Exercise 3B: Linear Models (Ridge and Lasso)

BUSI 722: Data-Driven Finance II

Using the ranked features and ranked target from Exercise 3A, fit linear models and evaluate their predictions.

Submission

Submit a **Jupyter notebook** (`.ipynb`) containing all code, output, and charts. Use markdown cells for any written discussion.

Using a single train/test split (train: 2023-2024, test: 2025 onward):

1. Fit a **Ridge regression** (alpha=1.0) on the training data. Report the coefficients. In a markdown cell, identify which features have the largest positive and negative coefficients.
2. Fit a **Lasso regression** (alpha=0.001) on the training data. Report the coefficients. In a markdown cell, identify which features are zeroed out.
3. For each model, predict on the test set. Each month, compute the **Spearman rank correlation** between predicted ranks and actual return ranks.
4. Report the mean and median monthly Spearman correlation for each model.