SIGNAL RESEARCH NOTE

XGBoost Residual Return Rank

Machine-learning residual-return ranking evidence across broad listed equities.

FAMILY	UNIVERSE	RESEARCH HORIZON
ML residual return	**Broad listed-equity research panel**	**126d**

Executive Summary

XGBoost Residual Return Rank evaluates historical ranking evidence on a broad listed-equity panel. The preferred 126d row shows a 13.12% top-minus-bottom spread and a 0.073 rank IC.

Preferred horizon	**126d**
126d rank spread	**13.12%**
Rank IC	**0.073**
Long-leg return	**21.94%**
Average turnover	**54.03%**

Observations

1. The signal is evaluated as a ranking component, not as a standalone product.
2. The horizon and split evidence are diagnostics for rank ordering, not current allocation instructions.
3. Formula details, feature recipes and model parameters are intentionally not disclosed.

Data and Research Setup

The setup evaluates residual-return model ranks on a consistent broad listed-equity panel and horizon grid.

UNIVERSE

Broad listed-equity research panel. Current holdings and issuer-level rank tables are not shown.

INPUTS

Historical price, liquidity and derived feature fields are aligned to a dated research panel.

COMPARISON BASIS

Displayed rows use the same panel construction, date grid and forward-return convention.

OUTPUT BOUNDARY

The figures are historical diagnostics and do not present current positions or instrument rankings.

Signal Methodology

Without disclosing the exact functional, the construction proceeds along three conceptual steps.

STEP 1

Feature state

The model reads a dated feature state designed to summarise prior market behaviour.

STEP 2

Cross-sectional ranking

Each observation date is converted into a peer-relative rank within the research panel.

STEP 3

Forward evaluation

Ranked groups are compared over the research horizon to measure top-minus-bottom behaviour.

> The description is intentionally conceptual. Formula details, exact construction rules and implementation parameters are not disclosed.

Results and Horizon Context

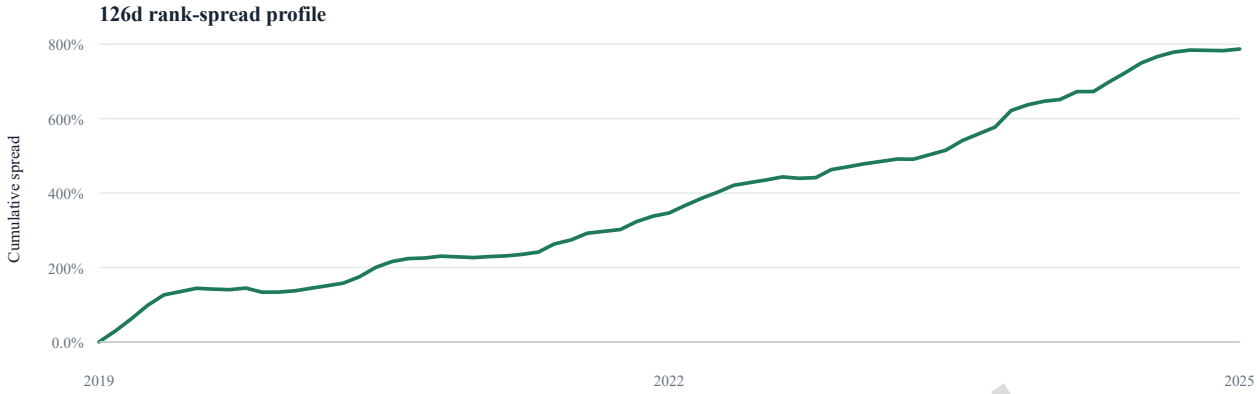

Figure 1. Cumulative 126d top-minus-bottom rank-spread contribution, normalised to zero at the first valid research observation. Long-horizon forward observations overlap, so the series should be read as a ranking diagnostic, not as a standalone return path.

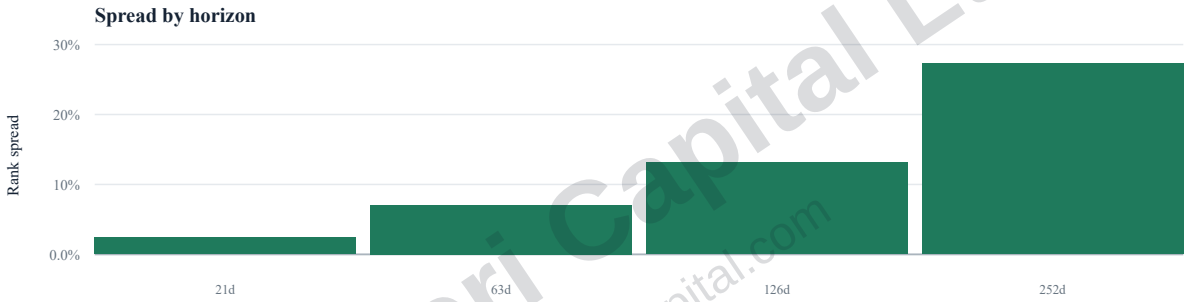

Figure 2. Top-minus-bottom spread across tested horizons under the same comparison setup.

Horizon	Rank spread	Rank IC	Long-leg return	Turnover
21d	2.42%	0.034	3.43%	54.03%
63d	7.03%	0.059	10.72%	54.03%
126d	**13.12%**	**0.073**	**21.94%**	**54.03%**
252d	27.30%	0.081	45.93%	54.03%

Neighbouring horizon rows and yearly spread checks help distinguish coherent model evidence from an isolated fit.

Stability and Robustness

Stability is assessed from the yearly preferred-horizon spread profile and available split checks.

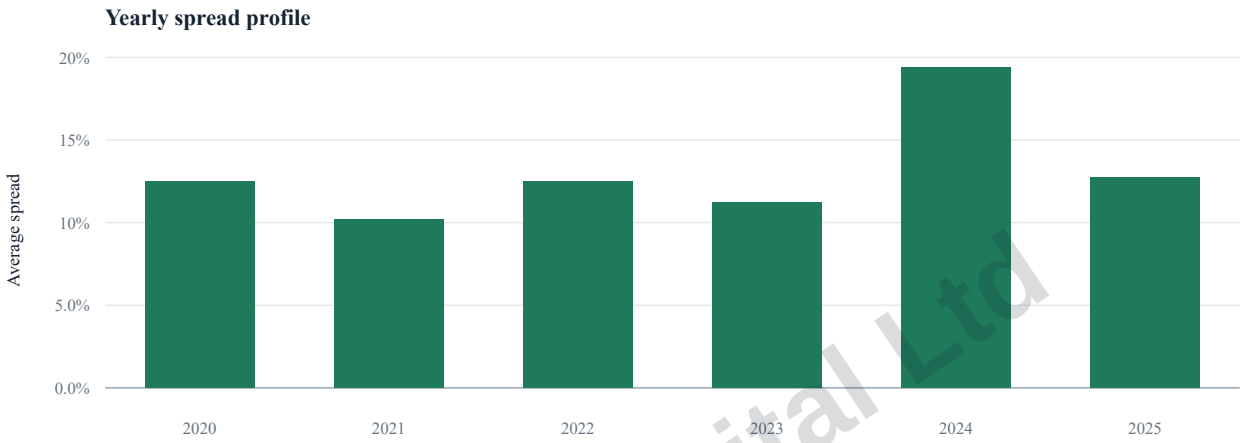

Figure 3. Yearly average 126d rank-spread contribution for the preferred horizon.

Year	Average spread
2020	12.48%
2021	10.23%
2022	12.48%
2023	11.22%
2024	19.38%
2025	12.73%

A coherent result should not depend on a single isolated observation window.

Research Interpretation

The signal is retained in the research library as machine-learning ranking evidence.

ROLE

Primary ML ranking candidate.

CAPTURES

Nonlinear or regularised relationships between prior market state and later relative returns.

USE

Ranking or comparison component inside broader systematic allocation research.

LIMITATIONS

The note does not disclose construction details, feature recipes, model parameters, issuer-level ranks, execution assumptions or product suitability.