

Analysis of dividends with Markov–Modulated Brownian Motion

Ren, Jiandong*

March 7, 2009

Abstract

In this paper, we study a Markov–Modulated Brownian Motion risk model. We first present explicit formulas for the Laplace transform of the time to cross a certain level before ruin. Then we consider the risk process modified by a constant dividend barrier. We derive explicit expressions for the moment generating function and the moments of the discounted dividends. The distribution of the total (non–discounted) dividends prior to ruin is also analyzed. The results generalize some of the results in Gerber and Shiu (2004).

*Dr. Jiandong Ren is an Assistant Professor in the Department of Statistical and Actuarial Sciences, The University of Western Ontario, London, Ontario, Canada. Email: jren@stats.uwo.ca.