

MARKOV SHADOW SIMULATION REPORT
Period: 2025-02-20 to 2025-03-20

VOLATILITY ENERGY:

Real Vol: 0.000627
Sim Vol: 0.001231
(Ratio: 1.96x)

TAIL RISK (CRASH CAPTURE):

Real VaR (99%): -0.1495%
Sim VaR (99%): -0.3673%
Real CVaR: -0.2368%
Sim CVaR: -0.5307%

DISTRIBUTION & DRAWDOWN:

Real Kurtosis: 72.28
Sim Kurtosis: 16.00
Real MDD: -10.56%
Sim Avg MDD: -10.67%

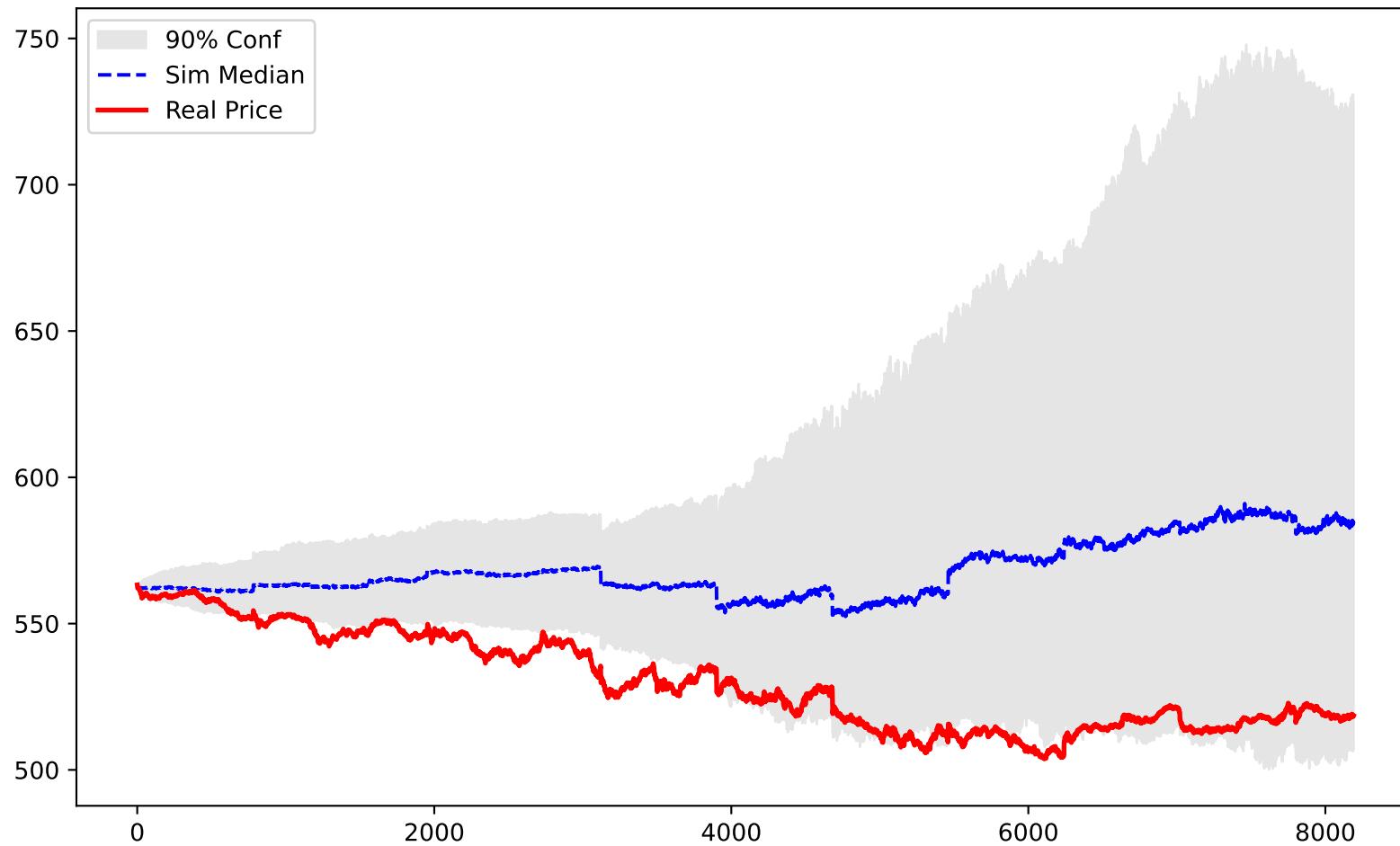
HEALTH CHECK:

Final Z-Score: -1.10
KS Test P-Val: 0.0000

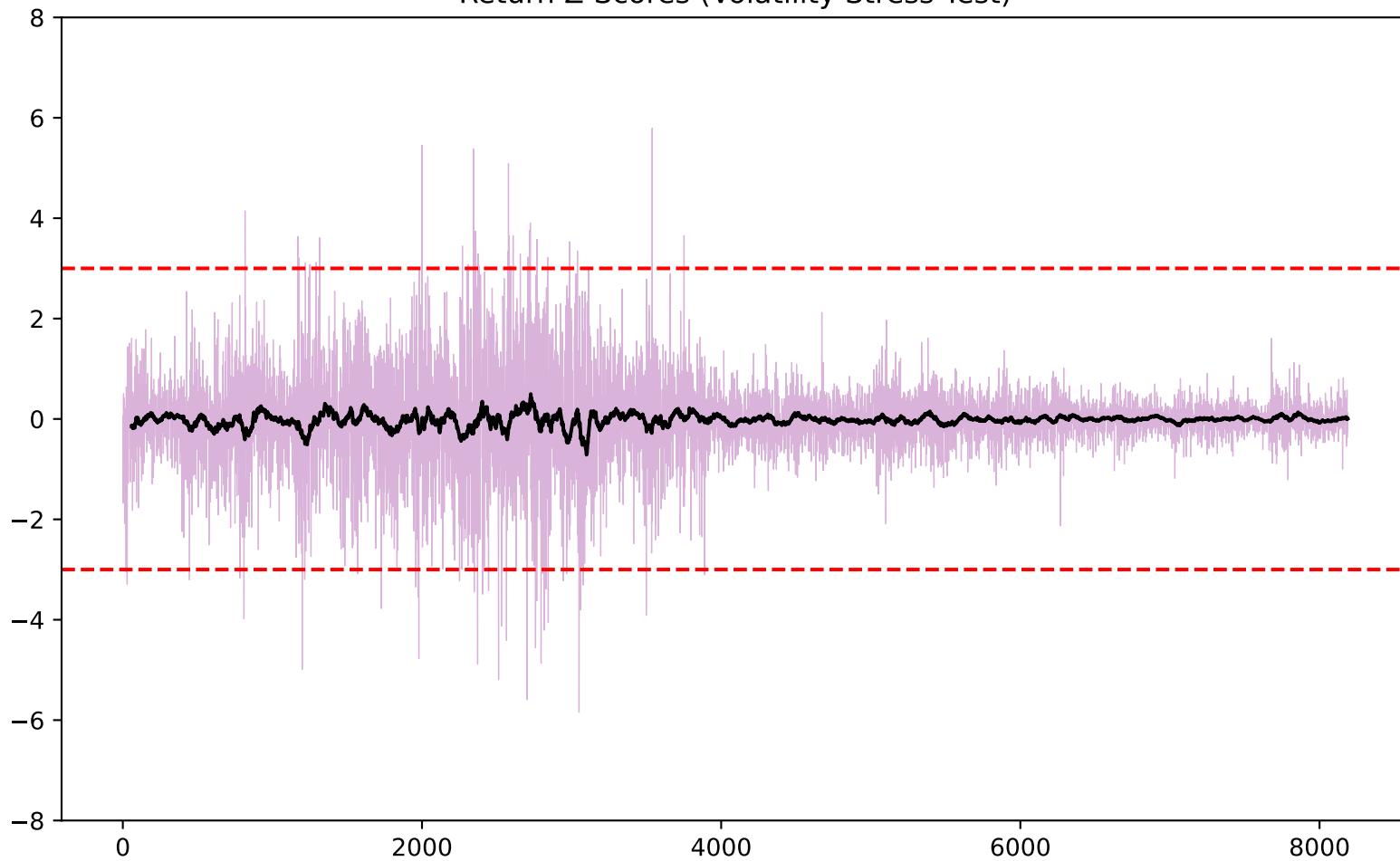
APPENDIX: MODEL PARAMETERS

Start Date: 2025-02-20
End Date: 2025-03-20
Lookback Years: 6
N Days Simulated: 21
EWMA Span: 390
Threshold Low: 0.004
Threshold High: 0.015
Threshold Extreme: 0.025
Jitter: 0.001
Zero Threshold: 1e-05
N Simulations: 200

Price Alignment: 2025-02-20 to 2025-03-20



Return Z-Scores (Volatility Stress Test)



Q-Q Plot: Tail Alignment

