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## **Model Uncertainty in Operational Risk Modeling**

By Daoping Yu and Vytautas Brazauskas

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# Model Uncertainty in Operational Risk Modeling

DAOPING YU<sup>1</sup>

*University of Wisconsin-Milwaukee*

VYTARAS BRAZAUSKAS<sup>2</sup>

*University of Wisconsin-Milwaukee*

**Abstract.** Recently researchers, practitioners and regulators had intense debates about how to treat the data collection threshold in operational risk modeling. There are several approaches under consideration—the empirical approach, the “naive” approach, the shifted approach and the truncated approach—for fitting the loss severity distribution. Since each approach is based on a different set of assumptions, different probability models emerge. Thus, model uncertainty arises. When possible, we investigate such model uncertainty analytically, otherwise we use Monte Carlo simulations. For specific parametric examples we consider exponential and Lomax distributions, which are special cases of the generalized Pareto family. Our primary goal is to quantify the effect of model uncertainty on risk measurements. This is accomplished by evaluating the probability of each approach producing conservative capital allocations based on the value-at-risk measure. These explorations are further illustrated using a real data set for legal losses in a business unit (Cruz 2002).

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<sup>1</sup> CORRESPONDING AUTHOR: Daoping Yu is a Ph.D. candidate in the Department of Mathematical Sciences, University of Wisconsin-Milwaukee, P.O. Box 413, Milwaukee, WI 53201, USA. email: dyu@uwm.edu

<sup>2</sup> Vytautas Brazauskas, Ph.D., ASA, is a professor in the Department of Mathematical Sciences, University of Wisconsin-Milwaukee, P.O. Box 413, Milwaukee, WI 53201, USA. email: vytautas@uwm.edu