Fuzzy Project Portfolio Selection Model with Bankruptcy Control

Yong-Jun Liu,
School of Business Administration, South China University of Technology, Guangzhou, P.R. China.
E-mail: bmyjliu@scut.edu.cn

Wei-Guo Zhang,
School of Business Administration, South China University of Technology, Guangzhou, P.R. China.
E-mail: wgzhang@scut.edu.cn

Abstract
This paper discusses the problems of both project valuation and portfolio selection with the fuzzy investment capitals and the fuzzy net cash flows of the projects. We propose a possibilistic composite risk-return index for selecting the optimal project investment strategy. Then, we propose the possibilistic mean-semivariance models with bankruptcy control for project portfolio. We also provide an improved genetic algorithm for the proposed project portfolio optimization models. Finally, one numerical example is presented to illustrate the efficiency and the effectiveness of these proposed optimization methods. The results reveal that the optimization models are feasible and the improved algorithm is effective.

Key Words: Portfolio selection; bankruptcy control; Project valuation; Possibilistic composite risk-return index.

JEL Classification: C61, G11, D81 and C63