

Abstract: Construction of a mean-variance efficient portfolio is not easy if there are thousands of investable assets in hand. In this presentation, we consider efficient portfolio construction after screening. Precisely, we first attempt to reduce the number of assets via screening out many "redundant" assets, and then construct a portfolio using only a small number of the "important" assets. Our focus is especially on the screening step. Our methodology is quite simple; we apply the (adaptive) lasso regression of an independently generated nonzero mean Gaussian random variable on all the asset excess returns without an intercept. The resulting active set of the lasso is expected to include all the important assets. We develop a formal theory for this sure screening property. The performance is confirmed through numerical experiments and real data analysis. (This work is collaborated with Shinya Tanaka, Otaru University of Commerce.)