

APPLICATIONS OF GLOBAL OPTIMIZATION TO PORTFOLIO OPTIMIZATION

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We will discuss a variety of successful applications of global optimization methods to nonconvex portfolio optimization problems. Nonconvexity appears in mean-risk portfolio optimization problems when there exists market friction such as non-convex transaction cost and market impact effect. Also, we need to introduce integer variables to handle cardinality constraints associated with the maximal number of assets to be included in the portfolio.

We will show that these difficult nonconvex problems of practical size can be solved fast by applying a branch and bound algorithm for linearly constrained separable concave minimization problems, if we use (lower-semi) absolute deviation instead of variance as the measure of risk.