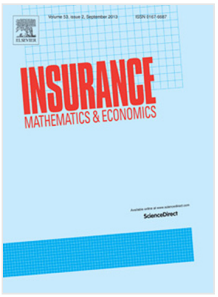
Accepted Manuscript



Inference for intermediate Haezendonck–Goovaerts risk measure

Xing Wang, Liang Peng

PII: S0167-6687(15)30254-7
DOI: http://dx.doi.org/10.1016/j.insmatheco.2016.03.015
Reference: INSUMA 2196

To appear in: *Insurance: Mathematics and Economics*

Received date: October 2015
Revised date: March 2016
Accepted date: 30 March 2016

Please cite this article as: Wang, X., Peng, L., Inference for intermediate Haezendonck–Goovaerts risk measure. *Insurance: Mathematics and Economics* (2016), http://dx.doi.org/10.1016/j.insmatheco.2016.03.015

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Inference for Intermediate Haezendonck-Goovaerts Risk Measure

Xing Wang and Liang Peng

Abstract. Recently Haezendonck-Goovaerts (H-G) risk measure has received much attention in actuarial science. Nonparametric inference has been studied by Ahn and Shyamamkumar (2014) and Peng et al. (2015) when the risk measure is defined at a fixed level. In risk management, the level is usually set to be quite near one by regulators. Therefore, especially when the sample size is not large enough, it is useful to treat the level as a function of the sample size, which diverges to one as the sample size goes to infinity. In this paper, we extend the results in Peng et al. (2015) for a fixed level to an intermediate level. Although the proposed maximum empirical likelihood estimator for the H-G risk measure has a different limit for a fixed level and an intermediate level, the proposed empirical likelihood method indeed gives a unified interval estimation for both cases. A simulation study is conducted to examine the finite sample performance of the proposed method.

Key words and phrases: Empirical likelihood method, Haezendonck-Goovaerts risk measure, intermediate quantiles

1 Introduction

Let X denote a loss variable with distribution F. Then the q-th quantile of F is defined as $F^{\leftarrow}(q) = \inf\{x|F(x) \geq q\}$, which is also called Value-at-Risk (VaR) in risk management. A simple nonparametric estimator for a quantile is the so-called empirical quantile; see Sharock and Wellner (1986). However, in risk management, the level q is usually set to be quite near one by regulators. Therefore, when q is close to one and n is not large enough, it may be useful to model $1-q$ as a function of n, which goes to zero as n turns to infinity, so as to improve the

[1]Department of Risk Management and Insurance, Georgia State University, Atlanta, GA 30303, USA

Download English Version:

https://daneshyari.com/en/article/5076349

Download Persian Version:

https://daneshyari.com/article/5076349

Daneshyari.com