

SPECIAL COLLOQUIUM

Department of Mathematics and
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The Time to Ruin: Analysis of an Insurer's Solvency Risk

Tuesday, February 5, 2013

C405 Wells Hall

2:00 p.m. - 2:50 p.m.

Refreshments: 1:40 p.m.

Abstract

Since the introduction of the discounted penalty function by Gerber and Shiu (1998), significant progress has been made on the analysis of various ruin-related quantities in risk theory. Indeed, the discounted penalty function approach not only brings a systematic methodology to jointly analyze the quantities of interest, but also provides the convenience to extract some specific pieces of information from the function. In this talk, we focus on the long-standing finite-time ruin problem. By utilizing the Gerber-Shiu type analysis, we derive explicit expressions for the distribution of the time to ruin in some Sparre Andersen risk models. We propose not only to unify previous methodology through the use of Lagrange's expansion theorem, but also to provide insight into the nature of the series expansions by identifying the probabilistic contribution of each term in the expansion through analysis involving the distribution of the number of claims until ruin.

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