

ession (L1/L2 Grid, Refit by ROC-AUC) – VLO Next

Generated: 2026-02-27 03:13:29

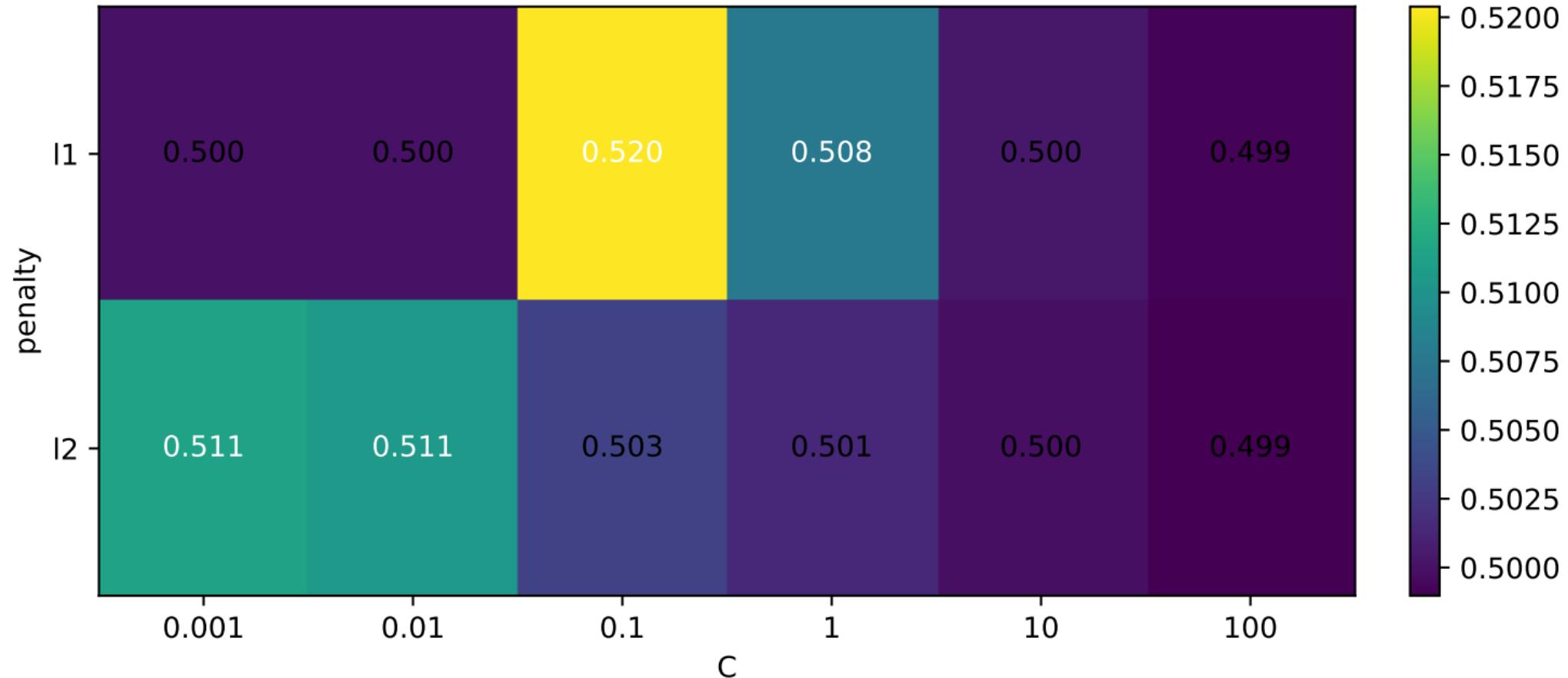
TRAIN period: \leq 2022-12-31 | TEST period: \geq 2023-01-01

TRAIN size: 2,373 | TEST size: 787

Features — scaled (float + VOL_*): 76 | passthrough: 9

: {'clf_C': np.float64(0.1),
 'clf_Gamma': np.float64(0.5),
 'clf_n_estimators': 500},

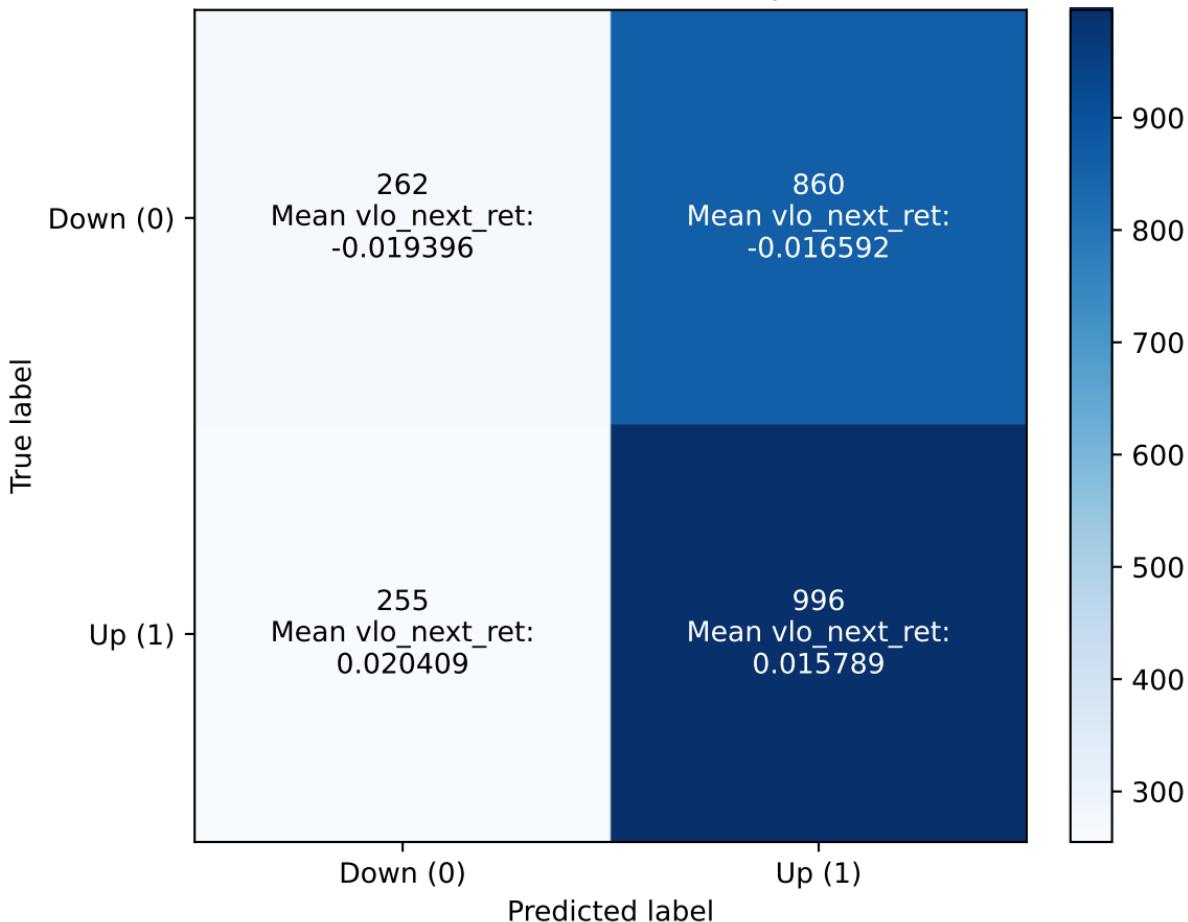
Grid Search — mean ROC-AUC (CV)



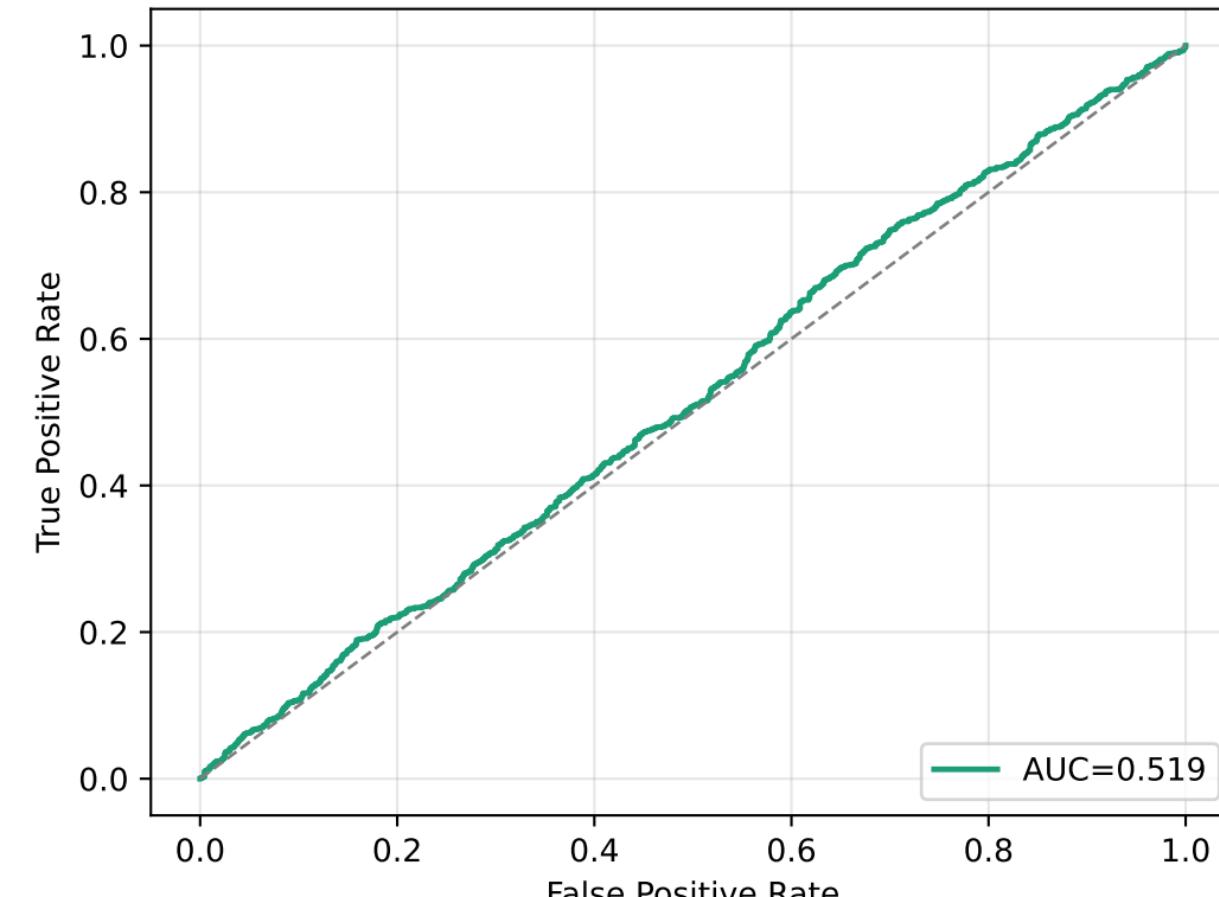
Cross-Validation ROC-AUC — Training Set (\leq 2022-12-31)

metric	value
mean ROC-AUC (CV folds)	0.5204
std ROC-AUC (CV folds)	0.0184

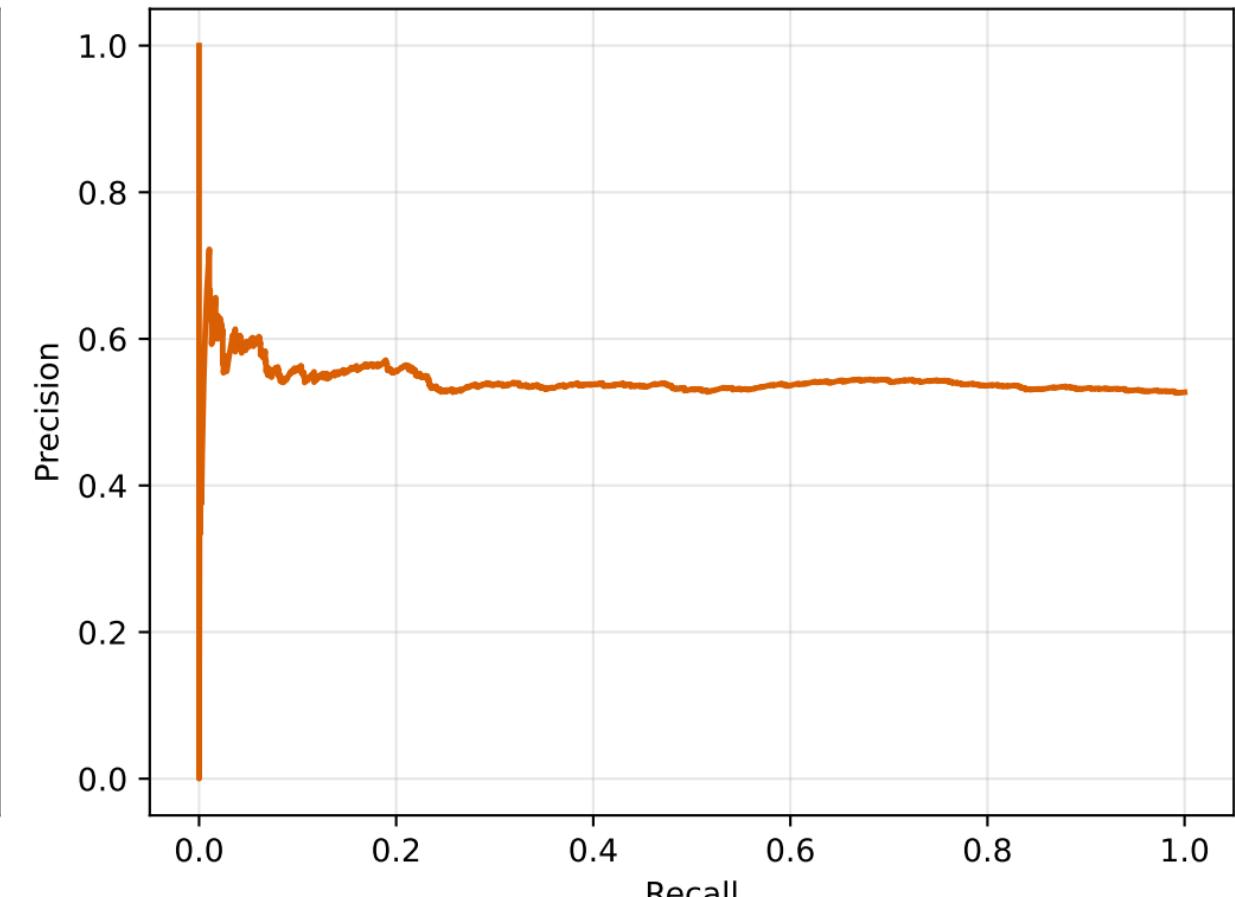
Confusion Matrix — TRAIN (CV predictions)



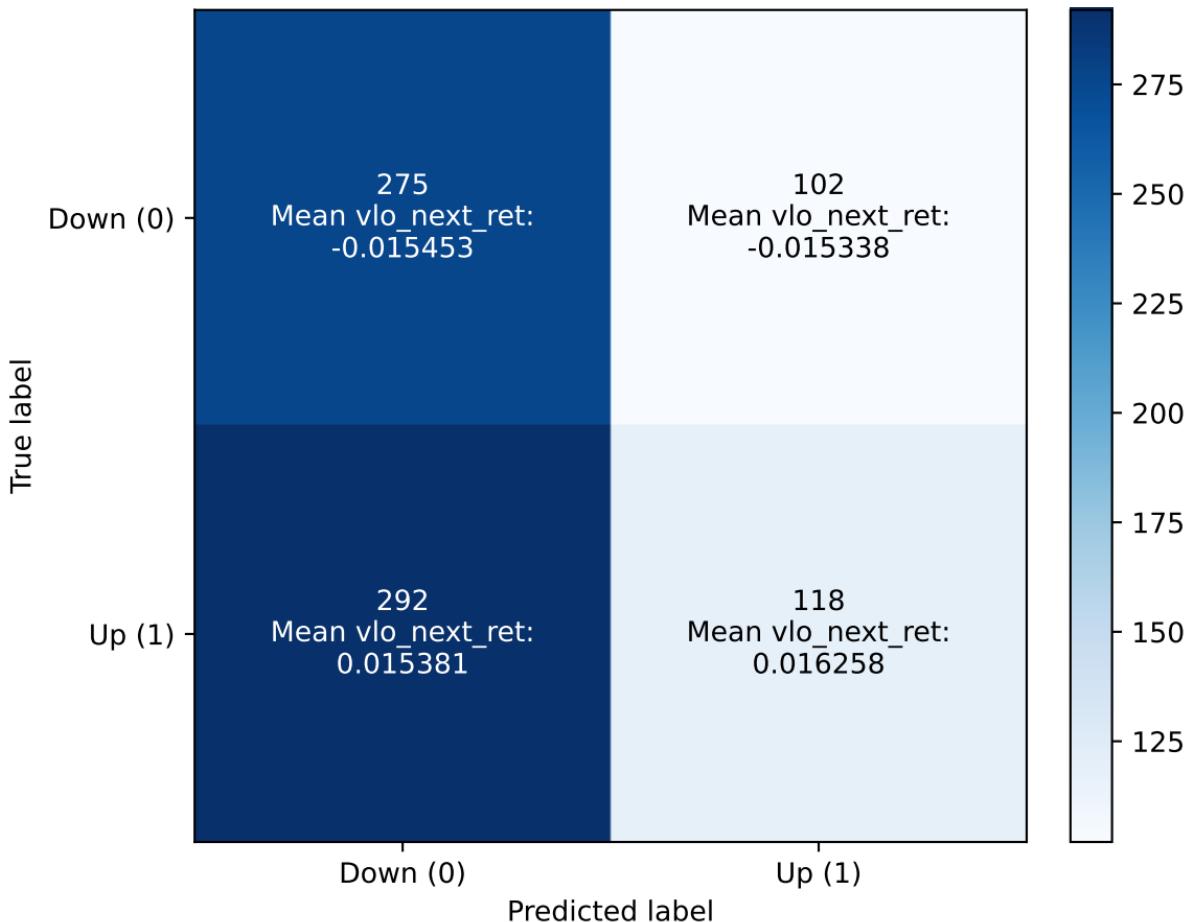
ROC Curve — TRAIN (CV pooled)



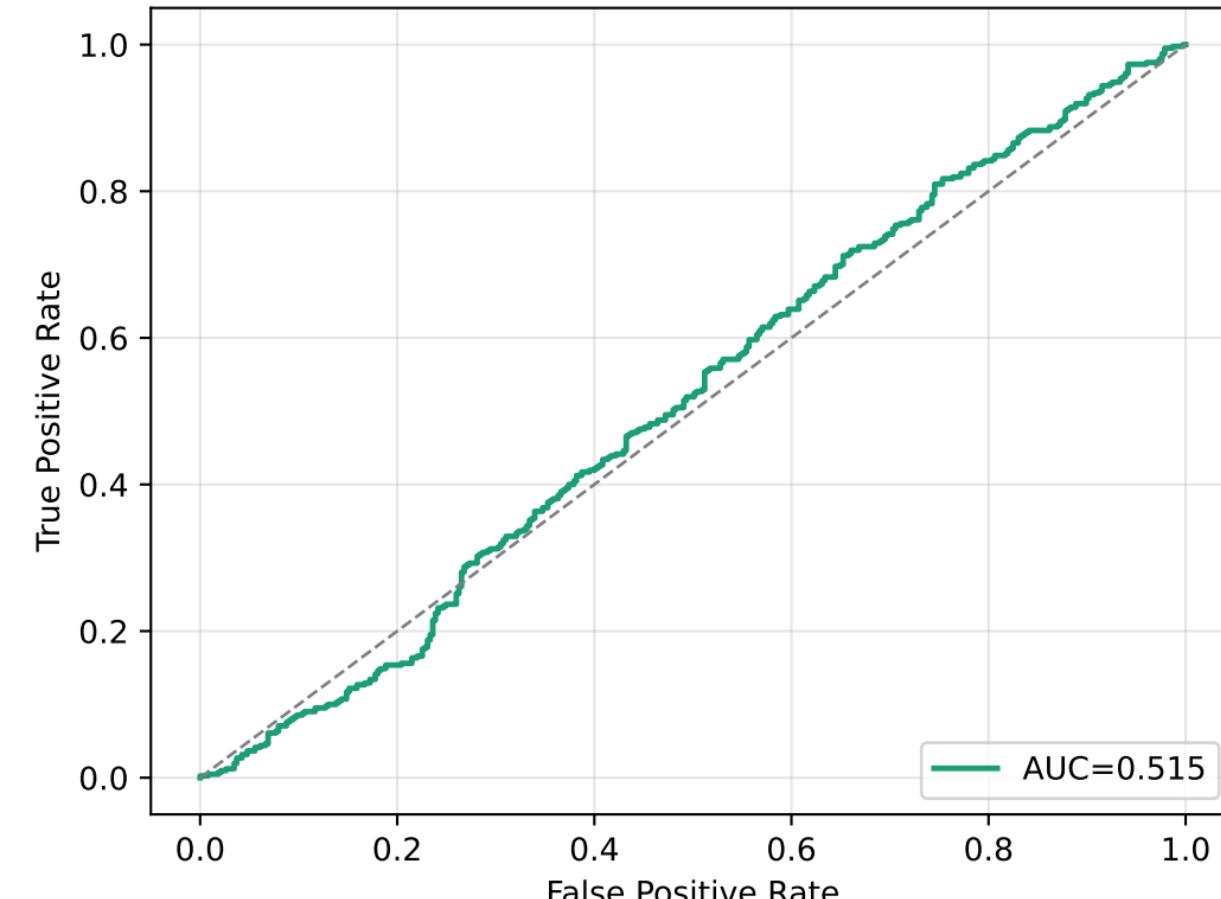
Precision-Recall — TRAIN (CV pooled)



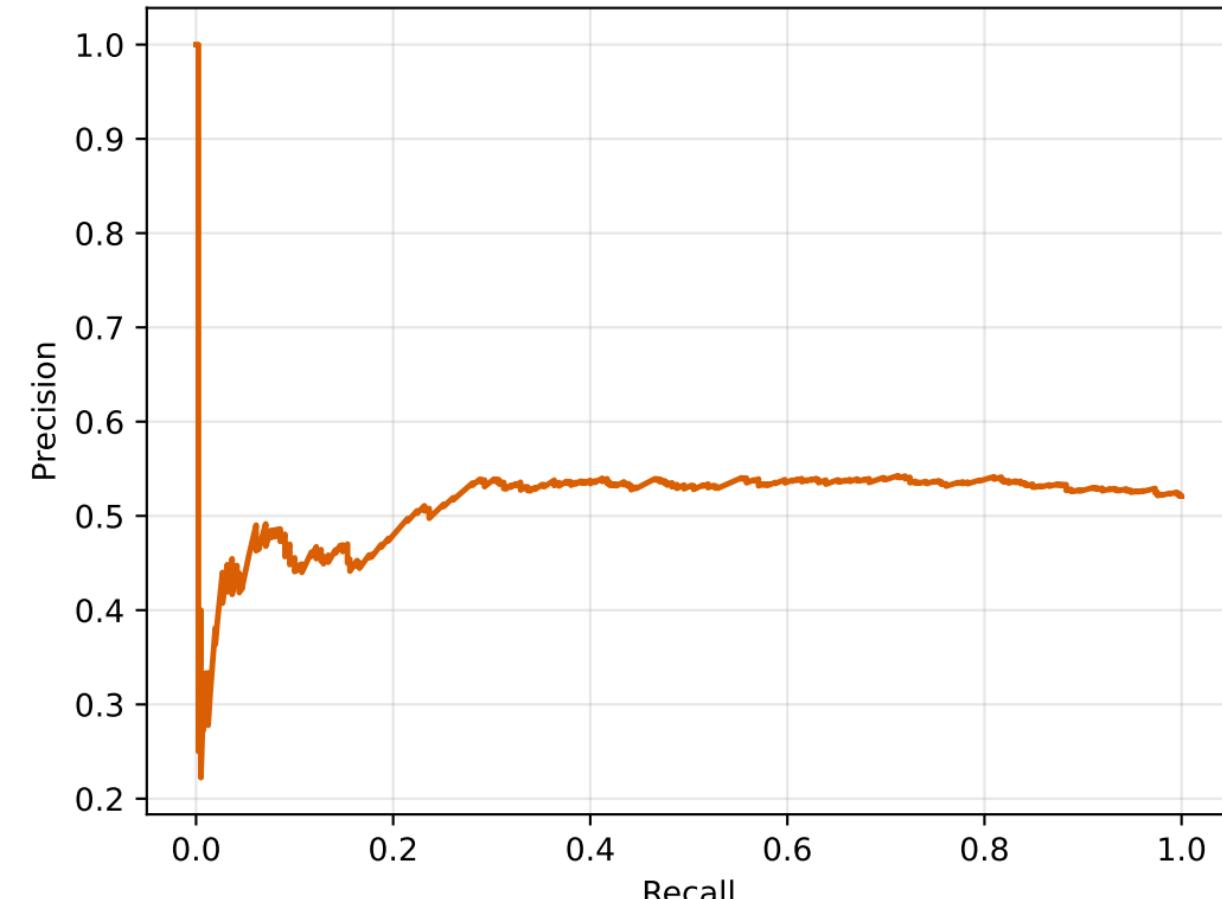
Confusion Matrix — TEST (2023+)



ROC Curve — TEST (2023+)



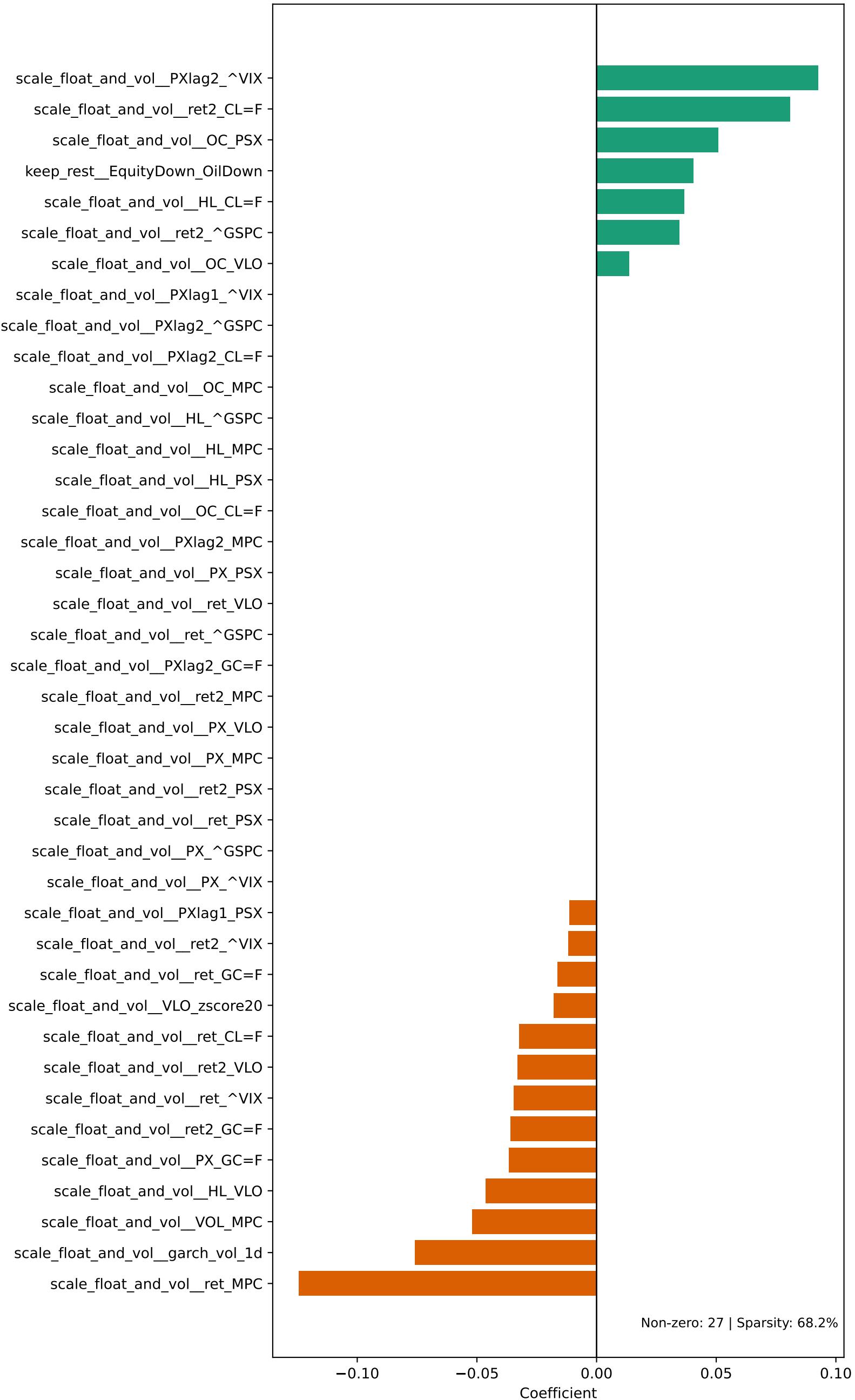
Precision-Recall — TEST (2023+)



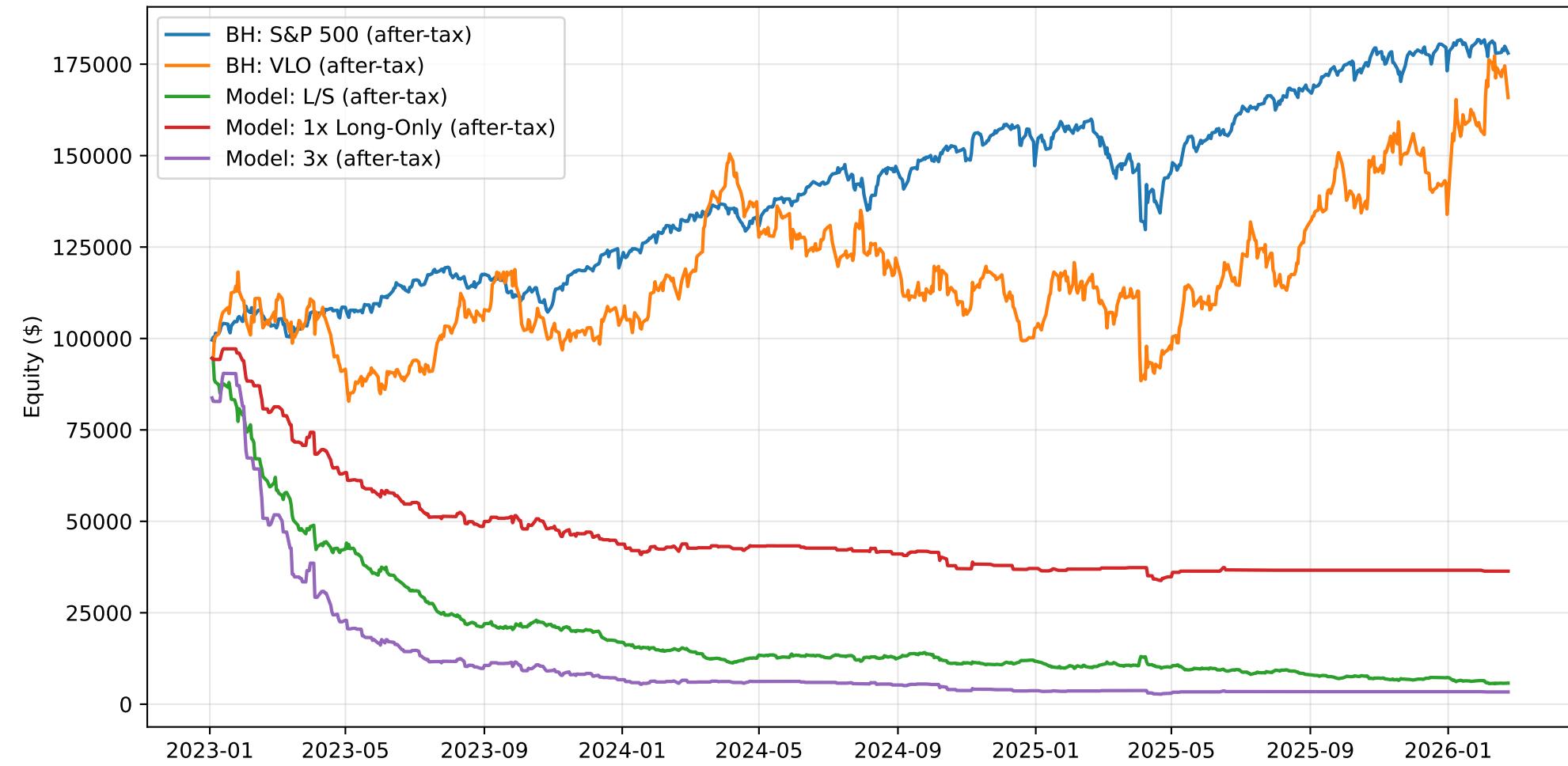
Classification Report — TEST (2023+)

	precision	recall	f1-score	support
0	0.485	0.729	0.583	377
1	0.536	0.288	0.375	410
accuracy			0.499	787
macro avg	0.511	0.509	0.479	787
weighted avg	0.512	0.499	0.474	787

Logistic Coefficients (scaled feature space) — penalty=11



After-Tax Equity Curves — TEST: 2023 to most recent



Annual After-Tax Performance (2023+), incl. Average

	BH: S&P 500 (after-tax)	BH: VLO (after-tax)	Model: L/S (after-tax)	Model: 1x Long-Only (after-tax)	Model: 3x (after-tax)
2023	19.78%	9.50%	-82.05%	-53.73%	-92.00%
2024	19.21%	-3.45%	-30.49%	-15.22%	-44.88%
2025	13.32%	29.79%	-37.43%	-1.28%	-7.17%
2026	-0.32%	16.09%	-20.01%	-0.71%	-2.18%
Average	13.00%	12.98%	-42.49%	-17.73%	-36.56%

Sharpe Ratios (Annualized, Daily Returns) — TEST (2023+ only)

	Sharpe
BH: S&P 500	1.311
BH: VLO	0.682
Model: L/S	-2.571
Model: 1x Long-Only	-2.088
Model: 3x	-2.177

Run Metadata & Time-Split Summary

Report saved: /mnt/batch/tasks/shared/LS_root/mounts/clusters/dvandyk1/code/Users/dva
Scaler saved: /mnt/batch/tasks/shared/LS_root/mounts/clusters/dvandyk1/code/Users/dva
Model saved: /mnt/batch/tasks/shared/LS_root/mounts/clusters/dvandyk1/code/Users/dva

TRAIN period: ≤ 2022-12-31 | TEST period: ≥ 2023-01-01

TRAIN size: 2,373 | TEST size: 787

CV folds: 5

Scaled features (float + VOL_*): 76

Passthrough numeric features: 9

Grid best params: {'clf__C': np.float64(0.1), 'clf__penalty': 'l1'}

Grid best CV ROC-AUC (refit metric): 0.5204

TEST ROC-AUC: 0.5153 | TEST Accuracy: 0.4994

Backtest assumptions (TEST period only, AFTER-TAX curves shown):

Initial capital: \$100,000

Tx cost per side: 2.00 bps

Taxes (annual on positive P&L, loss carry-forward):

- Long-term (buy & hold): 20.0%

- Short-term (active): 37.0%

Short borrow APR (L/S shorts): 0.30%

3x long-only daily cost (financing+expense): 0.0595%

Stop-loss: NOT APPLIED

Sharpe ratios (annualized, daily returns; computed from daily strategy returns net of fees):

BH: S&P 500: 1.311

BH: VLO: 0.682

Model: L/S: -2.571

Model: 1x Long-Only: -2.088

Model: 3x: -2.177

Feature exclusions (pre-model): vlo_next_ret, vlo_next_dir