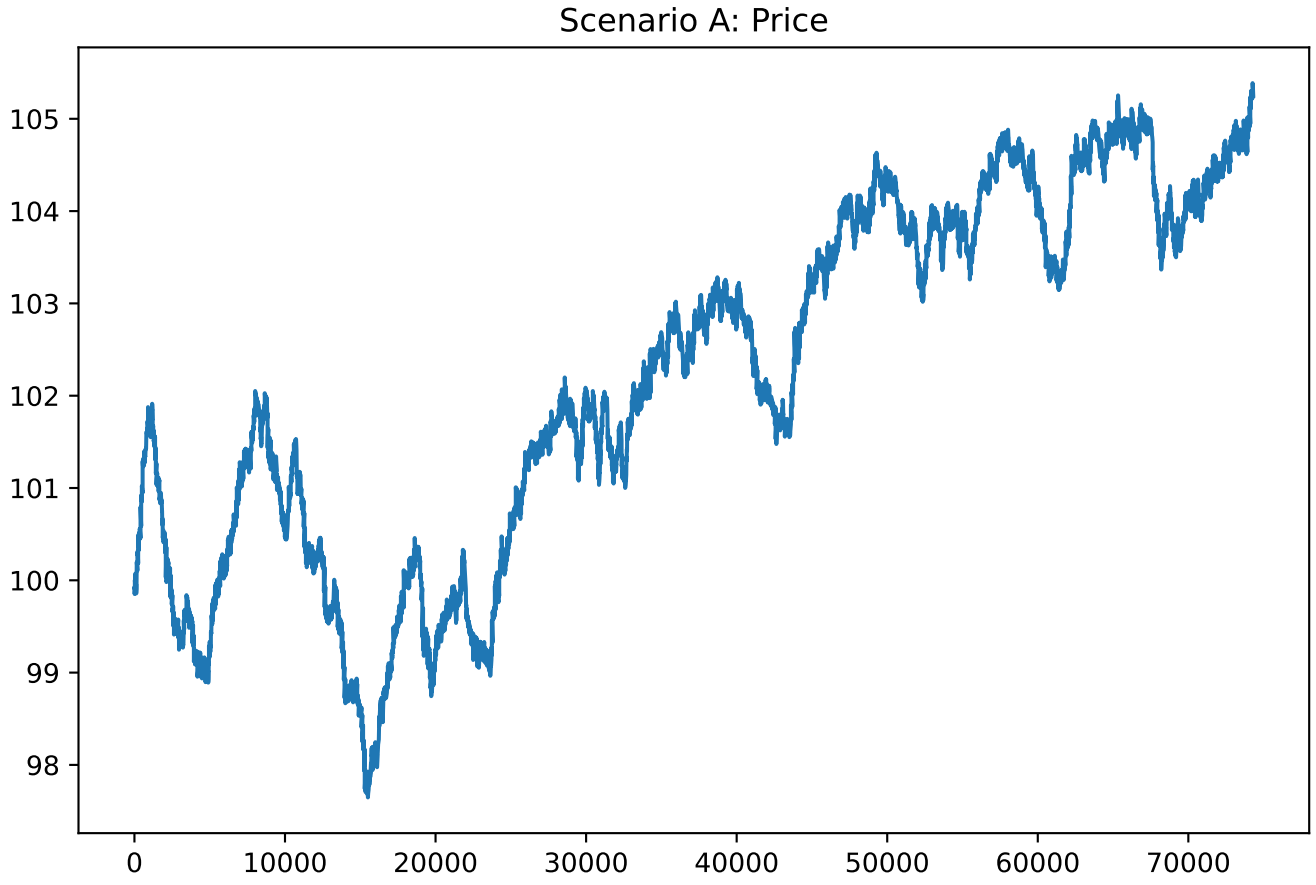
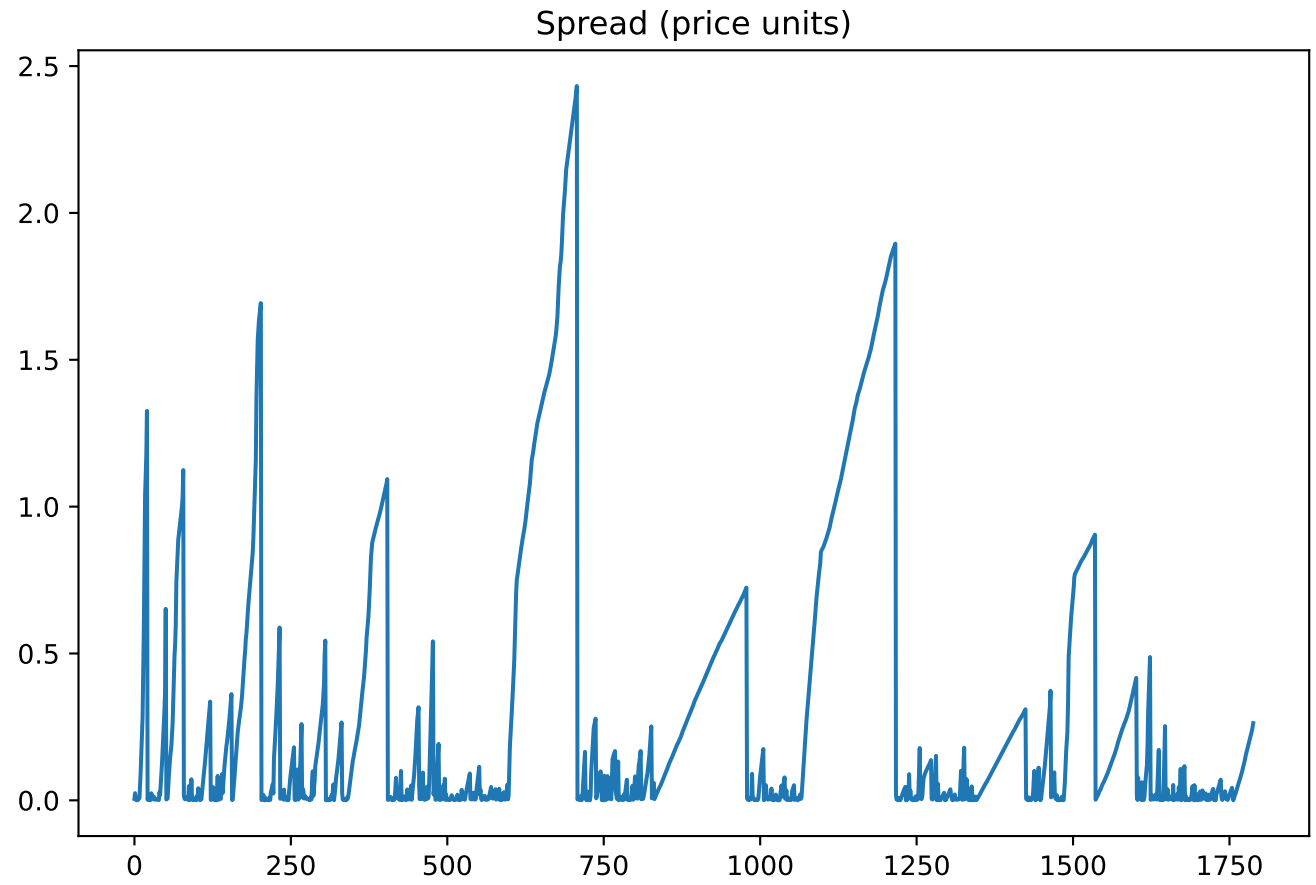
Market Simulation Report

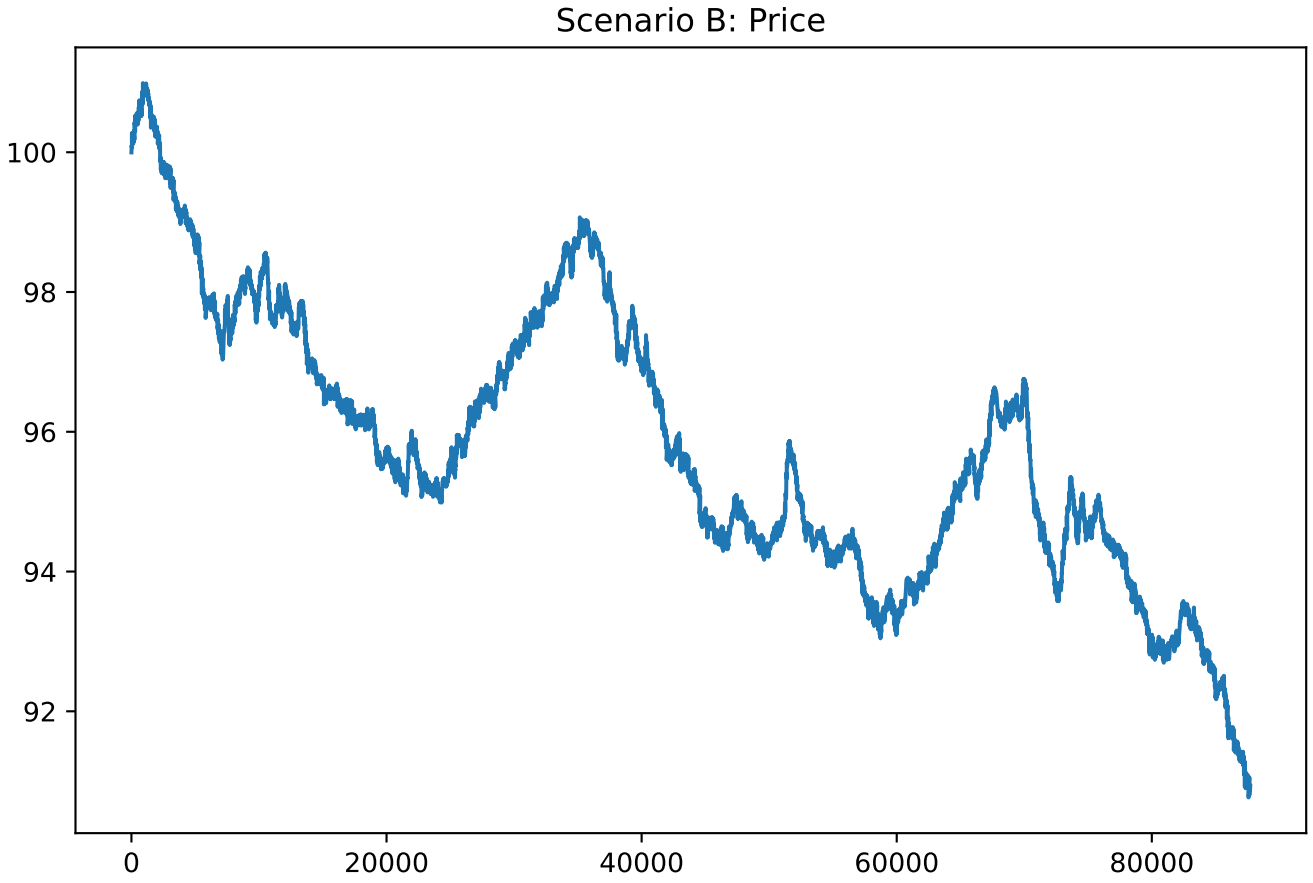
Seed: 42
Simulation Length: 30 minutes
Arrival Rate: 1.0 orders/sec

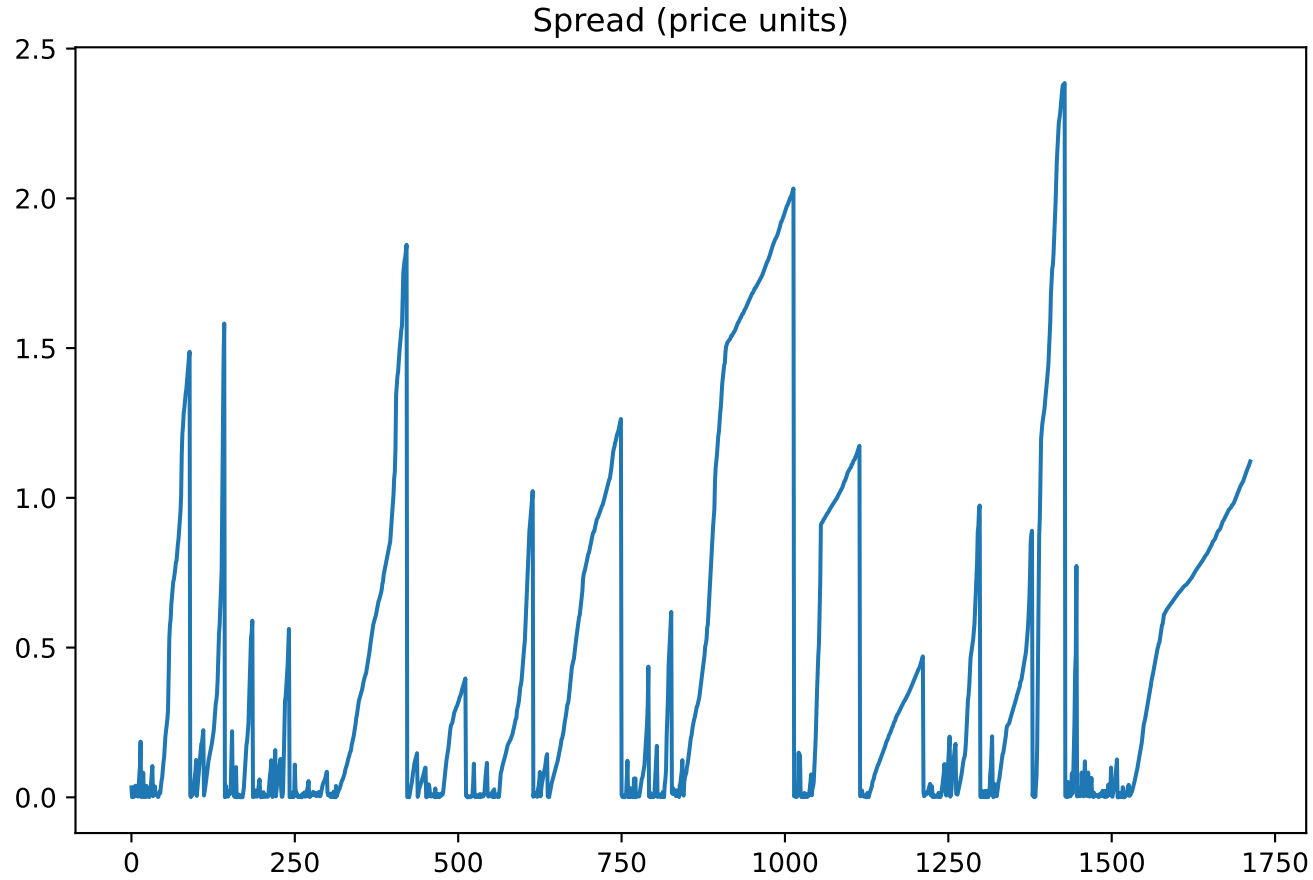
Scenario A: Noise Traders
Scenario B: Noise + Market Makers
Scenario C: Noise + Momentum Traders

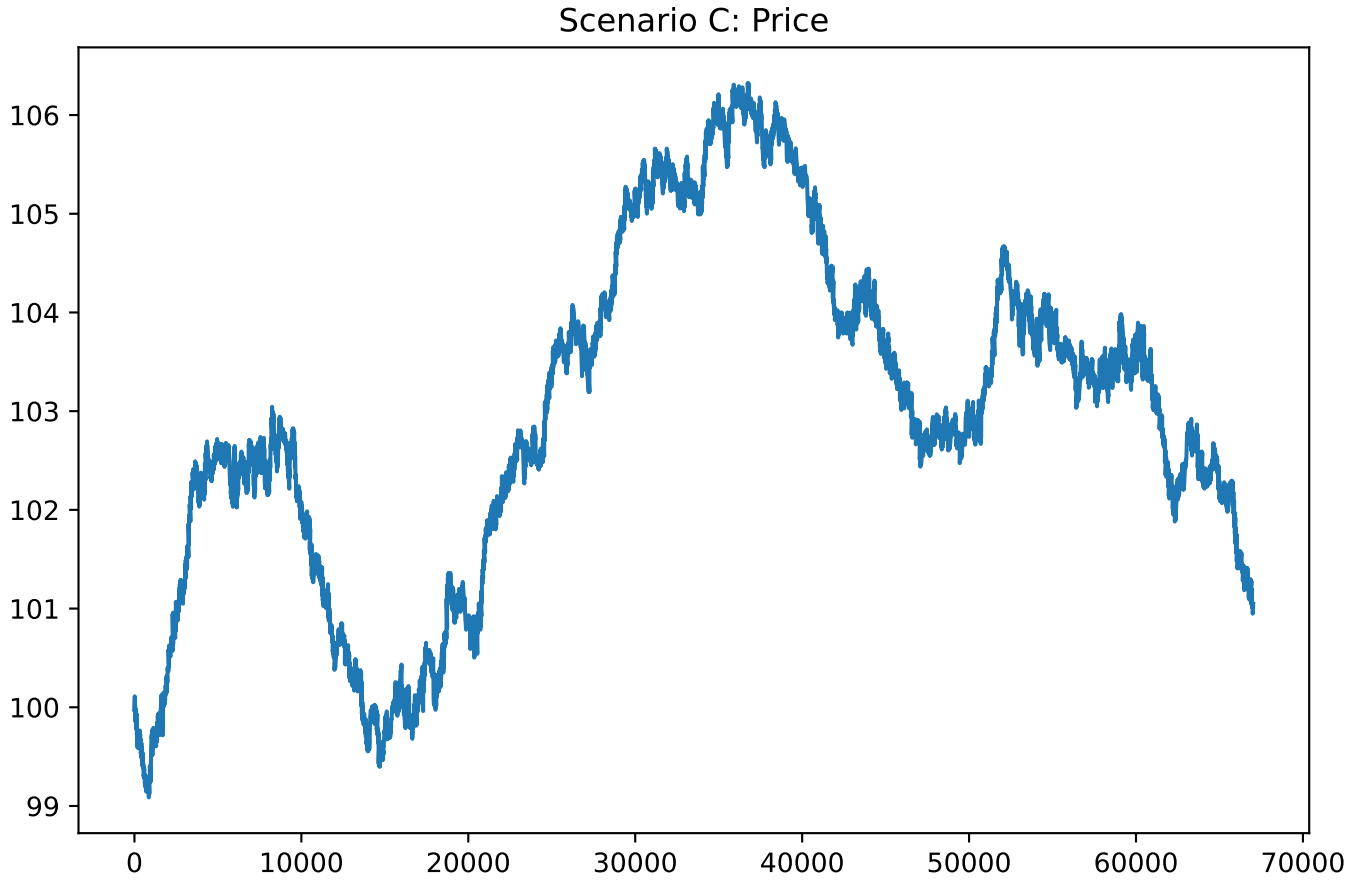
All invariants enforced via runtime assertions

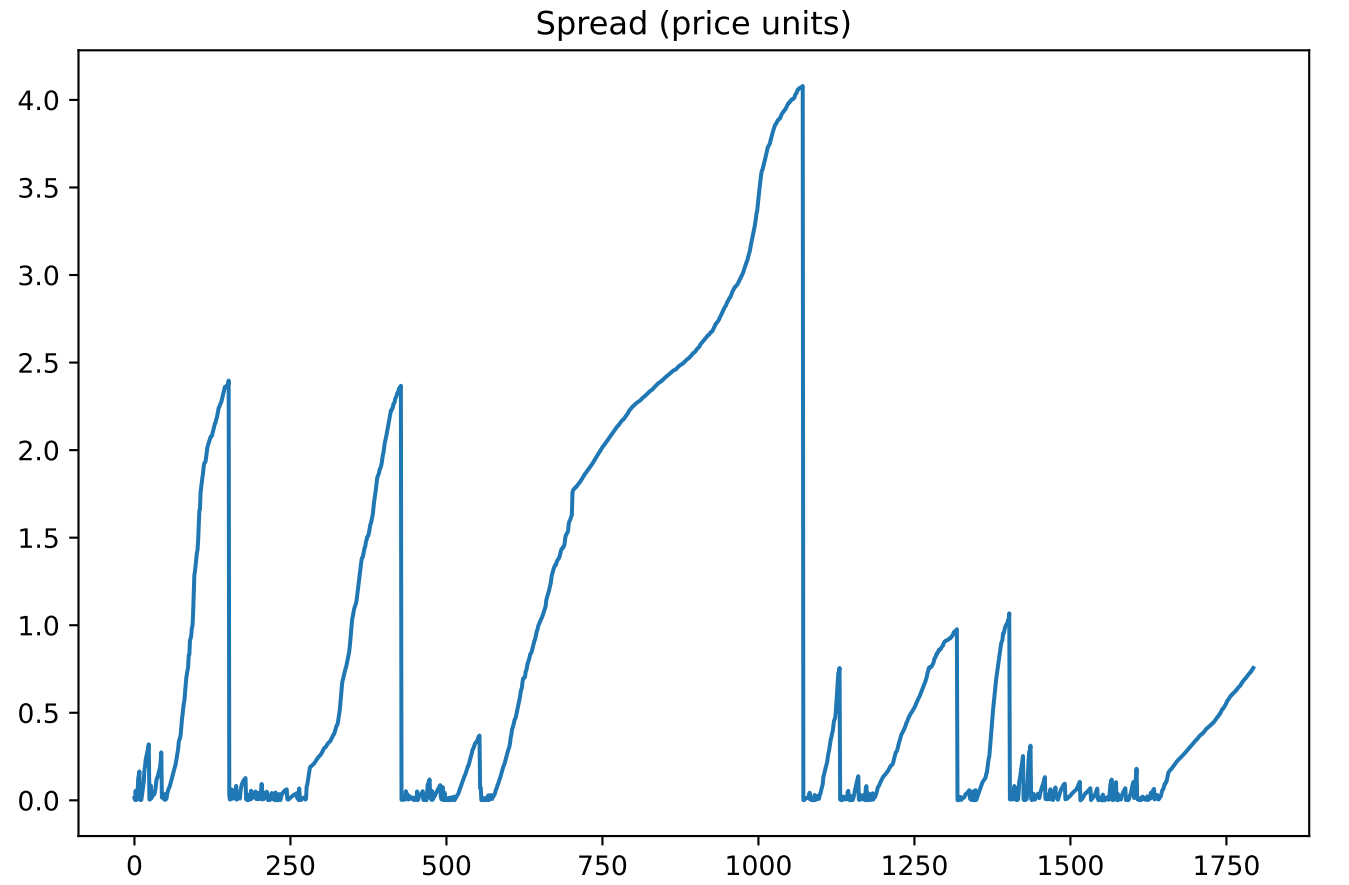

Scenario A: Price
105
104
103
102
101
100
99
98
0
10000
20000
30000
40000
50000
60000
70000


Spread (price units)
2.5
2.0
1.5
1.0
0.5
0.0
0
250
500
750
1000
1250
1500
1750


Scenario B: Price
100
98
96
94
92
0
20000
40000
60000
80000


Spread (price units)
2.5
2.0
1.5
1.0
0.5
0.0
0
250
500
750
1000
1250
1500
1750


Scenario C: Price
106
105
104
103
102
101
100
99
0
10000
20000
30000
40000
50000
60000
70000


Spread (price units)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
250
500
750
1000
1250
1500
1750

Metric	A	B	C
Avg Spread	0.3290942963101574	0.459961400110577	0.9005322749642642
Volatility	0.00023890975594170996	0.0002114328693399886	0.00024309225793046966

Interpretation

Scenario B stabilizes prices because market makers continuously provide liquidity on both sides of the book, tightening spreads and absorbing order-flow imbalances.

Scenario C destabilizes prices because momentum traders synchronize directional order flow, amplifying trends and widening spreads as liquidity vanishes.

Crashes are not explicitly coded. They emerge naturally when aggressive order flow overwhelms available liquidity.