Boomers v.1

Investment Strategy Testing Summary

Boomers v.1 Strategy (also known as **Market Explosions) is a swing trading** investment technique developed by **Jeff Cooper,** the idea of which is **to join a very strong trend after a short, extremely narrow consolidation,** which is defined by two consecutive inside candles bars. The strategy's goal is to capture the moment when the stock price **accumulates within a narrow price range** (inner bars accumulate supply/demand) and then **breaks out in the direction of the previously dominant trend.**

Although the strategy's logic seems sound, **it has not even passed the initial test because, on the one hand, it linearly loses capital, and on the other, the number of test transactions is very low, which makes it impossible to draw 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

Boomers Strategy (also known as Market Explosions) was developed by **Jeff Cooper** and first described in the book "Hit & Run Trading - The Short -Term Stock Traders ' Bible ". Its idea is **to join a very strong trend after a short, extremely narrow consolidation,** which is defined by two consecutive inside bars.

The strategy's goal is to capture the moment when the stock price **accumulates within a narrow price range** (inside candles accumulate supply/demand) and then **breaks out in the direction of the previously dominant trend.** Cooper demonstrated that, when the ADX > 25 filters are met and the correct order of inside-day setups is followed by a high accuracy rate and an attractive risk-reward ratio.

The strategy uses:

- **Trend Strength Filter –** ADX > 25 & Directional Movement (+DI > –DI for long, vice versa for short);
- **Inside-Inside formation (D2 and D3)** – each candle is fully within the range of the previous one;
- **Precise position opening signal –** for long/short position buy/sell stop order 1 tick above/below the high/low of the D3 candle;
- **Close stop loss –** for long/short position stop order 1 tick below/above the minimum/maximum of the D1 candle.

The strategy encompasses **both long (buy) and short (sell) positions,** depending on the relative positions of the +DI and –DI indicators. 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:

- **Minimum initial risk-reward – a narrow price range created by** inside bar candles allows for setting defensive orders a short distance from the position opening point;
- **Clear context** – the combination of a strong trend and volatility contraction reduces the number of false breakouts;
- **A short exposure time (several days) reduces the risk of night gaps;**
- **Sensitivity to periods of low ADX** – no signals in a sideways trend;
- **Risk of slippage at opening** – strong breakouts from consolidation may overshoot the entry level and worsen the risk-reward relationship.

Boomers strategy, using simple yet precise rules, allows traders to join dynamic price movements after a breakout from a tight consolidation. However, its effectiveness depends on sustained volatility and consistent risk management to minimize the impact of false signals.

Step 2: Determine investment principles

Below is **the pseudocode** for **the Boomers v.1 strategy** on daily data:

1. **Calculating indicators**
    a. **ADX(YY)** – calculate the YY-day value of the ADX indicator.
    b. **+DI(YY), -DI(YY) –** calculate the YY-day value of the +DI and -DI indicators;
2. **Generating entry signals – long position (buy)**
    a. **Cumulative conditions:**
        i. ADX(YY) > 25.
        ii. +DI(YY) > -DI(YY)
    b. **Inside Day (D2) formation –** the price range (high & low) of yesterday's candle is within the price range of the day before yesterday's candle.
    c. **Inside Day (D1) formation –** the price range (high & low) of today's candle is within the price range of yesterday's candle.
    d. **Entering the trade** – in the next session, set a buy stop order 1 tick above the high of the last candle (Inside Day (D1)) to be activated only if the momentum continues.
    e. **Risk management –** set stop loss 1 tick below the minimum (low) of the candle preceding the Inside Day (D2) candle.
3. **Generating entry signals – short position (sell)**
    a. **Cumulative conditions:**
        i. ADX(YY) > 25.
        ii. +DI(YY) < -DI(YY)
    b. **Inside Day (D2) formation –** the price range (high & low) of yesterday's candle is within the price range of the day before yesterday's candle.
    c. **Inside Day (D1) formation –** the price range (high & low) of today's candle is within the price range of yesterday's candle.
    d. **Entering the trade** – in the next session, set a sell stop order 1 tick below the low of the last candle (Inside Day (D1)) to be activated only if the momentum continues.
    e. **Risk management –** set stop loss 1 tick above the high of the candle preceding the Inside Day (D2) candle.
4. **Closing the position** – if a stop loss has not been previously activated, close the trade at the opening breakeven point of the session after entry, which limits exposure to unfavorable movements after the initial impulse.
5. **Daily monitoring**
    a. After each session, recalculate: ADX(YY), +DI(YY), -DI(YY) and check if double Inside Days (D1 & D2) have been created to verify the current strategy parameters.
    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

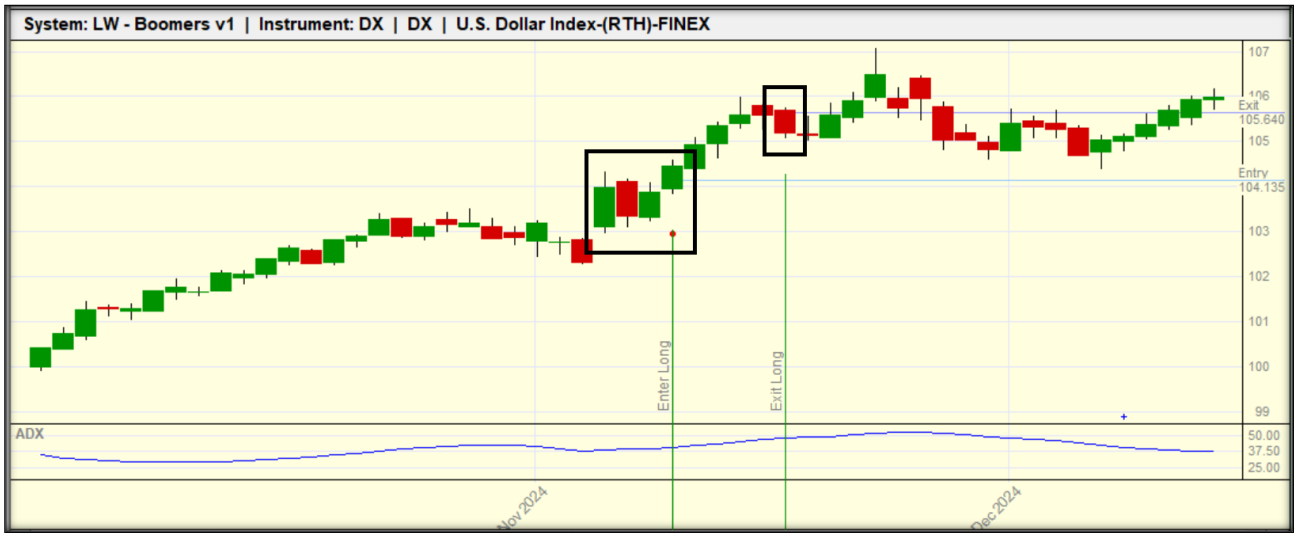
Below are some purchase and sale transactions that allow you to verify the following aspects:

- **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 US dollar index futures contract. At the beginning of November 2024, the price **was in a strong uptrend (ADX(14) > 25).** After forming a large bullish candle (the first candle in the left-hand rectangle), the next two days were **inside candles. day** (Second and third candles in the left-hand rectangle). **Therefore, all the necessary elements to initiate a long position were met,** so the next day we set a **buy stop order one tick above the high of the last candle.** This order was activated the following day (fourth candle in the left-hand rectangle), and **a defensive stop order** (red dot) was set one tick below the low of the first candle that formed the entire system. **The system worked correctly.**

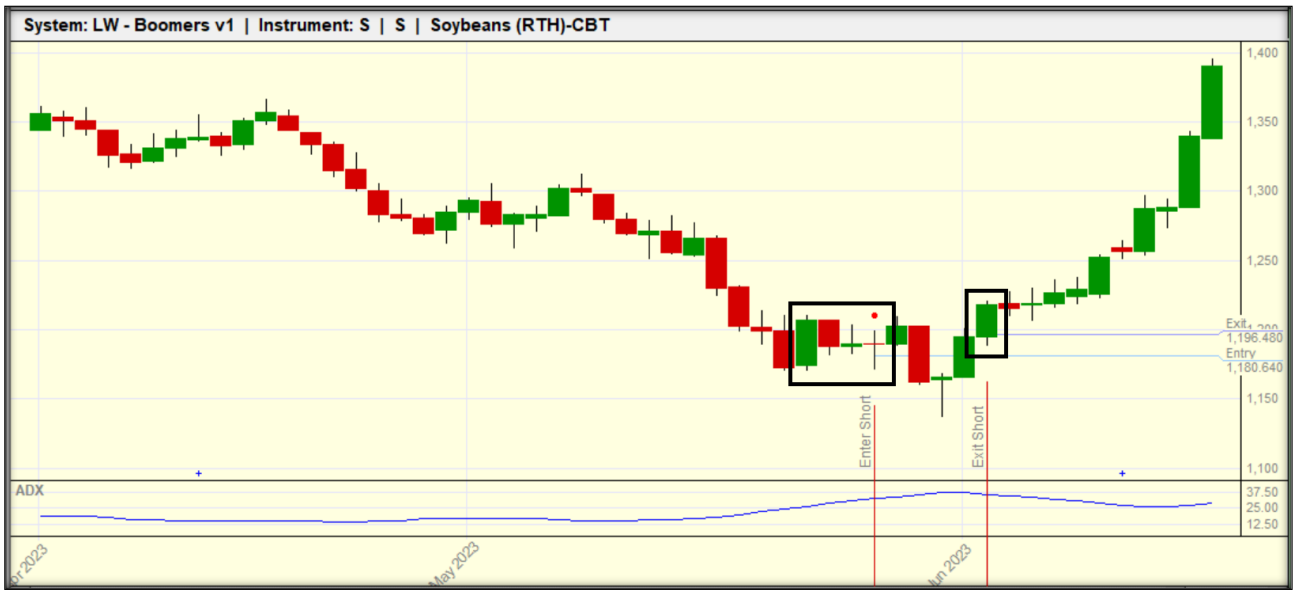
The strategy assumes **closing the position after five days or when a defensive order is triggered. Since the stop** loss order wasn't reached within five days, we close the position on the sixth day at the opening (the candle in the right-hand rectangle). **The system worked correctly.**



The second transaction is on the soybean futures contract. At the end of November 2024, the price **was in a strong downtrend (ADX(14) > 25).** After forming a large bullish candle (the first candle in the left-hand

rectangle), the next two days were **inside candles. day** (Second and third candles in the left-hand rectangle). **Therefore, all the necessary elements to initiate a short position were met,** so the next day we set a **sell stop order one tick below the low of the last candle.** This order was activated the following day (fourth candle in the left-hand rectangle), and **a defensive stop order** (red dot) was set one tick above the high of the first candle that formed the entire system. **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 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.

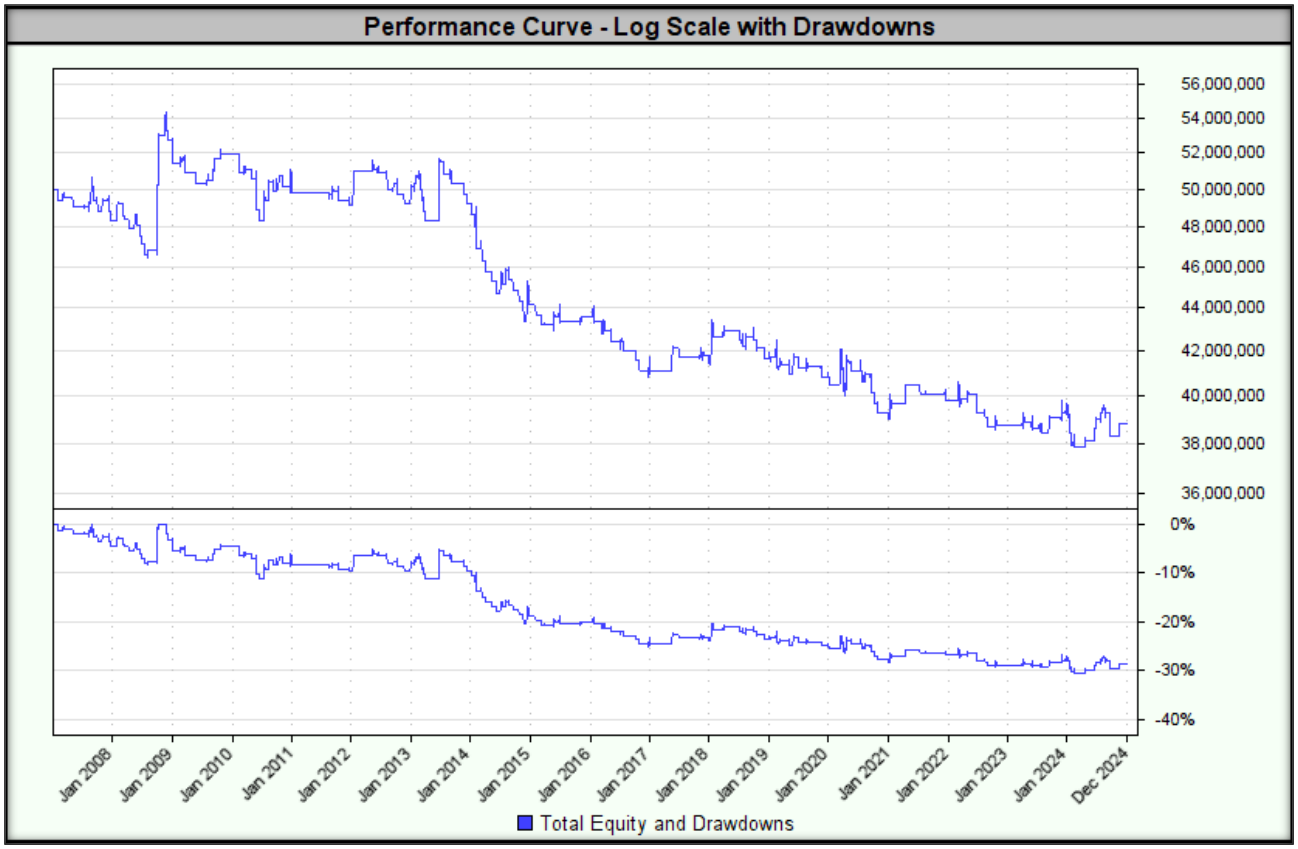
Our basic expectation is that the strategy generates **positive results,** even if they are at a low level.

The tested output parameters are:

- **ADX(14) >** 25;
- **Relation +DI(YY) and -DI(YY):** for long positions +DI(YY) > -DI(YY); for short positions +DI(YY) < -DI(YY);
- **Double inside formation day –** three consecutive candles with increasingly smaller bodies and inside each other;
- **How to open a position:** buy/sell stop one tick above/below the high/low of the last candle;
- **Stop loss:** one tick below/above the low/high of the candle preceding the inside bar 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%	-1.4%
MAR Ratio	-0.05
RAR%	-1.8%
R-Cubed	-0.06
Robust Sharpe Ratio	-0.39
Max Drawdown	30.4%
Wins	38.4%
Losses	61.6%
Average Win%	1.05%
Average Loss%	1.21%
Win/Loss Ratio	1.30
Average Trade Duration (days)	5
Percent Profit Factor	0.81
SQN	-0.28
Number of transactions	216

In summary, the system worked properly and generated signals as expected. **However, the strategy linearly loses capital, and the number of test transactions is very low, making it impossible to draw reliable**

conclusions. This means that the reliability of this strategy leaves much to be desired, and at this stage we are ending testing 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 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. **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 under real-world market conditions.** It provides **reliable measures of profit 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 overstates 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 Performance 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 operating 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 to be **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 implementation** is **the consistent execution of all signals, without exception. 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.