Globally convergent decomposition algorithm for risk parity problem in portfolio selection

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1 Introduction

2 Preliminary background

Let us consider the following optimization problem:

$$\min_{x,y} \quad f(x,y) \tag{1a}$$
$$\text{s.t.} \quad l \leq x \leq u \tag{1b}$$
$$\mathbf{1}^T x = 1 \tag{1c}$$
$$x \geq 0 \tag{1d}$$

where $x \in \mathbb{R}^n$, $y \in \mathbb{R}$, $f : \mathbb{R}^n \times \mathbb{R} \to \mathbb{R}$ is a *which are the hypothesis on f?*, $l, u \in \mathbb{R}^n$ with $l < u$ and $\mathbf{1} \in \mathbb{R}^n$ is the identity vector.

3 A decomposition framework

4 Convergence analysis

5 Computational experiments