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

Generated: 2026-02-26 18:33:20
TRAIN period: ≤ 2022-12-31 | TEST period: ≥ 2023-01-01
TRAIN size: 2,373 | TEST size: 787
Features — scaled (float + VOL_*): 76 | passthrough: 5
=['l1', 'l2'], C=[np.float64(0.001), np.float64(0.01), np.float64(0.1), np.float64(1.0), np.float64(10.0), np.float64(
Best params (CV): {'clf__C': np.float64(0.1), 'clf__penalty': 'l1'}
Best CV ROC-AUC: 0.5204
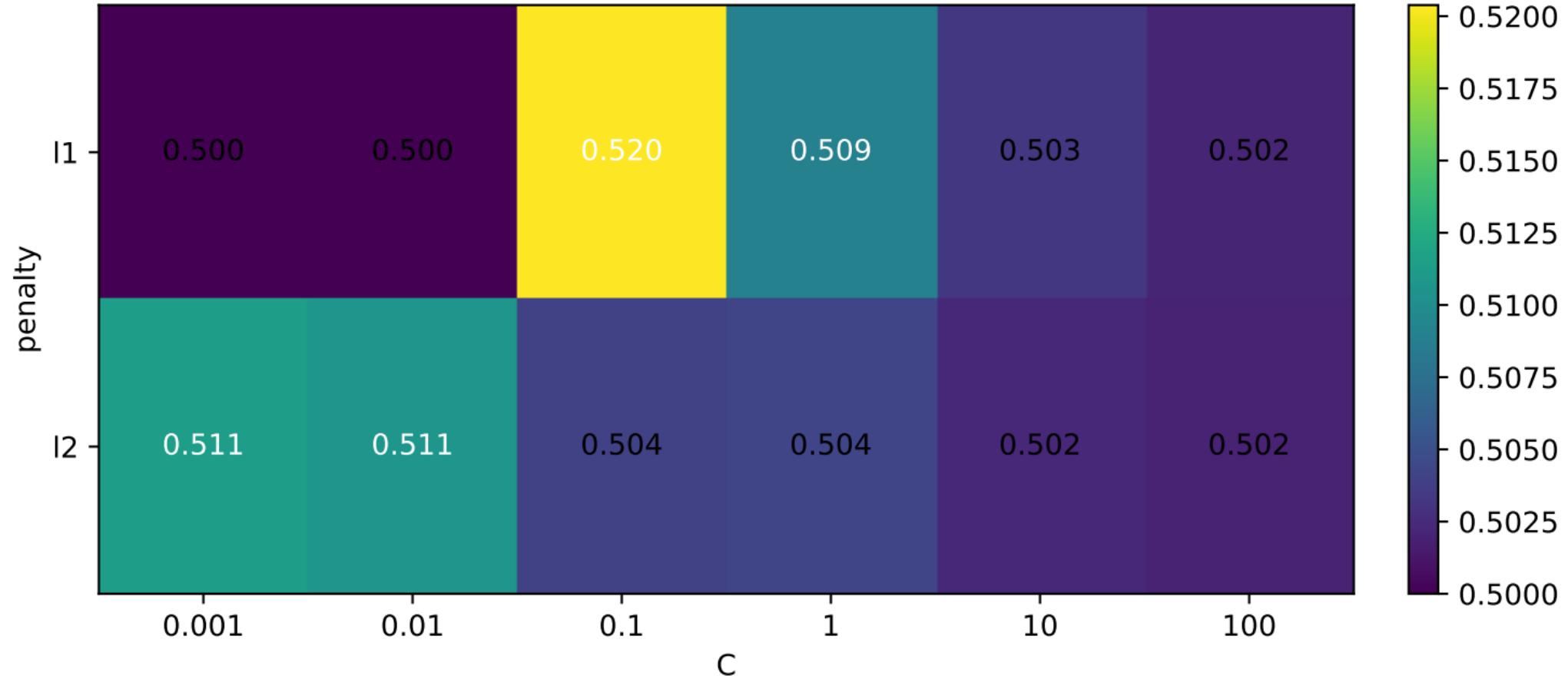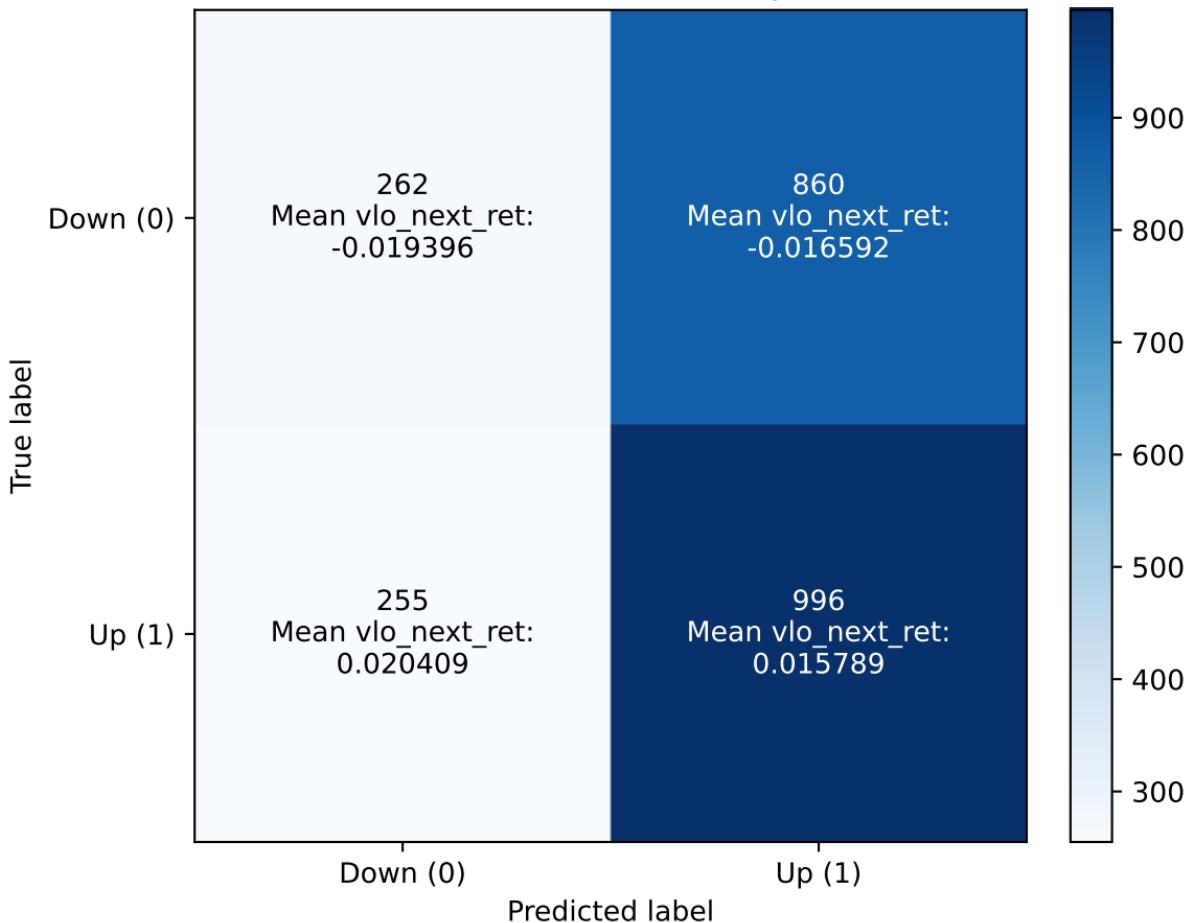
Grid Search — mean ROC-AUC (CV)

penalty	0.001	0.01	0.1	1	10	100
l1	0.500	0.500	0.520	0.509	0.503	0.502
l2	0.511	0.511	0.504	0.504	0.502	0.502

C
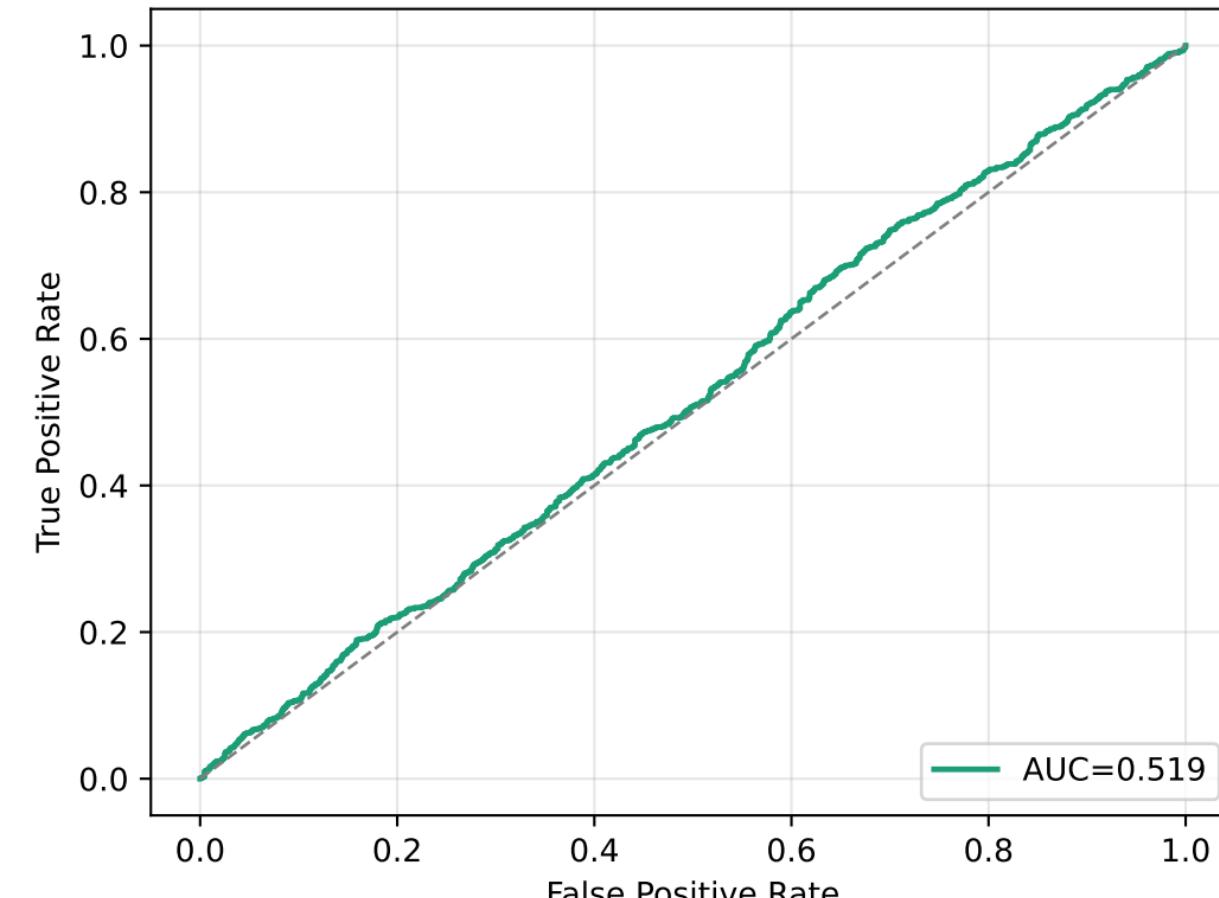
Cross-Validation ROC-AUC — Training Set (≤ 2022-12-31)

| metric	value
mean ROC-AUC (CV folds)	0.5204
std ROC-AUC (CV folds)	0.0184
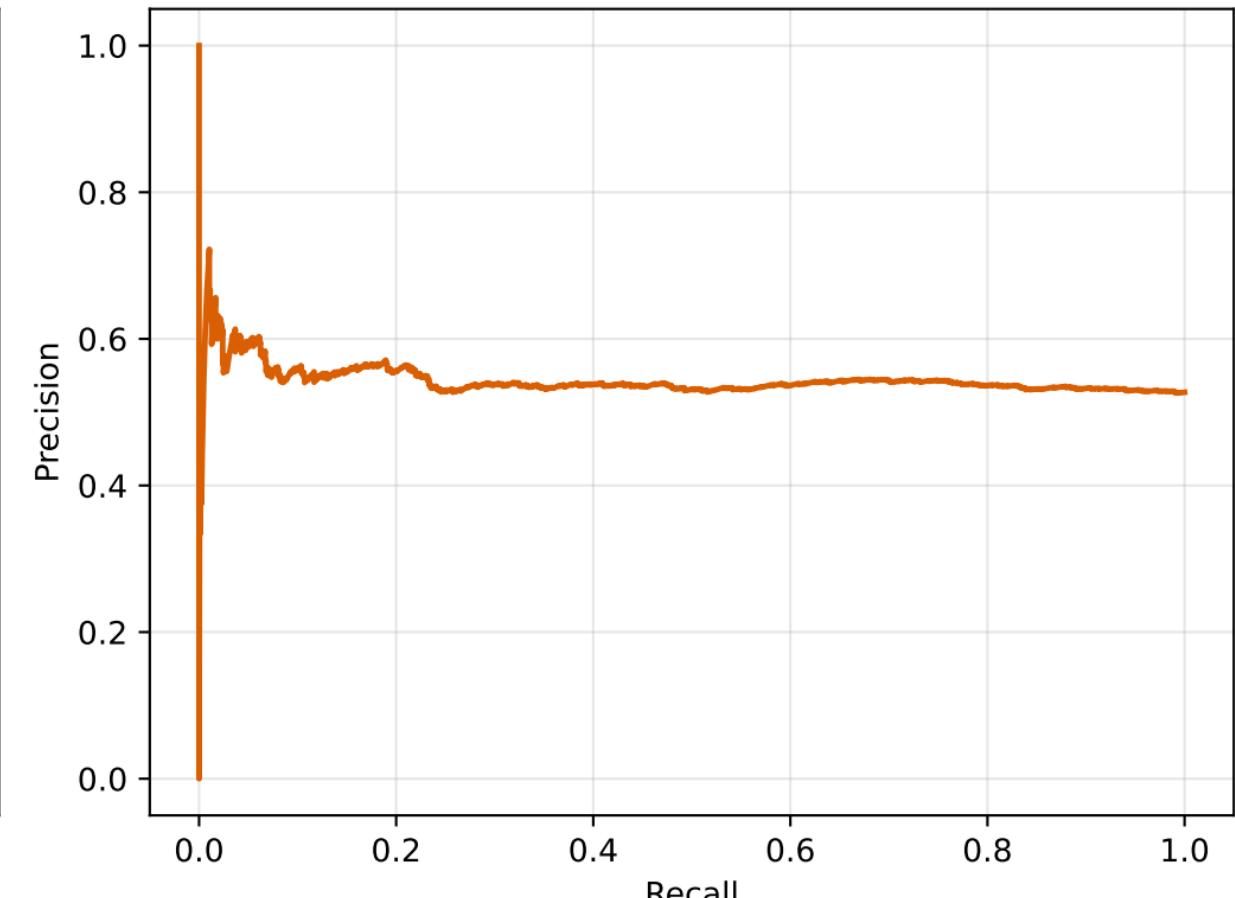
Confusion Matrix — TRAIN (CV predictions)
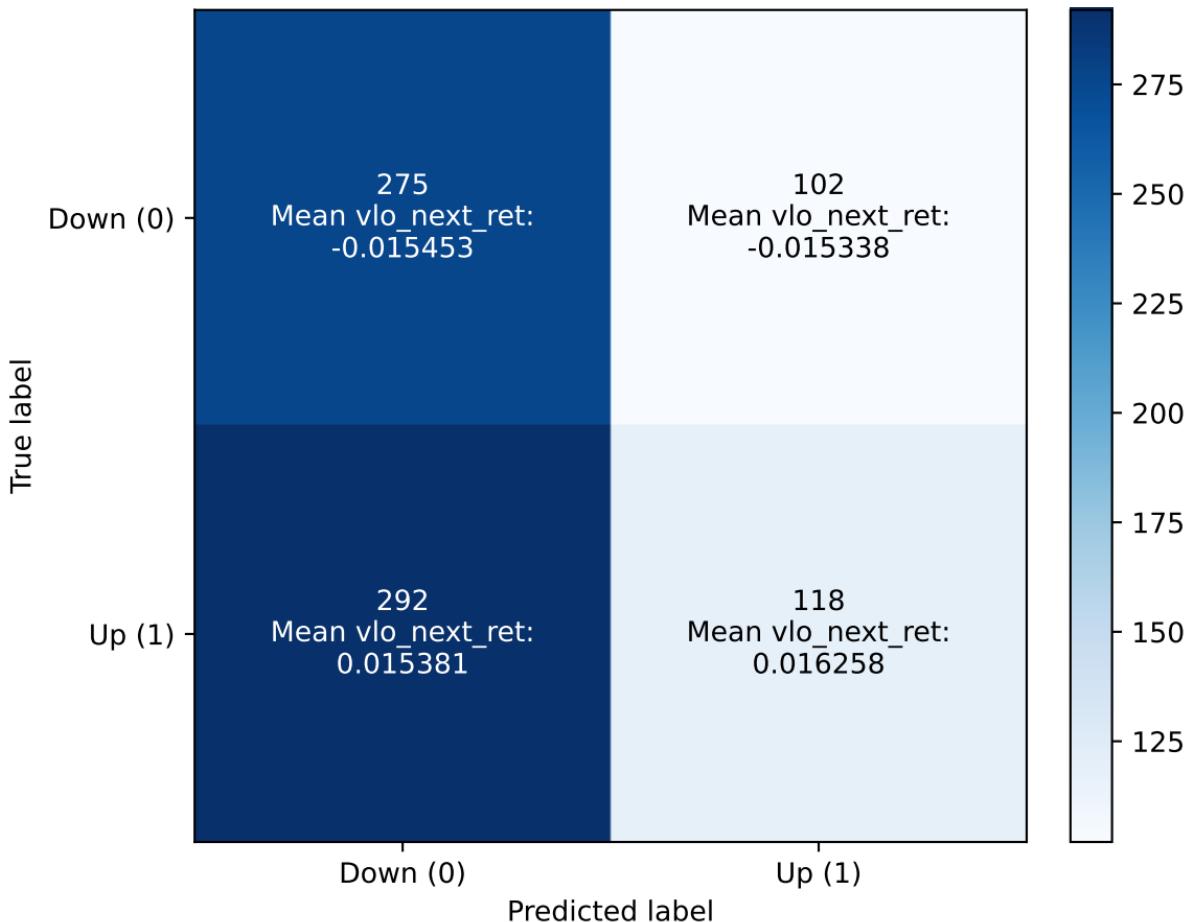
**ROC Curve — TRAIN (CV pooled)**
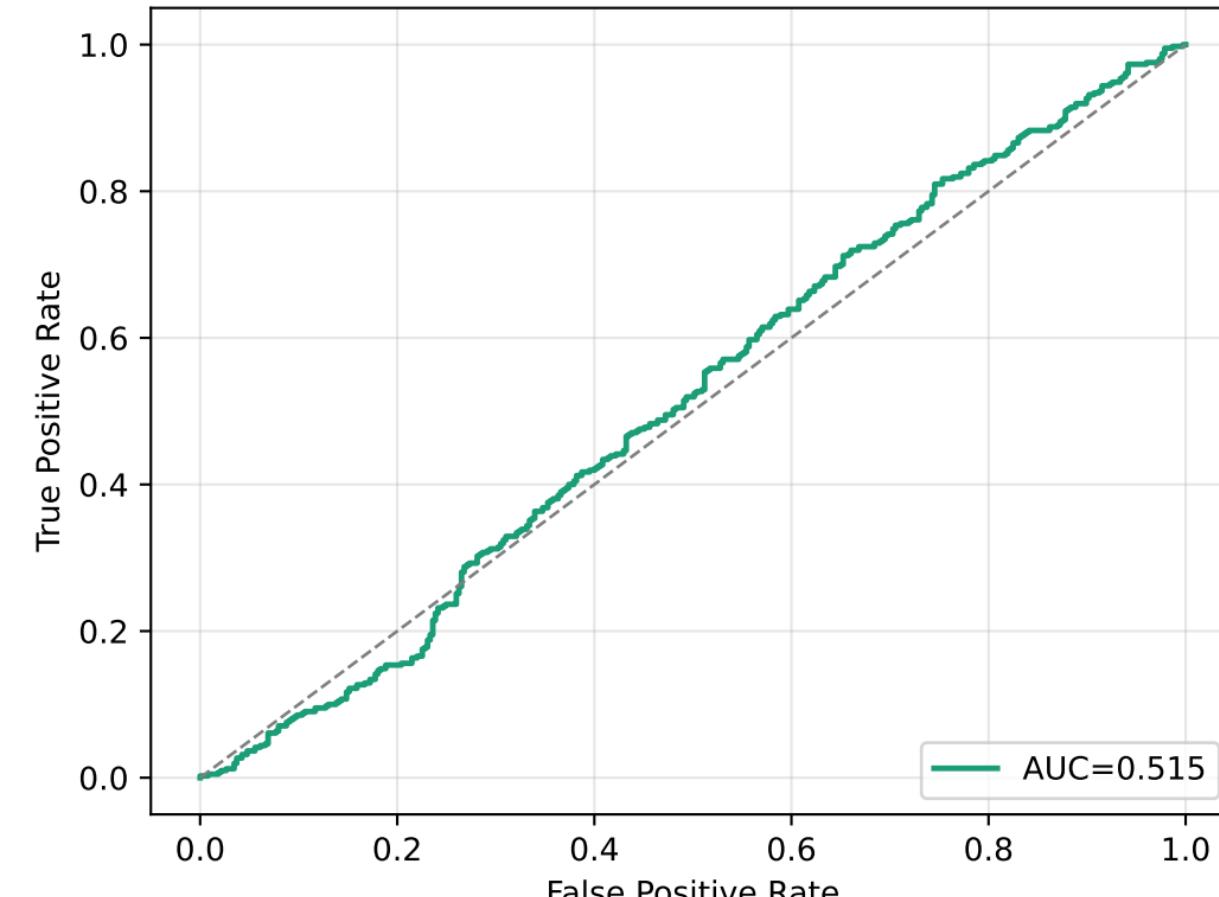
Precision-Recall — TRAIN (CV pooled)
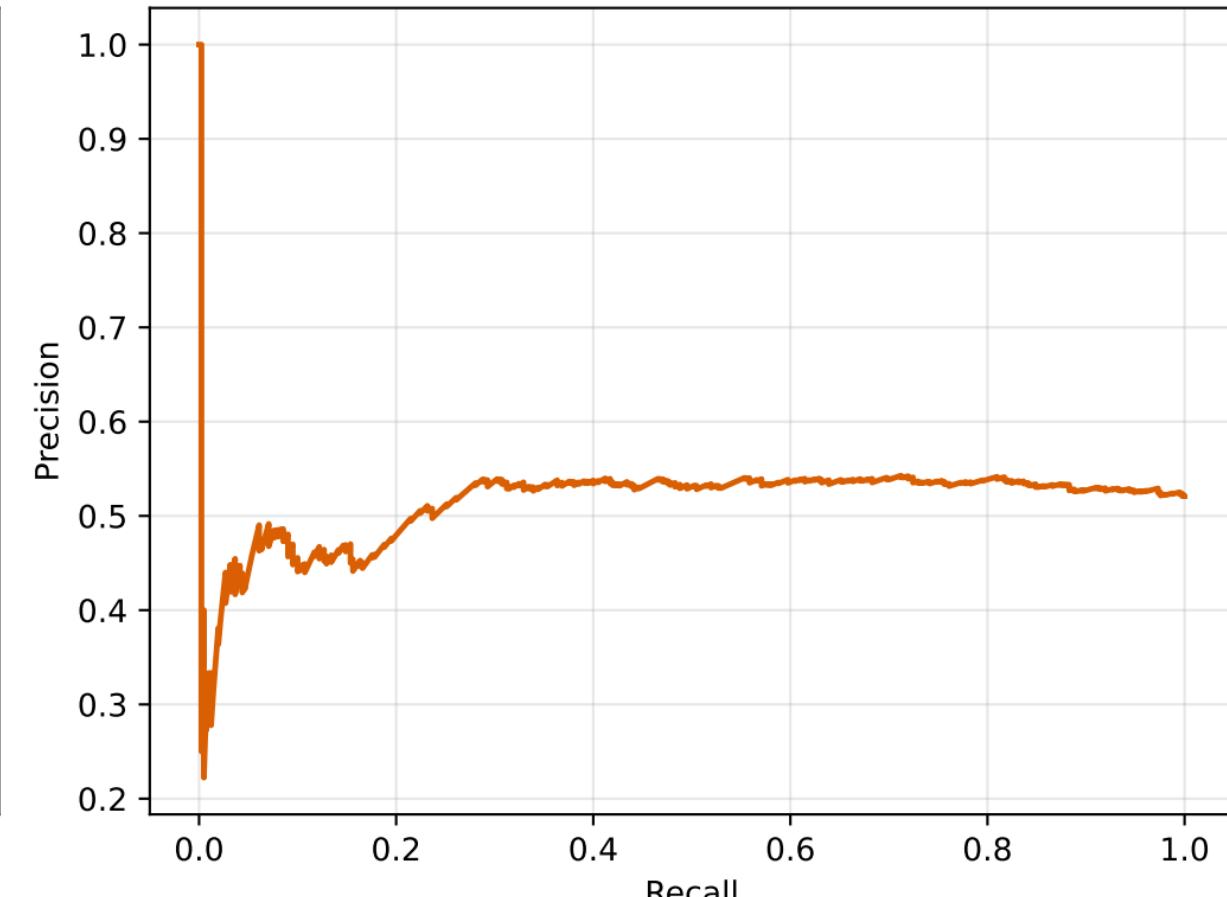
Confusion Matrix — TEST (2023+)

ROC Curve — TEST (2023+)
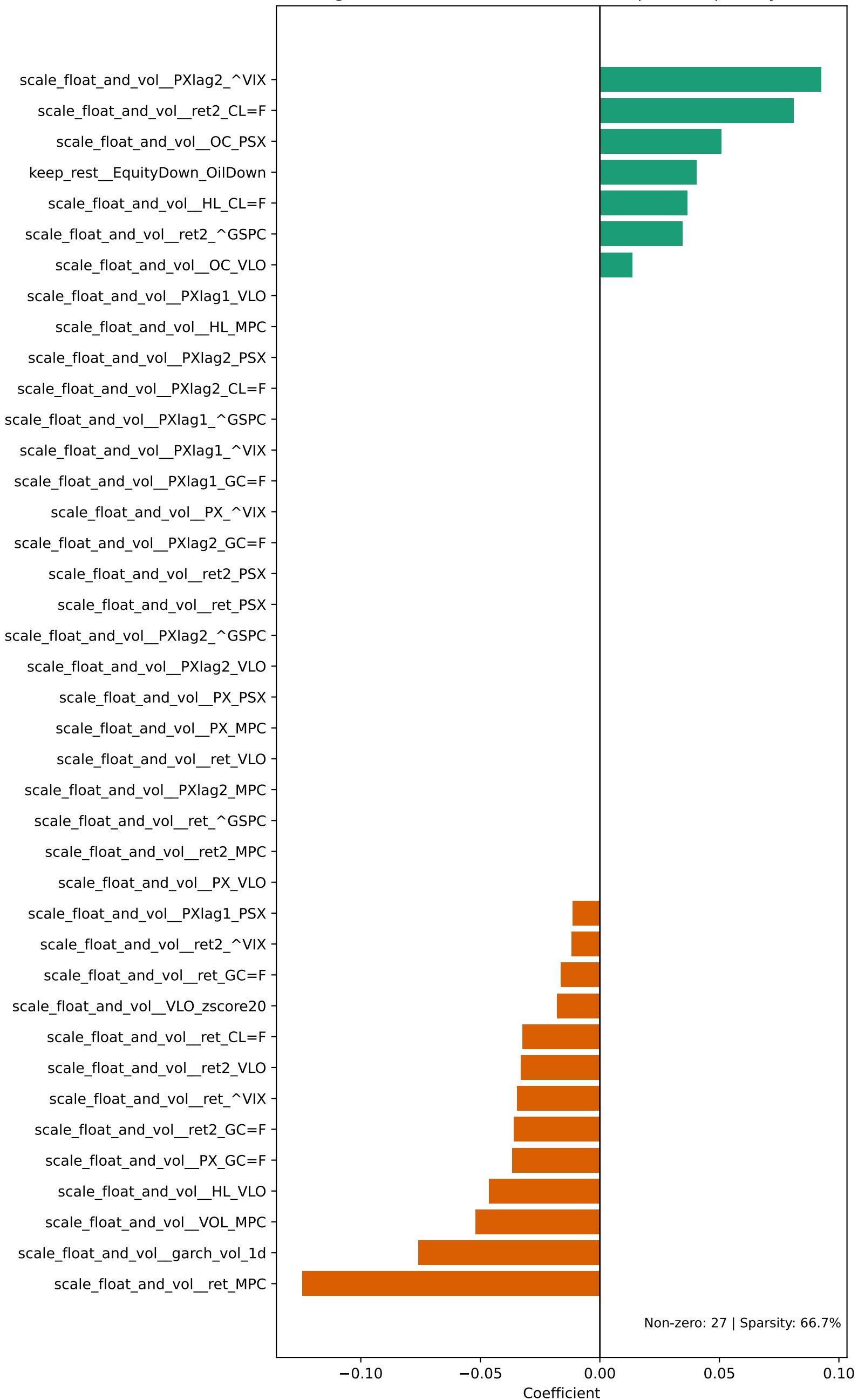
Precision-Recall — TEST (2023+)

AUC=0.515
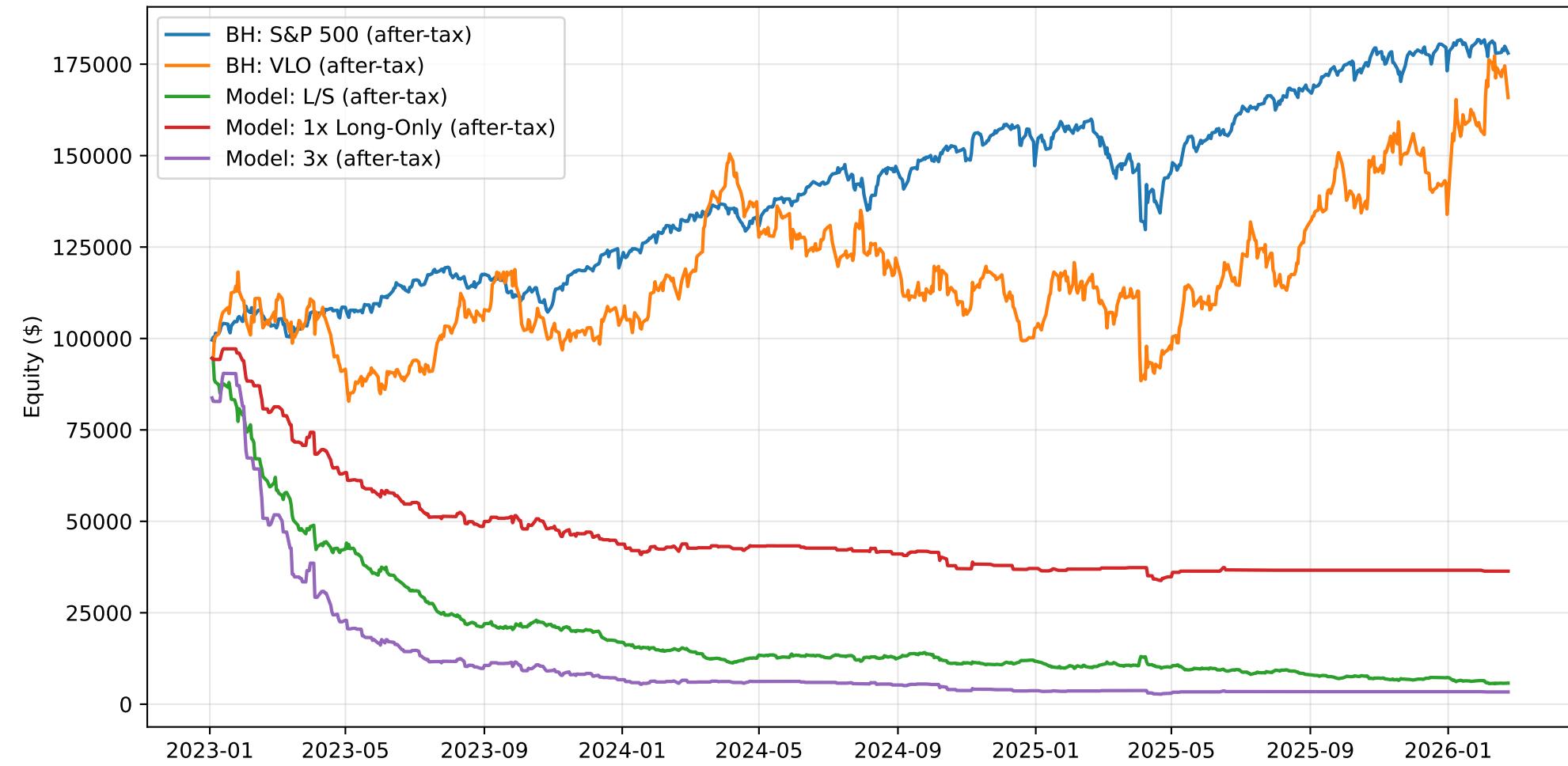
Classification Report — TEST (2023+)

	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=l1

Non-zero: 27 | Sparsity: 66.7%

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

Legend:
- 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)

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: 5
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
  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