Option pricing in the presence of cojumps and credit risks under regime switching

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ABSTRACT

In this study, we price vulnerable exchange options with credit risks when the underlying asset price dynamics are driven by a multi-asset Markov-modulated jump-diffusion model with capturing individual jumps and cojumps. Furthermore, the option pricing expressions are readily obtainable according to the random Esscher transform is used to determine a pricing kernel. According to the pricing results and numerical experiments, this study contributes to the literature about the cojump, default threshold, and underlying asset volatility impacts on option prices.