

## Exercise 4C: Monthly Spearman Rank Correlation

BUSI 722: Data-Driven Finance II

Using the predictions from the expanding-window and rolling-window backtests (Exercises 4A and 4B), evaluate prediction quality using Spearman rank correlations.

### Submission

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

---

For each prediction month in the expanding-window backtest:

1. Compute the **Spearman rank correlation** between predicted ranks and actual return ranks.
2. Plot the monthly Spearman correlations over time as a time-series chart.
3. Report the mean, median, standard deviation, and fraction of months with positive correlation.
4. Identify the 3 months with the highest and lowest Spearman correlations. In a markdown cell, discuss whether there are any patterns (e.g., market stress periods).
5. Repeat for the rolling-window backtest and overlay both Spearman series on the same plot.