Math 420, Spring 2018
Seventh Team Homework

due Tuesday, 24 April, 2018

In the following exercises consider the risky assets in groups (A) and (B) of your final project.

Exercise 1. Consider one-year histories of daily share price data for each asset over the years ending December 31 of 2013-2017 and use uniform weights. Assume that μ_{rf} is the US Treasury Bill rate at the *end* of the given year. Consider unlimited portfolios with risky assets drawn from group (A), from groups (A) and (B) combined, and from groups (A), (B), and (C) combined. Evaluate the Sharpe ratio for each of the 15 tangent tangent portfolios.

Exercise 2. Assume that you are a Kelly investor who chooses $\chi = 0$. For each of the five years considered above design the optimal long portfolios with risky assets drawn from group (A), from groups (A) and (B) combined, and from groups (A), (B), and (C) combined. How well did these optimal long portfolios actually do over the subsequent year?

Exercise 3. Repeat the above exercise for portfolios with leverage limit $\ell = 1$ and with leverage limit $\ell = 1$. Compare these optimal portfolios with the corresponding ones from this and the previous exercise. Explain the differences you see in their performances.