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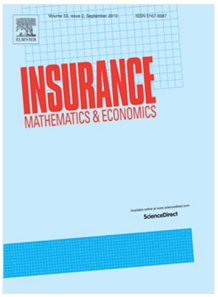

Joint stochastic orders of high degrees and their applications in portfolio selections

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ACCEPTED MANUSCRIPT

Joint stochastic orders of high degrees and their applications in portfolio selections

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Abstract

In this paper, we propose two new classes of joint stochastic orders, namely joint (reversed) hazard order of degree n and joint n-increasing convex/concave order, and establish their theoretical properties. These new orders substantially generalize the existing class of joint stochastic orders, and incorporate them in one general framework. We also explore the applications of these orders in portfolio selections and unify similar studies on this problem.
Keywords: joint (reversed) hazard rate order, joint increasing convex/concave order, high degree stochastic order, optimal portfolio selections

1 Introduction

Stochastic orders are well-established tools to compare random variables. Standard literature in this area includes Müller and Stoyan (2002) and Shaked and Shanthikumar (2007). However, traditional stochastic orders compare only marginal distributions and thus do not concern dependence structures of random variables in comparison. To address this limitation,

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