Zhang, Peng; Zeng, Yongquan; Chi, Guotai
Time-consistent multiperiod mean semivariance portfolio selection with the real constraints.
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Summary: In this paper, a new multiperiod mean semivariance portfolio selection with the transaction costs, borrowing constraints, threshold constraints and cardinality constraints is proposed. In the model, the return and risk of assets are characterized by mean value and semivariance, respectively. Because the semivariance operator is not separable, the optimal solution of the model is not time-consistent. The time-consistent strategy for this model can be obtained by using game approach. The time-consistent strategy, which is a mix integer dynamic optimization problem with path dependence, is approximately turned into a dynamic programming problem by approximate dynamic programming method. A novel discrete approximate iteration method is designed to obtain the optimal time-consistent strategy, and is proved linearly convergent. Finally, the comparison analysis of trade-off parameters is given to illustrate the idea of our model and the effectiveness of the designed algorithm.

MSC:
58F15 Hyperbolic structures (expanding maps, Anosov systems, etc.) (MSC2000)
58F17 Geodesic and horocycle flows (MSC2000)
53C35 Differential geometry of symmetric spaces

Keywords:
multiperiod mean semivariance portfolio selection; transaction costs; cardinality constraints; time-consistency; discrete approximate iteration method

Full Text: DOI

References:
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