

Semivariance Reversion Fade

Expert Advisor Documentation

PLATFORM

MetaTrader 5 (MT5)

TYPE

Asymmetric Mean Reversion

TIMEFRAME

M15 – H1

WEBSITE

www.algoBot.live

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Overview

Semivariance Reversion Fade is an asymmetric mean-reversion Expert Advisor. Most envelope-reversion systems — Bollinger Bands, z-score channels, standard-deviation or MAD bands — describe market dispersion with a *single, symmetric* number, so the upper and lower rails are always mirror images of one another. Real markets are not symmetric: downside moves and upside moves have their own characteristic speed and size (the well-known volatility "skew").

This strategy measures the two sides of the distribution *separately* using **semivariance** — the same idea that underpins the Sortino ratio. It computes a downside semideviation from the returns that fall below their mean and an upside semideviation from the returns that rise above it. Around an EMA "fair value" baseline it then hangs an **asymmetric envelope**: the lower rail is scaled by downside volatility, the upper rail by upside volatility. The EA fades stretches that punch through the appropriate rail and rides them back to the drifting baseline.

The construction is deliberately self-regulating. In a sustained sell-off, downside volatility balloons, the lower rail drops far away, and casual long-fades simply stop firing — exactly when fading a downtrend would be most dangerous. A per-bar EMA-slope **trend guard** supplies a second veto, standing the EA aside whenever the baseline is grinding directionally faster than a configurable fraction of ATR per bar. Everything — the semivariance rails, the ATR stop, and the structural EMA target — is self-scaling and single-timeframe, so the EA adapts to whatever symbol and timeframe it is attached to.

Core idea: Down-moves and up-moves are not mirror images. By pricing each rail off its *own* side's semivariance, the envelope fades over-stretched exhaustion in the direction the market is *least* likely to keep running, while the ballooning far-side rail keeps the EA out of genuine trends.

How It Works

1. The fair-value baseline

An exponential moving average of the close over `MeanPeriod` bars defines fair value. This single line does double duty: the asymmetric rails hang off it, and it is also the take-profit magnet that every trade targets.

```
baseline = EMA(close, MeanPeriod)
```

2. Downside and upside semideviation

Over the last `DevPeriod` bars the EA computes scale-free percentage returns, their mean, and then splits the squared deviations into a downside pool (returns below the mean) and an upside pool (returns above the mean):

```
r_i      = close_i / close_(i-1) - 1      // scale-free % returns
meanR    = average of the last DevPeriod returns
downDev  = sqrt( mean of (r_i - meanR)^2 for r_i BELOW meanR ) // downside vol
upDev    = sqrt( mean of (r_i - meanR)^2 for r_i ABOVE meanR ) // upside  vol
```

3. The asymmetric envelope

The two semideviations scale the two rails independently, so the channel is genuinely lop-sided whenever the market's skew is:

```
lower = baseline * (1 - DownMult * downDev)
upper = baseline * (1 + UpMult  * upDev)
```

4. The trend guard

Each bar the EA measures the baseline's per-bar slope. When the absolute slope exceeds `TrendGuardAtr × ATR` per bar, the market is judged to be in a strong directional grind and no new fade is taken — the trend is left to run.

Entry logic

- **Long fade:** a freshly-closed bar closes *below* the lower rail (over-stretched down relative to normal downside volatility) **and** the bar is bullish (`close > open`), so the snap-back is already starting) **and** the trend guard is inactive. The EA buys at the ask, targets the baseline, and places a protective stop `AtrStopMult × ATR` below the entry.
- **Short fade:** the mirror image at the upper rail — a bar closes *above* the upper rail and is bearish (`close < open`). The EA sells at the bid, targets the baseline, and places its stop `AtrStopMult × ATR` above the entry.

Exit logic

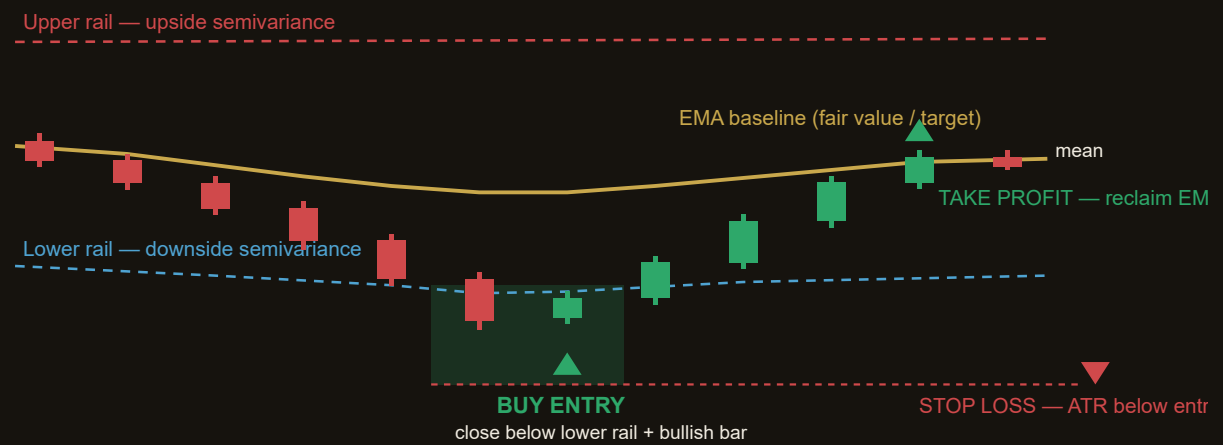
Every order carries a broker-side ATR stop-loss and a baseline take-profit at the moment of entry. Because the EMA baseline keeps drifting, the EA also applies an **adaptive exit**: on any later closed bar, a long is banked the instant price closes back at or above the *current* baseline, and a short is banked once price closes back at or below it. The mean-reversion is complete — the profit is taken and the position is cleared.

Reward/risk and cost filters. A setup is only taken when the distance from entry to the baseline target is at least `MinRewardRisk` times the ATR stop distance, so shallow fades that offer little room to the mean are rejected. New entries are also skipped whenever the live spread exceeds `MaxSpreadPoints` .

One position per magic. The EA holds a single position at a time. While a trade is open, only the adaptive exit and the broker-side stop/target manage it — no new fades are opened until the position is flat again.

Strategy in Action

The illustration below shows an example of how the strategy identifies a setup and triggers its entry and exit. This is a simplified, illustrative example for educational purposes — not real market data.



Illustrative example only. Actual market behaviour varies.

Parameters

Parameter	Default	Description
MeanPeriod	20	EMA period for the "fair value" baseline the rails hang from and the take-profit magnet. Range 10–60, step 5.
DevPeriod	40	Lookback in bars for the return-based downside/upside semideviation. Range 20–120, step 5.
DownMult	2.2	Lower-rail width as a multiple of the <i>downside</i> semideviation. Range 1.0–4.0, step 0.2.
UpMult	2.2	Upper-rail width as a multiple of the <i>upside</i> semideviation. Range 1.0–4.0, step 0.2.
TrendGuardAtr	0.30	Trend guard: skip fades when the absolute baseline slope exceeds this × ATR per bar. Range 0.05–1.5, step 0.05.
AtrPeriod	14	ATR lookback used to scale the protective stop. Range 5–30, step 1.
AtrStopMult	1.8	Protective stop distance beyond the entry, in multiples of ATR. Range 0.5–4.0, step 0.25.
MinRewardRisk	0.8	Reject setups whose baseline target is closer than this × the ATR stop distance. Range 0.3–3.0, step 0.1.
MaxSpreadPoints	80	Skip new entries when the current spread (points) is wider than this. Range 5–300, step 5.
Lots	0.10	Fixed order volume in lots. Range 0.01–1.0, step 0.05.
Magic	5271	Magic number identifying this EA's positions. Range 0–9,999,999, step 1.

Reading the asymmetry. Leaving `DownMult` and `UpMult` equal (both 2.2) still produces an asymmetric channel, because `downDev` and `upDev` are measured independently. Raise `DownMult` to demand a deeper stretch before fading longs (fewer, higher-conviction dip buys); raise `UpMult` to be stricter on shorting rallies.

Recommended Settings

The strategy is designed for liquid instruments where both volatility skew and mean-reversion are present. A natural home is a major FX pair or metal on an intraday timeframe.

- **Instruments:** liquid FX majors or metals — for example EURUSD, GBPUSD, or XAUUSD.
- **Timeframe:** M15 to H1, where volatility skew and mean-reversion both live.
- **Account:** a low-spread account; keep `MaxSpreadPoints` tight relative to the instrument so entries are only taken when trading costs are reasonable.

Example — EURUSD M30, ranging session

With defaults, price sells off and closes below the lower rail while downside volatility is moderate. The next candle closes green but still below the rail, and the baseline slope is flat (trend guard inactive). The EA buys at the ask, sets a stop $1.8 \times \text{ATR}$ below, and targets the EMA baseline. Two bars later price closes back above the drifting baseline and the position is banked by the adaptive exit — often before the fixed take-profit is touched.

Fading requires range. Mean-reversion systems perform best in balanced, ranging conditions and can suffer during strong directional trends. The ballooning far-side rail and the ATR trend guard are there to reduce trend exposure, but no filter is perfect — always validate settings on out-of-sample data for your chosen symbol and timeframe before trading live.

How to Install on MetaTrader 5

- 1 Copy `SemivarianceReversionFade.ex5` to your MT5 `MQL5\Experts\` folder
- 2 Restart MetaTrader 5 and refresh the Navigator panel
- 3 Drag the EA onto a chart matching the recommended symbol and timeframe
- 4 Configure the input parameters and click **OK**
- 5 Enable **Algo Trading** in the MT5 toolbar

Risk Warning

Trading foreign exchange, CFDs, and other leveraged financial instruments involves substantial risk of loss and is not suitable for all investors. The strategies and tools described in this document are provided for **educational purposes only** and do not constitute financial advice, investment recommendations, or solicitation to trade. Always consult a qualified financial adviser before making trading decisions. Past backtest performance is not indicative of future results.

