Non-ADX 1-2-3 Pullbacks v.1

Investment Strategy Testing Summary

The Non-ADX 1-2-3 Pullbacks v.1 strategy is a swing trading technique developed by Jeff Cooper (a variant of the classic 1-2-3-4 Pullback without the ADX filter). This version combines **a strong uptrend** with **a three-stage price correction** (three consecutive candles with progressively lower highs and lows), followed by **entry through a breakout** above the high of the last correction candle – similar to a short position. Risk is defined by a fixed stop below the minimum of the entire correction and the position has **a predetermined time horizon.**

Although the strategy's logic seems sound, **it has not even passed the initial test because, on the one hand, its results do not indicate a market advantage, and on the other, the number of test transactions is low, which further prevents drawing reliable conclusions. Therefore, it is not recommended to use it in real transactions.**

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.

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Step 1: Formulate an investment strategy

Non-ADX 1-2-3 Pullbacks v.1 strategy is a swing trading system that aims to **join a prevailing uptrend after a shallow, three-stage correction.** The trend context is confirmed **by two moving averages** (one faster and one slower) above which the closing price remains, and the fact that **a new multi-week high was recently established.** Following such an impulse, the market executes **a sequence of three consecutive candles with progressively lower highs and lows;** if the price then breaks above the high of the last candle, we consider this a resumption of the upward movement.

Entry is executed with a buy/sell stop order 1 tick above/below the high/low of **the last correction candle;** a stop loss is set 1 tick above/below its low/high. **The order to open a position remains active during the next trading session.** The position is closed several trading sessions after entry (time-exit), if the stop hasn't been triggered previously.

The strategy uses:

- **Direction filter (MA fast & MA slow)** – candle close above/below both averages, for long/short position respectively;
- **Momentum context (multi-week high/low)** – in recent sessions the market has reached a new multi-week high/low;
- **1-2-3 correction structure** – three consecutive candles with progressively lower high and low for a long position and progressively higher high and low for a short position;
- **Trigger T+1** – buy/sell stop 1 tick above/below the high/low of the last candle;
- **Constant risk management** – stop loss 1 tick below/above the low/high of the last candle;
- **Timed exit** – closing a position after several sessions.

The strategy encompasses **both long (buy) and short (sell) positions.** The key element is the precise placement of trigger orders and **strict risk management through stop loss orders.**

Characteristics of the strategy and its strengths and weaknesses:

- **Simple logic, easy automation** – clear trend conditions, correction and entry structures;
- **Synchronizing momentum with a breakout entry** – eliminates the “catching the lows” part;
- **Risk of a “false bounce”** – in a weakening trend, a breakout may be quickly negated;
- **Gap sensitivity** – morning breakouts may cause slippage from the planned entry level;
- **Strong momentum context** – new highs and moving averages filter out instruments with real strength.

Non-ADX 1-2-3 Pullbacks v.1 strategy, although rare, is a valuable addition to the "trend continuation" portfolio, allowing you to enter after a temporary market correction, when many players have already capitulated from their positions.

Step 2: Determine investment principles

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

1. **Trend and context conditions**
    a. **Define two moving averages –** MA_fast (e.g. XX-day) and MA_slow (e.g. YY-day).
    b. **Uptrend –** closing price of the instrument above MA_fast and MA_slow.
    c. **Downtrend –** closing price of the instrument below MA_fast and MA_slow.
    d. **Upward momentum –** before entering the 1-2-3 correction, the market formed a ZZ-day high.
    e. **Downward momentum –** before entering the 1-2-3 correction, the market formed a ZZ-day low.
2. **Identifying a 1-2-3 Correction (Three-Day Downward Sequence)**
    a. **Correction in an uptrend –** three consecutive highs and lows must be lower and lower.
    b. **Correction in a downtrend –** three consecutive highs and lows must be higher and higher.
3. **Entry – long position**
    a. **Order** – Set a buy stop order one tick above the high of the last correction candle.
    b. **Order validity** – the order remains active in the next session.
4. **Entry – short position**
    a. **Order** – Set a sell stop order one tick below the low of the last correction candle.
    b. **Order validity** – the order remains active in the next session.
5. **Risk management**
    a. **Initial stop of long position:** 1 tick below the low of the last correction candle.
    b. **Initial stop of a short position:** 1 tick above the high of the last correction candle.
6. **Closing a position**
    a. **Timed exit** – if the stop loss has not been activated earlier, close the position after WW sessions from the entry day (the next day for opening).
7. **Daily monitoring**
    a. After each session, check whether the conditions described in **"Trend and Context Conditions"** and then in **"Identifying a 1-2-3 Correction" are met.**
    b. Once all conditions for a long or short position are met, set appropriate orders (buy stop or sell stop) for the next trading day.

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

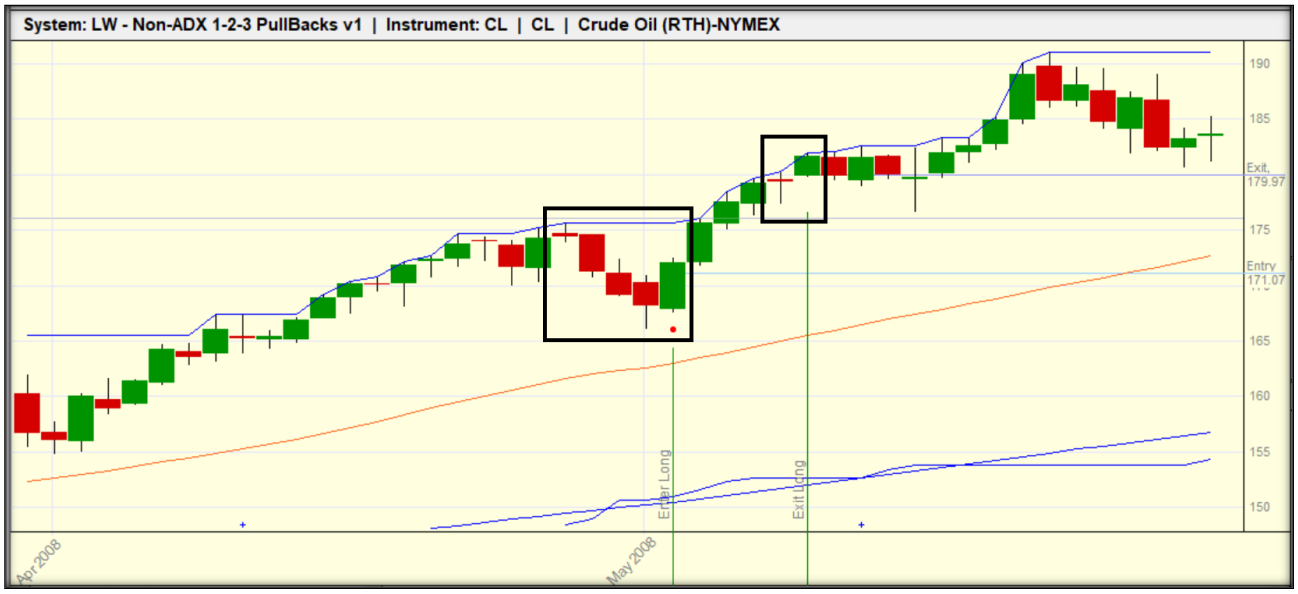
Below are some purchase and sale transactions that allow you to verify the following aspects:

- **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.

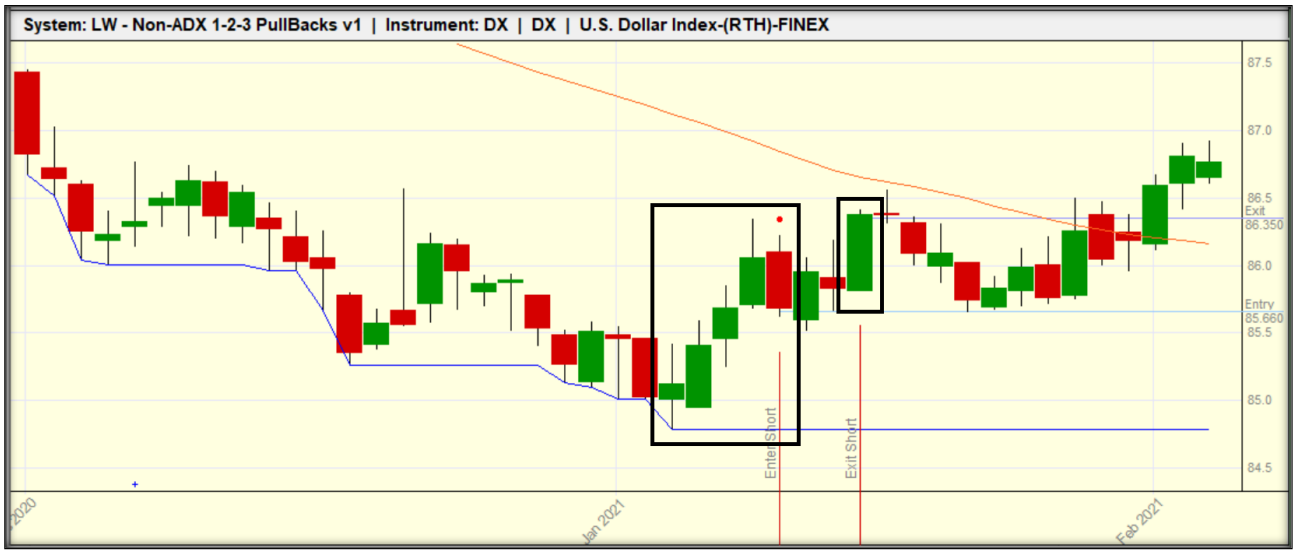
Our first transaction is on a crude oil futures contract. At the end of April 2008, the price **was in an uptrend (price above the 50-day and 150-day moving averages), creating a 50-day high** (first candle in the left-hand rectangle). Next, a 1-2-3 correction was formed, with three progressively lower highs and lows (the second, third, and fourth candles in the left-hand rectangle), thus **meeting the conditions for setting an order to open a long position.** The following day, **we placed a buy stop order one tick above the previous day's high** (the fifth candle in the left-hand rectangle), which was executed. **A defensive sell stop order (red dots) was also automatically set,** one tick below the previous day's low. **The system worked correctly.**

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



The second transaction is on a US dollar index futures contract. In early January 2021, the price **was in a downward trend (price below the 50-day and 150-day moving averages), creating a 50-day low** (first candle in the left-hand rectangle). **Next, a 1-2-3 correction** was formed, with three progressively higher highs and lows (the second, third, and fourth candles in the left-hand rectangle), thus **meeting the conditions for setting a short order.** The following day, **we set a sell stop order one tick below the previous day's low** (the fifth candle in the left-hand rectangle), which was executed. **A defensive buy stop order (red dots) was also automatically set,** one tick above the previous day's high. **The system worked correctly.**

The strategy assumes **closing the position after 5 days or when a defense order is activated.** On the fourth 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.

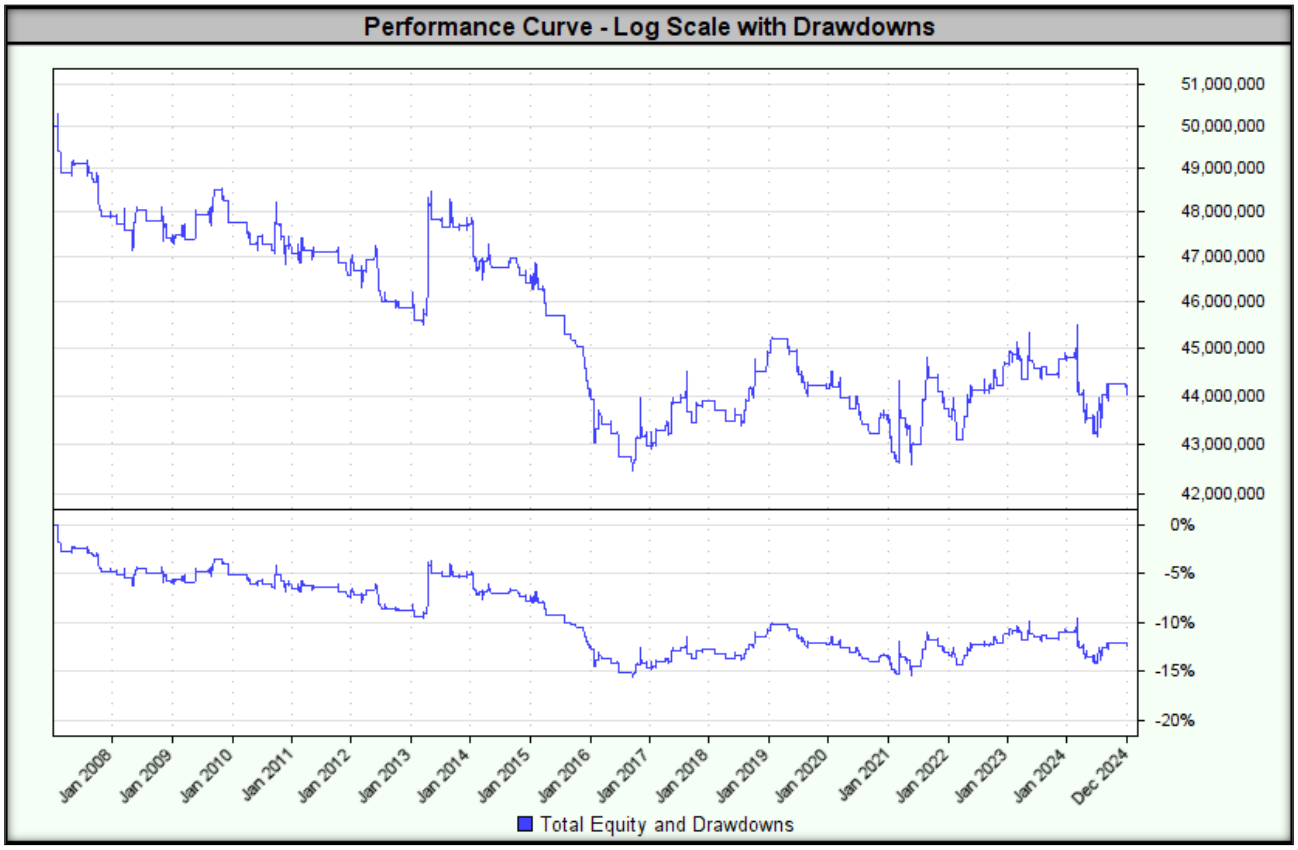
Our basic expectation is that the strategy generates **positive results,** even if they are at a low level.

The tested output parameters are:

- **Trend conditions:**
  - **Fast moving average:** 50 days;
  - **Slow moving average:** 150 days;
- **Momentum:** The market formed a 50-day high/low before entering a 1-2-3 correction;
- **1-2-3 corrections:** three consecutive highs and lows must be progressively lower/higher;
- **Position opening method:** buy/sell stop one tick above/below the high/low of the last correction 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 last correction candle (for long/short position respectively);
- **Closing the position:** 5 days after opening (6 days 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.



Indicators/Measures	Concluding a transaction at the opening price
CAGR%	-0.70%
MAR Ratio	-0.05
RAR%	-0.65%
R-Cubed	-0.06
Robust Sharpe Ratio	-0.25
Max Drawdown	15.6%
Wins	40.0%
Losses	60.0%
Average Win%	0.55%
Average Loss%	0.44%
Win/Loss Ratio	1.25
Average Trade Duration (days)	5
Percent Profit Factor	0.83
SQN	-0.26

Number of transactions	270

In summary, the system worked well and generated signals as expected. **However, the strategy's performance was poor (multi-year drawdown), and the number of test transactions was low, making it impossible to draw reliable conclusions. This means that the reliability of this strategy leaves much to be desired, and we are ending testing at this stage and abandoning further development of the strategy.**

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

This stage of strategy development and testing is **crucial** because it determines how **effective** the strategy will be in **real-world conditions. I cannot** 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."

My goal is not 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 topic of consideration in **Step 5, "Walk-Forward Analysis",** but before we get to that, **we need to know** whether our strategy is even **stable.**

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

Walk-Forward Analysis (WFA) is a key tool for assessing **a strategy's ability to perform in real-world market conditions.** It provides **reliable measures of reward and risk** after the optimization process and allows you to answer several key questions:

1. **What rate of return can you expect from the strategy?**
    - The optimization result often overestimates the expected rate of return, which can lead to unrealistic forecasts.
    - WFA provides more **reliable and realistic measures of return** by minimizing the impact of overfitting to historical data.
2. **What set of parameters should be used in the next period?**
    - Thanks to **WFA,** it is possible **to dynamically adjust the strategy parameters** to **the latest market changes,** increasing its adaptability.

WFA tests the strategy over multiple time periods, minimizing the risk of overfitting (overfitting the strategy to historical data). The WFA process consists of **two repeated steps:**

1. **Optimization (In-Sample):**
    - The strategy is optimized over a specific **training period** (**in-sample)**.
    - This step adjusts the parameters to obtain **the best results.**
2. **Testing (Out-of-Sample):**
    - The strategy, using **the parameters optimized in step 1,** is tested on **a test period** (**out-of-sample)**.
    - This stage verifies the effectiveness of the strategy in new market conditions that **were not used** during optimization.

Walk-Forward Efficiency (WFE) is a key metric that assesses a strategy's potential to perform under real-world market conditions. WFE compares:

- **The rate of return achieved in the in-sample window** (where parameters were optimized)
- **Rate of return in the out-of-sample window** (where the strategy was running on unknown data)

Similarly, **for the drawdown value,** WFE checks whether the strategy does not lose significant stability outside the optimization period.

A strategy considered **stable (robust) should meet the following conditions:**

- **WFE ≥ 50% for the rate of return** – means that the strategy retains at least half of its effectiveness beyond the optimization period.
- **WFE ≤ 150% for drawdown** – means that the drawdown outside the optimization period is not significantly higher than during the optimization period.

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

Step 6: Using the strategy in real time

After **extensive testing, implementing a real-time** trading strategy becomes **relatively simple. Buy/sell signals and stop loss orders are generated automatically** by the computer based on pre-established rules and formulas.

The most important element **of strategy execution** is **consistent execution of all signals, without exception. As Larry Williams noted:** *"Trading strategies work. Traders do not."*

Before making **a final decision to implement a strategy,** it's important to verify **whether it actually adds value** to the overall portfolio performance. It doesn't make sense to implement a strategy that **generates similar signals** or **has a similar equity curve.**

Key criteria for evaluating strategies before implementation:

1. **Daily return correlation**
   - The **lower the correlation** with other strategies, the better.
   - **Optimal values:** Correlation **close to zero or negative.**
2. **Reducing maximum drawdown**
   - If adding a strategy to a portfolio results in **a lower maximum drawdown,** this is **a strong positive signal.**
3. **Objective Function Improvement (MAR)**
   - If adding a strategy causes **the MAR to increase,** this indicates that **it has added value** to the portfolio.
4. **Better results in Monte Carlo simulation**
   - Monte Carlo simulation determines the potential **maximum drawdown.**
   - If Monte Carlo results **improve** after adding a strategy, this is **a strong positive signal.**

The above elements are often interrelated – usually **all** or **none of them are met.**

Once you decide to add a strategy to your portfolio, **the question arises:** *Should you implement the strategy immediately or is it better to wait?*

Some studies suggest **an incubation period** of **3-6 months,** during which:

- The strategy is **monitored** but **does not execute real transactions.**
- **Generated signals, positions and results** are observed to detect **potential anomalies.**

In our case, **the incubation period** lasts from the moment **the strategy is launched in a live environment** until **a drawdown occurs at approximately half the maximum drawdown** observed in historical data. **Only after this threshold is reached does the strategy begin to be used with real funds.**

Thanks to this:

- **We avoid investing real money in an untested environment.**
- **We wait for a drawdown to occur** before launching the strategy, which **reduces the risk of starting at an unfavorable moment.**

The final decision on its full implementation should be based on **thorough testing and analysis of the value added to the portfolio,** so that the strategy actually supports long-term investment goals and does not increase unnecessary risk.