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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.



# Lizards v.1

## Investment Strategy Testing Summary

**Lizards v.1** strategy is a short-term **trend-reversal** system that exploits local exhaustion after a new, **multi-session price extreme is reached**. In a classic setup, the market is in a dominant trend and establishes a new high or low over a longer observation window (e.g., 100 sessions). This is followed by a **large-scale reversal candle**, the range of which exceeds the current market volatility measured by the ATR(40). For a short position, this is a **A shooting star** at a new high, and for a long position, a **hammer formation** at a new low. Entry is executed with a sell stop order below the low of the shooting star formation or a buy stop order above the high of the hammer formation. A stop loss is placed on the other side of the formation, and the exit is short-term (**time-exit** after 5 sessions), unless a stop loss is activated beforehand.

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.



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## Step 1: Formulate an investment strategy

**The Lizards v.1** strategy identifies markets that are moving in a clear trend and reaching a new, **multi-session price extreme**. In this approach, a new high or low confirms that the market is in a phase of strong directional movement and may be susceptible to a short-term "stretch." A key element of the strategy is **the appearance of a reversal candle (shooting star or hammer)** whose range (high-low) is **significantly greater than the average volatility** over the last 40 sessions, suggesting increased emotions, capitulation by some market participants, or a sudden exhaustion of the previous movement.

For a **short position**, a setup is created when:

- the market is in an **upward trend** and is establishing a new multi-session high (e.g. 100-day high),
- a **shooting star reversal candle** appears,
- **the range of this candle clearly exceeds the volatility** of the last 40 days,
- after which the system sets a **sell stop order below the low of the signal candle** to enter only when the market confirms the start of the reversal.

For a **long position**, the conditions are mirrored:

- the market is in a **downtrend** and is setting a new multi-session low,
- a **hammer reversal candle** appears,
- **the range of this candle clearly exceeds the volatility** of the last 40 days,
- after which the system sets a **buy stop order above the high of the signal candle** to enter only when the market confirms the rebound.

Entry doesn't occur "at the close of the signal day." Instead, the strategy forces **directional confirmation**: after the signal (shooting star/hammer), we set a stop order for the breakout of the signal candle's extreme (for shorts: below its low, for longs: above its high). This ensures **that the position is activated only when the market actually begins to move in the direction of the negated breakout**.

**The strategy uses:**

- **Trend and extremum context** – the market creates a new, multi-session high/low earlier (e.g. 100 sessions);
- **A large-range reversal candle** – a shooting star/hammer formation at a new extreme whose range exceeds the ATR(40);
- **Trigger stop T+1** – entry only after breaking the minimum/maximum of the signal candle;
- **Initial stop on the signal candle** – risk defined on the opposite side of the setup;
- **Time-exit** – short horizon of maintaining the position (5 days).

**Characteristics of the strategy and its strengths and weaknesses:**

- **the Donchian filter** limits trading in the middle of the range and forces an "extreme" context;
- **entering after confirmation** limits some hasty transactions;
- **a narrow, single-candle stop** simplifies risk control;
- **short horizon (time-exit)** limits long-term exposure to the market;



- in strong trends, the reversal candle **may turn out to be only a pause, not a real reversal**;
- a wide range of the signal candle may **increase the nominal stop loss distance** ;
- The strategy works best where **strong impulses are often followed by short, sharp pullbacks**.

**The Lizards v.1** strategy is a tool for traders who want to capitalize on short-term exhaustion after new price extremes are reached. Despite its simple logic, **it requires discipline and risk control**, as the trades are counter-trend to the prevailing trend and are prone to rapid signal reversals. Due to the specific setup and risk, the strategy is best suited for investors who understand its profile (less frequent signals, possible rapid reversals, volatile results) and can maintain consistency in conditions of increased volatility.



## Step 2: Determine investment principles

Below is the pseudocode for the **Lizards v.1 strategy** on daily charts:

1. **Calculating Indicators:**
  - a. **HighestHigh(XX)** – the highest high of the last XX sessions (Donchian channel);
  - b. **LowestLow(XX)** – the lowest low of the last XX sessions (Donchian channel);
  - c. **ATR(40)** – average true price range over the last 40 sessions;
  - d. **RangeMultiplier(Y%)** – the minimum multiple of ATR(40) that the range (high-low) of the signal candle must exceed;
  - e. **Top/BottomClose(V%)** – maximum distance of the closing price of the signal candle from the low (in the case of a shooting star) or high (in the case of a hammer);
  - f. **ExitBars(Z)** – number of sessions (Z) to maintain the position (timed exit).
2. **Setup Identification – Short Position (sell setup):**
  - a. **Extreme:** market has established HighestHigh(XX) (new multi-session high);
  - b. **Reversal Candle:** Today's candle is a shooting star with a close near the low (V%);
  - c. **Range expansion:** today's range (high-low) exceeds  $Y \times \text{ATR}(40)$ .
3. **Entry – Short Position:**
  - a. **Order:** After the setup occurs, set a sell stop order for the next session one tick below the minimum (low) of the shooting star formation;
  - b. **Initial Stop:** Set a stop loss one tick above the high of the shooting star formation.
4. **Setup Identification – Long Position (buy setup):**
  - a. **Extreme:** market sets LowestLow(XX) (new multi-session low);
  - b. **Reversal candle:** today's candle has a hammer character with a close near the high (V%);
  - c. **Range expansion:** today's range (high-low) exceeds  $Y \times \text{ATR}(40)$ .
5. **Entry – Long Position:**
  - a. **Order:** after the setup occurs, set a buy stop order for the next session one tick above the maximum (high) of the hammer formation;
  - b. **Initial Stop:** Set a stop loss one tick below the low of the hammer formation.
6. **Closing a position:**
  - a. **Timed exit:** if stop loss has not been activated earlier, close the position at the opening of the session after Z sessions have passed since the entry date;
  - b. **Stop Exit:** If the market touches the stop loss level, close the position as per the defensive order.
7. **Daily Monitoring:**
  - a. Update HighestHigh(XX), LowestLow(XX) and ATR(40) every day;
  - b. The system detects long/short setups, sets sell stop/buy stop orders for the next session, and for open positions runs a counter to ExitBars(Z) and controls the activation of stop loss.

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

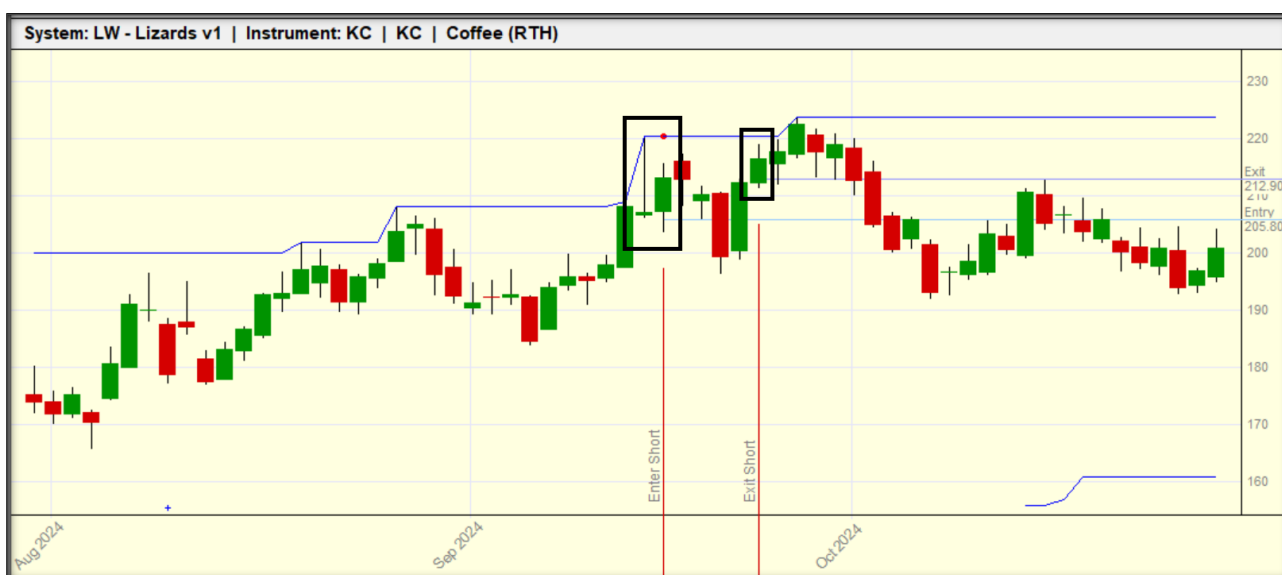
Below are some purchase and sale transactions that allow you to verify the following aspects:

- **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 took place at the turn of September and October 2024. **The coffee market was in an uptrend and had established a new 100-day high**. At this point, a signal candle (the first candle in the rectangle) appeared, which resembled a **shooting star** and met the Lizards v.1 strategy's conditions for a short position. **A sell stop was set for the following session, one tick below the shooting star low**. The order was activated the following day, opening a short position (the "Enter Short" line), with a **stop loss set one tick above the high of the signal candle**.

Since the market did not breach the stop loss level in the following days, **the position was held in accordance with the time-exit rule**. As a result, the transaction was **closed at the opening of the 6th day from entry** (the "Exit Short" line), i.e., after 5 holding sessions. **The system worked correctly**.

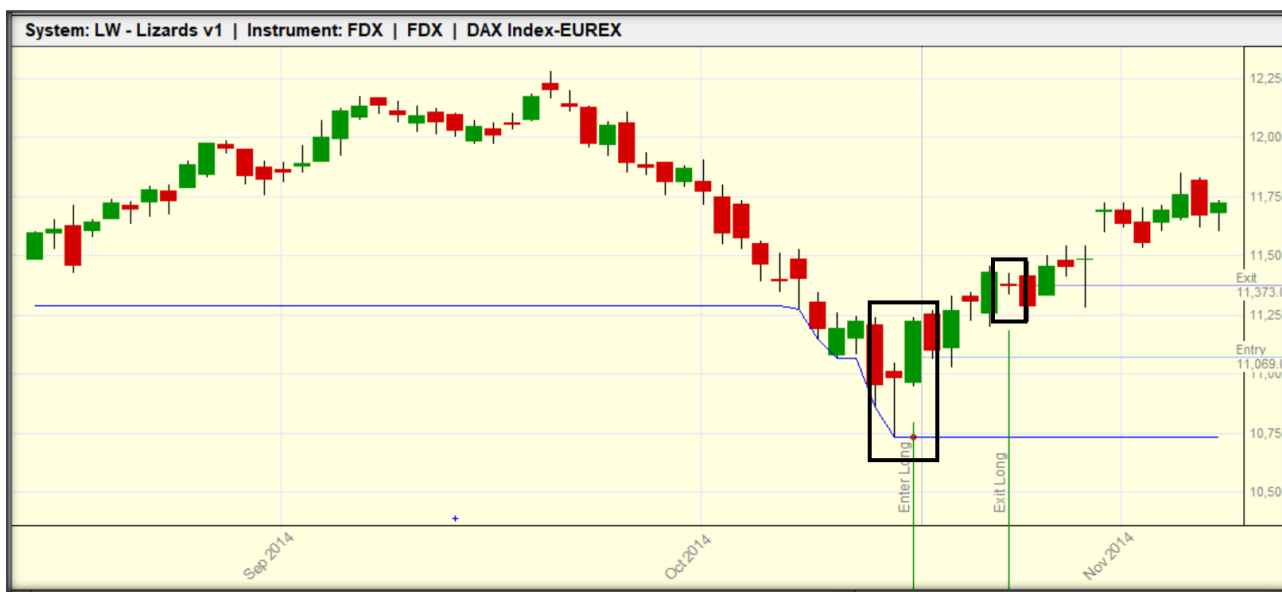


Another example: In the second half of October 2014, **the DAX market was in a downtrend and established a new 100-day low**. At this point, a signal candle (the first candle in the rectangle) appeared, **which**



resembled a hammer and met the Lizards v.1 strategy's conditions for a long position. A buy stop was set for the following session **one tick above the high of this candle**. The order was activated the next day, opening a long position (the "Enter Long" line), with a **stop loss set one tick below the low of the signal candle**.

Since the market did not breach the stop loss level in the following days, **the position was held in accordance with the time-exit rule**. As a result, the transaction was **closed at the opening of the 6th day from entry** ("Exit Long" line, second rectangle), i.e., after 5 holding sessions. **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.

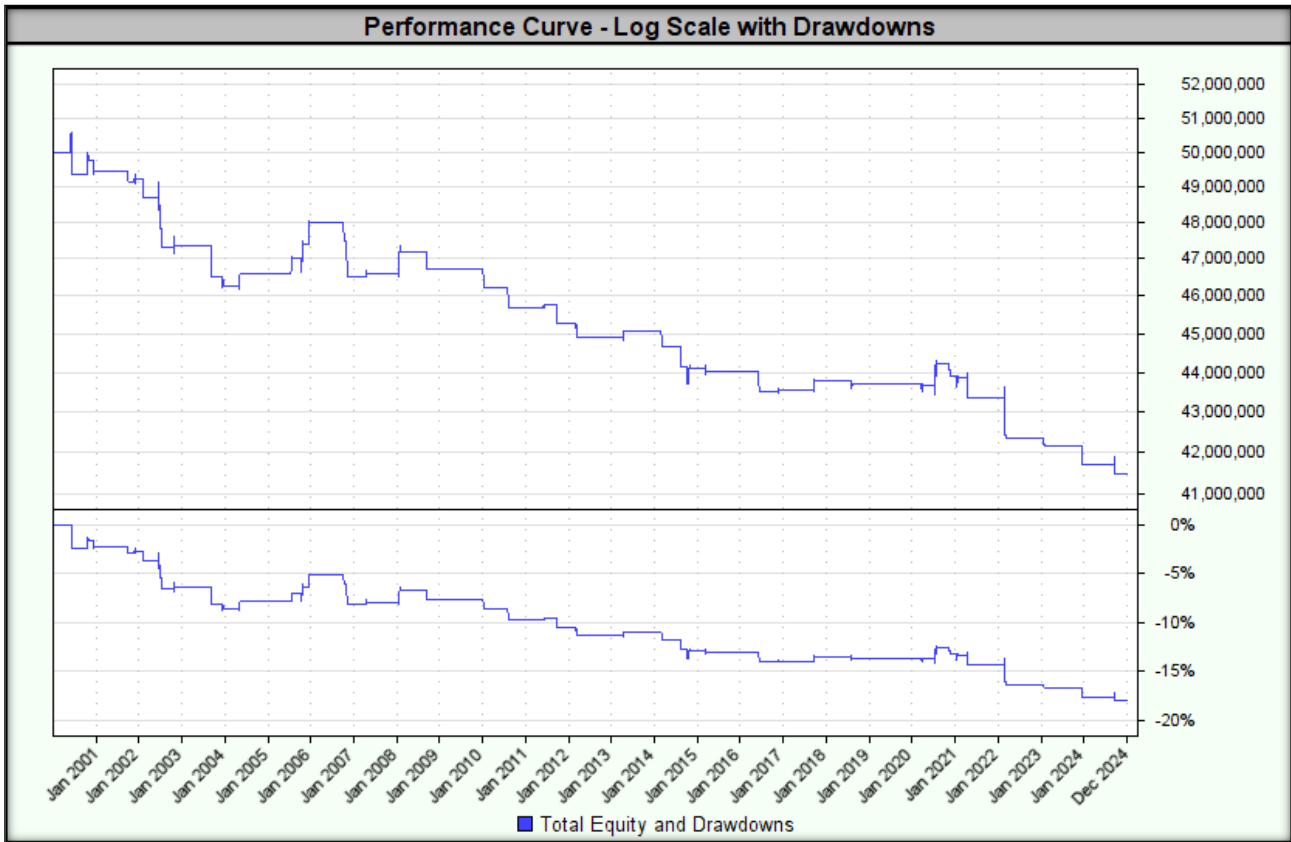
Tested base parameters:

- **HighestHigh & LowestLow** : 100 days;
- **RangeMultiplier**: 130%;
- **Top/BottomClose** : 20%;
- **ExitBars**: 5 days;
- **Position opening method**: 1 tick below (for a short position)/above (for a long position) the extreme of the signal candle (shooting star/hammer);
- **Stop loss**: 1 tick above (for short position)/below (for long position) the extreme of the signal candle (shooting star/hammer);
- **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 similar results in the future.



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Indicators/Measures	Concluding a transaction at the opening price
CAGR%	-0.74%
MAR Ratio	-0.04
RAR%	-0.63%
R-Cubed	-0.04
Robust Sharpe Ratio	-0.49
Max Drawdown	18.0%
Wins	30.8%
Losses	69.2%
Average Win%	0.61%
Average Loss%	0.78%
Win/Loss Ratio	0.78
Average Trade Duration (days)	6
Percent Profit Factor	0.35
SQN	-
Number of transactions	52



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**.



## 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.**