs) or downward (-DI advantage for shorts). An important aspect is the precise selection of the entry moment and securing the position through defined stop loss levels.

Characteristics of the strategy and its strengths and weaknesses:

- **Combines trend strength with price formation** – filtering trend signals reduces the number of false entries.
- **Simple, unambiguous implementation** – three clear criteria (ADX, DI, candlestick pattern).
- **Limited risk** – stop loss based on market volatility (ATR).
- **False signals in turbulence** – sudden turns with high volatility can quickly activate stop losses.
- **Daily observation required** – formation takes place in just a few sessions.
- **Lack of effectiveness in consolidations** – at low ADX the strategy generates little or no signals.

The 1-2-3 Pullbacks strategy uses simple but effective rules to allow traders to enter a position after a short-term correction while minimizing risk through the use of a stop loss. While it can be effective in the short term, it requires discipline and regular market observation to avoid false signals.

Step 2: Define investment principles

Below is **the pseudocode** for the **1-2-3 Pullbacks v.2 strategy** on daily data:

1. **Calculation of indicators**
   a. **ADX(14)** – if ADX > 30, the market is in a strong trend.
   b. **+DI/-DI(14)** – determine the dominant direction:
      i. **Long,** when +DI > -DI;
      ii. **Short** when -DI > +DI.
   c. **ATR(40)** – average price range from the last 10 sessions.
2. **Generating entry signals - long position**
   a. **Trend conditions:** ADX > 30 and +DI > -DI.
   b. **1-2-3 Pullback Formation:**
      i. Three consecutive days with lower lows and highs, or
      ii. Two days of lower lows and highs + third day inside day.
   c. **Entry:** On day 4, set buy stop 1 tick above day 3 high.
   d. **Stop loss:** set a defense order at a distance of 2 x ATR(10) below the entry order.
3. **Generating entry signals – short position**
   a. **Trend conditions:** ADX > 30 and -DI > +DI.
   b. **1-2-3 Rally Formation:**
      i. Three consecutive days with higher highs and lows, or
      ii. Two days with higher highs and lows + third day inside day.
   c. **Entry:** On day 4, set sell stop 1 tick below day 3 low.
   d. **Stop loss:** set a defense order at a distance of 2 x ATR(10) above the entry order.
4. **Closing the position –** if the stop loss has not been activated, close the trade at the open of the eleventh day from entry.
5. **Daily monitoring**
   a. After each session, calculate ADX, +DI, -DI, ATR and check the 1-2-3 formation.
   b. Once conditions are met, set the appropriate trigger order for the next session.

The above rules have been 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: Conduct a preliminary test of the investment strategy

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

- **Correctness of generated signals;**
- **Direction of opening position;**
- **Moment of opening a position;**
- **Position opening price;**
- **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 does not matter** whether the transactions are **profitable,** what **instrument was used** or whether they took place **recently** or **in the distant past.** The key is **to check whether the transactions are generated correctly** and in accordance with the assumptions described in the previous step.

The first transaction is on an orange juice futures contract. In mid-May 2022, the quotes formed **a 1-2-3 correction with three candles with increasingly lower low and high** (the first three candles in the rectangle on the left). Since **ADX is above 30,** we set a **buy stop order one tick above the high of the third candle.** The order was **activated the next day** (the fourth candle in the rectangle on the left), and the **stop loss order was set at a distance of 2 x ATR(10) below the entry order** (red dot). **The system worked correctly.**

Orange juice prices rose for the next few days, without activating the stop loss order during that time, and **the position was closed on the eleventh day at opening** (the rectangle on the right). **The system worked correctly.**

The second transaction is on a German bond futures contract. At the beginning of June 2022, the quotes formed **a 1-2-3 correction with three candles with increasingly higher high and low** (the first three candles in the rectangle on the left). Since **ADX is above 30,** we set a **sell stop order one tick below the low of the**

third candle. The order was **activated the next day** (the fourth candle in the rectangle on the left), and the **stop loss order was set at a distance of 2 x ATR(10) above the entry order** (red dot). **The system worked correctly.**

On the fifth day of holding the position, **the quotes rose to the stop loss level and the position was closed at a loss** (the rectangle on the right). **The system worked correctly.**

Once we are sure that the trades 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 of all, **we reject strategies that linearly lose capital.** If a strategy exhibits such a pattern, it is a clear signal that any parameter optimization does not make sense.

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

Tested base parameters:

- **Number of consecutive high/low forming a 1-2-3 correction (including inside bar):** 3 days;
- **ADX period:** 14 days;
- **Minimum ADX value:** 30;
- **ATR period:** 10 days;
- **How to open a position:** buy/sell stop one tick above/below the high/low of the previous candle;
- **Stop loss:** set at a distance of 2 x ATR(10) below/above the entry order for a long/short position respectively;
- **Closing a position:** 10 days after opening (11 days after opening);
- **Position direction: long** and short;
- **Position sizes:** corresponding to a risk of 1.0% of total capital.

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

The test result is shown below.
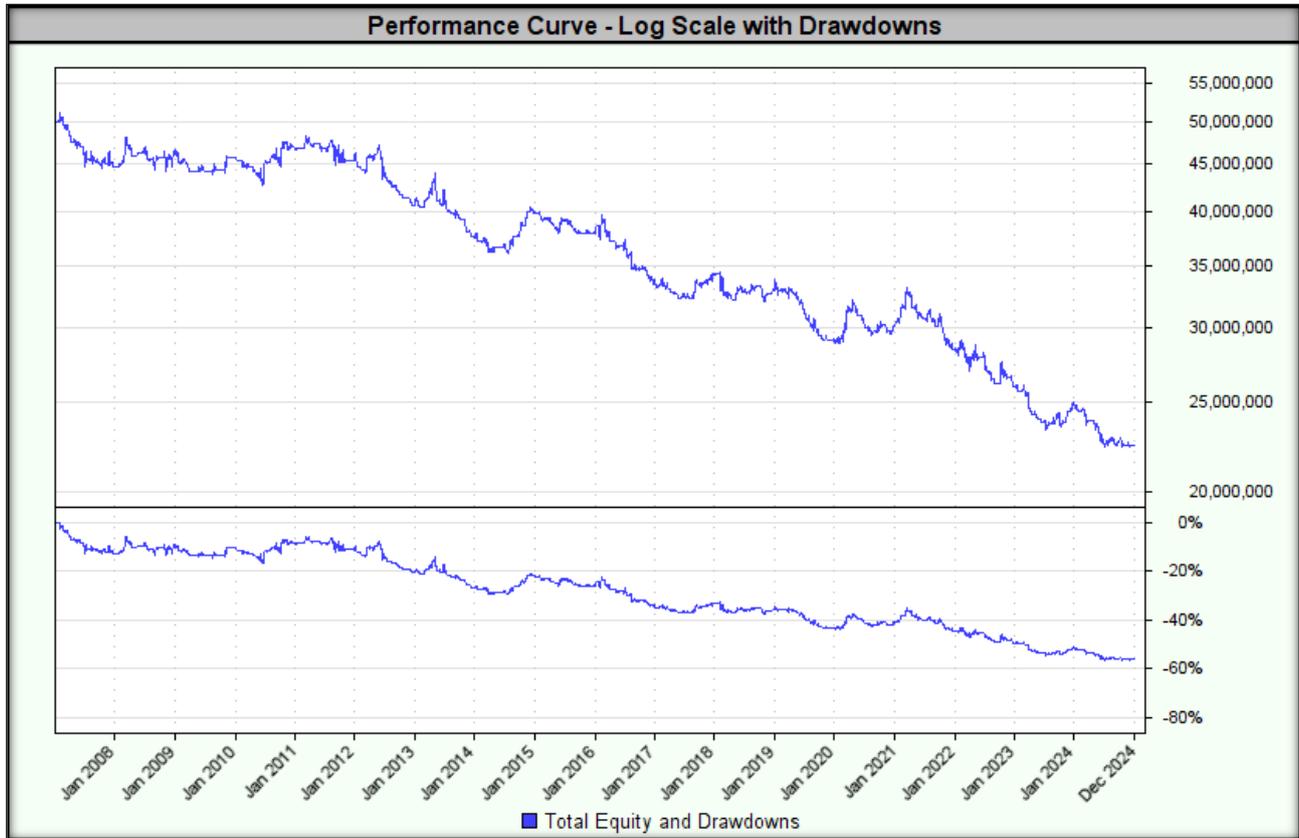
Performance Curve - Log Scale with Drawdowns

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%	-4.4%
MAR Ratio	-0.08
RAR%	-4.0%
R-Cubed	-0.10
Robust Sharpe Ratio	-0.59
Max Drawdown	56.3%
Wins	39.3%
Losses	60.7%
Average Win%	0.82%
Average Loss%	0.73%
Win/Loss Ratio	1.13
Average Trade Duration (days)	10
Percent Profit Factor	0.73
SQN	-0.77
Number of transactions	644

In summary, the system worked correctly and generates signals as expected. **However, the tests on the output parameters are weak (generate a loss), so at this stage we will end the tests and reject the strategy.**

Step 4: Optimization and assessment of investment strategy stability

This stage of strategy creation and testing is **crucial,** as it determines how **effective** the strategy will be in **real conditions.** <u>I cannot</u> emphasize enough that for **a strategy to work** in real conditions, it must also work on **suboptimal parameters** and in **suboptimal conditions.** In a word – **it must be stable** to changing market conditions.

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

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

<u>My goal is not</u> to find **optimal parameter values** – **my goal** is to find **a wide range of parameters** for which the strategy will generate **acceptable results.** **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.

What **parameters to choose** for the next period is the subject of considerations in **Step 5 of the "Walk-Forward Analysis",** but before we get to that, **we need to know whether our strategy is stable** at all.

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. **Stability long/short**

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.**