Top 10 pairs by spread deviation:

	pair	beta	eg_stat	eg_crit_values.10pct	eg_crit_values.5pct	eg_crit_values.1pct	adf_p_value	z_score	spread_mean	spread_sd	latest_spread
AMD-MDT	AMD-MDT	-3.3424062	8.412598	33.9267	40.8217	55.1911	0.03189704	-1.863602	552.11282	12.319126	529.15487
GOOG-CVS	GOOG-CVS	-6.0039056	3.561987	33.9267	40.8217	55.1911	0.03995587	1.851301	771.47902	21.484692	811.25365
ORCL-CSCO	ORCL-CSCO	-9.4053469	1.654165	33.9267	40.8217	55.1911	0.01343357	-1.842202	931.94002	20.927680	893.38701
AMD-CSCO	AMD-CSCO	-3.0211448	4.777020	33.9267	40.8217	55.1911	0.01226106	-1.806219	453.66240	15.109038	426.37217
ISRG-BAX	ISRG-BAX	-12.8414216	3.437407	33.9267	40.8217	55.1911	0.01000000	1.796156	802.37014	30.308397	856.80874
AMD-JNJ	AMD-JNJ	-1.8751547	6.995385	33.9267	40.8217	55.1911	0.01000000	-1.692530	601.56774	8.942159	586.43287
NFLX-ABT	NFLX-ABT	2.3239944	3.658230	33.9267	40.8217	55.1911	0.01000000	-1.654876	-189.35062	8.355157	-203.17737
MSFT-CSCO	MSFT-CSCO	-4.0769863	2.756615	33.9267	40.8217	55.1911	0.01000000	-1.627893	802.14116	13.301505	780.48773
AMD-ABBV	AMD-ABBV	-0.6687717	12.253943	33.9267	40.8217	55.1911	0.04666832	-1.603032	378.46757	17.538202	350.35327
AMD-CVS	AMD-CVS	2.7143057	13.036537	33.9267	40.8217	55.1911	0.04180680	-1.551726	11.85493	17.170359	-14.78876

```
--- Trading Recommendations ---
Pairs to LONG (buy first, sell second):
  AMD-MDT: BUY AMD, SELL MDT (z-score = -1.86)
  ORCL-CSCO: BUY ORCL, SELL CSCO (z-score = -1.84)
  AMD-CSCO: BUY AMD, SELL CSCO (z-score = -1.81)
  AMD-JNJ: BUY AMD, SELL JNJ (z-score = -1.69)
  NFLX-ABT: BUY NFLX, SELL ABT (z-score = -1.65)
  MSFT-CSCO: BUY MSFT, SELL CSCO (z-score = -1.63)
  AMD-ABBV: BUY AMD, SELL ABBV (z-score = -1.60)
  AMD-CVS: BUY AMD, SELL CVS (z-score = -1.55)


Pairs to SHORT (sell first, buy second):
  GOOG-CVS: SELL GOOG, BUY CVS (z-score = 1.85)
  ISRG-BAX: SELL ISRG, BUY BAX (z-score = 1.80)


--- EXIT SIGNALS ---
EXIT levels for LONG positions (close when spread reaches these levels):
  AMD-MDT: EXIT when spread >= 542.87
    Current spread: 529.15, Exit spread: 542.87, Distance to exit: 13.72
    Mean: 552.11, SD: 12.32, Current z-score: -1.86, Exit z-score: -0.75
  ORCL-CSCO: EXIT when spread >= 916.24
    Current spread: 893.39, Exit spread: 916.24, Distance to exit: 22.86
    Mean: 931.94, SD: 20.93, Current z-score: -1.84, Exit z-score: -0.75
  AMD-CSCO: EXIT when spread >= 442.33
    Current spread: 426.37, Exit spread: 442.33, Distance to exit: 15.96
    Mean: 453.66, SD: 15.11, Current z-score: -1.81, Exit z-score: -0.75
  AMD-JNJ: EXIT when spread >= 594.86
    Current spread: 586.43, Exit spread: 594.86, Distance to exit: 8.43
    Mean: 601.57, SD: 8.94, Current z-score: -1.69, Exit z-score: -0.75
  NFLX-ABT: EXIT when spread >= -195.62
    Current spread: -203.18, Exit spread: -195.62, Distance to exit: 7.56
    Mean: -189.35, SD: 8.36, Current z-score: -1.65, Exit z-score: -0.75
  MSFT-CSCO: EXIT when spread >= 792.17
    Current spread: 780.49, Exit spread: 792.17, Distance to exit: 11.68
    Mean: 802.14, SD: 13.30, Current z-score: -1.63, Exit z-score: -0.75
  AMD-ABBV: EXIT when spread >= 365.31
    Current spread: 350.35, Exit spread: 365.31, Distance to exit: 14.96
    Mean: 378.47, SD: 17.54, Current z-score: -1.60, Exit z-score: -0.75
  AMD-CVS: EXIT when spread >= -1.02
    Current spread: -14.79, Exit spread: -1.02, Distance to exit: 13.77
    Mean: 11.85, SD: 17.17, Current z-score: -1.55, Exit z-score: -0.75


EXIT levels for SHORT positions (close when spread reaches these levels):
  GOOG-CVS: EXIT when spread <= 787.59
    Current spread: 811.25, Exit spread: 787.59, Distance to exit: 23.66
    Mean: 771.48, SD: 21.48, Current z-score: 1.85, Exit z-score: 0.75
  ISRG-BAX: EXIT when spread <= 825.10
    Current spread: 856.81, Exit spread: 825.10, Distance to exit: 31.71
    Mean: 802.37, SD: 30.31, Current z-score: 1.80, Exit z-score: 0.75
```