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Valuation of non-negative equity guarantees, considering contagion risk for house prices under the HJM interest rate model

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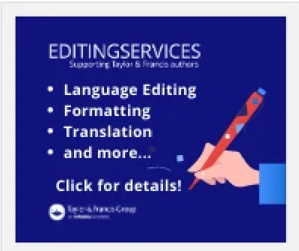

Abstract

Writing non-negative equity guarantees (NNEGs) is the main method used to deal with the risks of equity release products in the United Kingdom. The existing empirical literature indicates the potential for contagion of interregional and international house prices, but no studies have modeled these contagion effects. This paper applies a Merton-jump-diffusion model to propose a general model to investigate the impacts of house price contagion on the valuation of NNEGs. We derive a closed-form solution for the price of NNEGs and use an analytic formula to investigate contagion effects on NNEGs efficiently. This research establishes that ignoring the contagion effects of house prices can lead to underestimating of the value of NNEGs. Treating the contagion effect is critical for valuing NNEGs, in light of the development of equity release products.

Keywords: Contagion risk Interest rate risk Reverse mortgage Non-negative equity guarantees

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