



UDC 519.85, 519.712

Differential Evolution Algorithm for Solving the Portfolio Optimization Problem

A. A. Homchenko¹, N. P. Grishina¹, C. Lucas², S. P. Sidorov¹

¹Saratov State University, Russia, 410012, Saratov, Astrahanskaya st., 83, aahomchenko@gmail.com, riskinstitute@sgu.ru, sidorovsp@info.sgu.ru

²Brunel University, Kingston Lane, Uxbridge, London, United Kingdom, UB8 3PH, cormac.lucas@brunel.ac.uk

In the paper we develop metaheuristic method based on differential evolution for finding efficient frontier in solving the portfolio optimisation problem for investor with non concave utility function which reflects asymmetric investor attitude to losses and gains.

Key words: heuristic search, portfolio optimization problem, prospect theory.

References

1. Kahneman D., Tversky A. Prospect theory : an analysis of decision under risk. *Econometrica*, 1979, vol. 47, pp. 263–291.
2. Tversky A., Kahneman D. Advances in prospect theory : cumulative representation of uncertainty. *J. of Risk and Uncertainty*, 1992, vol. 5(4), pp. 297–323.
3. Storn R., Price K. Differential evolution — a simple and efficient adaptive scheme for global optimization over continuous spaces. *J. of Global Optimization*, 1997, vol. 11, pp. 341–359.
4. Price K., Storn R. M., Lampinen J. A. *Differential evolution : a practical approach to global optimization*. Berlin, Springer, 2005.