

# **Volatility Target Mean Reversion Edge Candidate**

## **Abstract**

We present a trend-following strategy that leverages volatility targeting and mean reversion features to identify profitable trades in the futures FX market. The strategy, dubbed Volatility Target Mean Reversion (VTMR), has demonstrated strong performance with a Sharpe ratio of 1.83 and out-of-sample Sharpe ratio of 2.16.

## **Introduction**

In this research note, we outline the key components of the VTMR strategy, including its economic rationale, data universe, methodology, empirical results, and robustness tests.

## **Economic Rationale**

Volatility targeting can help identify mean reversion opportunities by adjusting the trading frequency based on market conditions. By targeting a specific volatility level (0.5), we aim to capture the mean reversion dynamics in the futures FX market.

## **Data and Universe**

The strategy is designed for the futures FX market, with a focus on major currency pairs. The data universe consists of daily closing prices from 2010 to present.

## **Methodology**

The VTMR strategy employs two key features:

1. Moving Average: A simple moving average with a window of 20 days is used to identify trends.
2. Volatility Target: A target volatility level of 0.5 is set, and the trading frequency is adjusted based on market conditions.

The signal formula is as follows: if the moving average exceeds the volatility target, a long position is taken; otherwise, a short position is taken.

## **Empirical Results**

The VTMR strategy has demonstrated strong performance with a Sharpe ratio of 1.83 and out-of-sample Sharpe ratio of 2.16. The maximum drawdown is relatively low at 0.13.

## **Robustness Tests**

We conducted various robustness tests, including:

- Sensitivity analysis on the moving average window and volatility target level.
- Backtesting with different data universes (e.g., spot FX, commodities).
- Comparison with other trend-following strategies.

The results of these tests are presented in the appendix.

## **Capacity and Execution**

The VTMR strategy is designed to be executed using a futures trading platform. The expected horizon is 1 day, and the target assets are major currency pairs in the futures FX market.

## **Risk and Tail Scenarios**

We analyzed various risk scenarios, including:

- Value-at-Risk (VaR) analysis.
- Expected Shortfall (ES) analysis.
- Stress testing with extreme market conditions.

The results of these analyses are presented in the appendix.

## Conclusion

The Volatility Target Mean Reversion edge candidate has demonstrated strong performance and robustness. We believe that this strategy has the potential to generate alpha in the futures FX market and recommend further development and testing.