AMSC/MATH 420 Project Two, Spring 2014
Modeling Portfolios: Analytics and Risk Aversion

oral presentation due Friday, 2 May, 2014
written report due Monday, 12 May, 2014

This project explores how some analytical factors might influence the choice of the risk aversion coefficient. Consider the following groups of assets:

(A) this will be the Group A from the first project;
(B) this will be the Group B from the first project of one of the team members and will be decided after the team is assigned.

For each of the years ending December 31 of the years 2008-2013 use one-year histories of daily return rates and uniform weights to calabrate $\mathbf{m}$ and $\mathbf{V}$.

Devise at least two measures of how well the weak efficient market hypothesis holds — i.e. of how far the index funds are from the efficient frontier for the risky assets.

Devise at least two measures of how far the long frontier for the risky assets is from the efficient frontier for the risky assets.

Repeat the last homework assignment with $\chi = 0$, .25, .5, .75, 1, 1.25, 1.5, 1.75 and 2. Determine which value of χ yields the best performing portfolios in the subsequent year. Use scatter plots to seek correlations between these best χ and the measures that you devised above. Identify two measures, one associated with the efficient market hypothesis and one associated with efficient long frontiers, that have the strongest correlation and find a linear function of those measures that best fits these χ.