Option pricing under a Markov-modulated jump-diffusion dividend

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Abstract

This paper investigates the European option valuation under the condition that the dividend payments follow a Markov-modulated Merton jump-diffusion model. We consider the dividend discount model under real probability measure, the stock price process is then deduced. The regime switching Esscher transform is employed to determine a risk-neutral measure. Finally, we obtain the closed form solution of European option when the dividend announcement time and the dividend payment time are consistent or inconsistent.

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