

A note on the pricing of diverse options using integral transform techniques

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ABSTRACT

In the over-the-counter (OTC) markets, the holders of many contracts are vulnerable to counterparty credit risk. Because of this issue, vulnerable options must be considered. In addition, in a financial environment, the pricing of path-dependent options yields many interesting mathematical challenges. In this paper, we study the pricing of vulnerable path dependent options using double Mellin transforms and the method of images to investigate an explicit (closed) form pricing formula or semi-analytic formula in each path-dependent option. In financial market, the derivation of the closed solutions on financial derivatives is very important. Apart from the path-dependent options mentioned above, we will introduce the pricing of several options under the given model. Especially, under stochastic volatility model, studying the closed solutions on option pricing enables us to implement option's data fitting more easily and effectively.

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