Assignment 4

In this assignment you will evaluate the performance of selected mutual funds.

Consider the Excel file DFA2023DATA.XLSX (available on the course home page). The file contains monthly returns on five mutual funds over the last ten years. The funds are offered by Dimensional Fund Advisors (DFA) and labeled Micro Cap, Small Cap, Small Cap Value, Large Cap, and Large Cap Value. The file also contains returns on various benchmarks and factors.

1. Compute means and standard deviations of excess fund returns (the return of each of the DFA funds in excess of the risk-free rate). Report annualized means and standard deviations, and Sharpe ratios. Briefly comment on the the magnitudes. Plot the cumulative returns (not excess returns) of the five funds.

2. Use the S&P 500 as the benchmark in a performance evaluation. Report annualized alphas, betas, R-squared values, annualized appraisal ratios, and annualized tracking errors for the funds. Interpret the measures and summarize the performance of the five funds. (It may be informative to also report standard errors and/or t-stats in the regressions, but this is not considered when grading the assignment.)

3. Use a fund-specific (style) benchmark in a performance evaluation. More specifically, use Russell 2000 for MicroCap, Russell 2000 for Small Cap, Russell 2000 Value for Small Cap Value, S&P 500 for Large Cap, and Russell 1000 Value for Large Cap Value (I chose these benchmarks after reading the fund prospectuses). Redo the analysis in 2.

4. Use the Market, Size, and Value factors of Cremers et al. (2013) in a performance evaluation. Report annualized alphas, betas, and adjusted R-squared values.

5. After these three evaluations, what is your overall conclusion on the performance of each of the five funds? Feel free to do any supporting analysis to further understand the performance of the five funds.

Hint: In the performance regressions, all returns should be excess returns (either in excess of the risk-free rate or in excess of the return on another traded portfolio). Note that the Cremers et al. (2013) factors are already in excess return form.