Exercise 5C: Score-Tilted Market-Cap Weights

BUSI 722: Data-Driven Finance II

Using the same monthly out-of-sample predictions from Exercise 4A and market-cap data from `merged.parquet`, construct score-tilted portfolios.

Submission

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

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1. Compute **score-tilted market-cap weights**: $w_i \propto \text{mcap}_i \times u_i^2$, normalized to sum to 1 (long-only).
2. Compare this to:
   - Pure market-cap weights (no tilt): $w_i \propto \text{mcap}_i$
   - Pure equal-weight top decile (from Exercise 5A)
3. For each approach, report mean return, volatility, Sharpe ratio, and the average number of stocks with weight $> 1\%$.
4. In a markdown cell, discuss the advantage of score-tilted weights compared to equal-weighted sorts.