# AMSC/Math 420, Spring 2014
# First Project
# Modeling Portfolios: Long Frontiers
Presentation due Monday, 10 March 2014
Report due Friday, 14 March 2014

This project explores the relationship between frontiers and long frontiers. Consider the following groups of assets.

(A) VFINX, VBTIX, DJP (beginners portfolio)

(B) PESPX, DFSTX, VGSIX, PCRAX

Identify these funds and describe their holdings.

Compute and graph the frontier for the risky assets in group (A), group (B), and groups (A) and (B) combined using one-year histories with uniform weights for each of the years that end on December 31 of 2008-2013. Do the same for $\mathbf{f}_{\mathrm{mv}}$. Comment on the implications of what you find.

Assuming that the safe investment is U.S. T-Bills, compute $\mathbf{f}_{\mathrm{st}}$. Assuming that the credit-line is three points higher than the U.S. T-Bill rate compute $\mathbf{f}_{\mathrm{ct}}$. Graph the associated eficient frontiers. Comment on the implications of what you find.

In a similar manner, compute and graph the long frontier for the risky assets in group (A), group (B), and groups (A) and (B) combined using one-year histories with uniform weights for each of the years ending December 31 of 2008-2013. Graph the associated efficient long frontiers with a safe investment of U.S. T-Bills. Comment on the implications of what you find.

Compare the frontier with the long frontier for each of the groupings and each of the years considered above. Determine when they intersect and give the intersection when they do. Identify the years in which the long frontier lies near the frontier, and those in which the long frontier lies far from the frontier. How do these years relate to years in which the market rises and falls? Explore any relationship that you discover by testing it with groups (A) and (B) combined for some earlier years (say 1999-2007).