



Robustness of option-like warrant valuation

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Abstract

This paper presents a methodology for arriving at the unobserved asset value and its volatility of a firm with outstanding warrants. This enables us to price warrants correctly and to examine the robustness of “option-like” warrant valuation where the dilution that occurs when warrants are exercised is ignored. Our analysis helps to justify the frequent simplifying option-like warrant valuation. Furthermore, we examine 50,960 daily prices for 37 American-type warrants written on 16 German stocks over the period 1979–1990. The empirical results confirm our theoretical analysis: there is virtually no dilution-related pricing bias of the American constant variance diffusion model with the stock price as the state variable.

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Pricing equity warrants in Merton jump–diffusion model with credit risk

2020, Physica A: Statistical Mechanics and its Applications

Citation Excerpt :

...To overcome these problems, [10] proposed a warrant-pricing procedure based on the stock price and the stock return variance. Later, [11] developed an algorithm that generalized the model of Schulz and Trautmann [10] for the case of the warrant ratio being distinct from unity. In fact, the pricing approach, suggested by Ukhov [11], involved the numerical solution of an iterative algorithm based on the stock price and the stock return volatility...

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2016, Physica A: Statistical Mechanics and its Applications

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The valuation of equity warrants under the fractional Vasicek process of the short-term interest rate

2014, Physica A: Statistical Mechanics and its Applications

Citation Excerpt :

...The chief obstacle to empirical study of this valuation formula lied in the fact that neither the value of the firm, nor its instantaneous volatility can be observed. To overcome this obstacle, Ukhov [7] developed an algorithm which generalized the model of Schulz and Trautmann [5] for the case of the warrant ratio being distinct from unity. The algorithm to obtain the price of equity warrant proposed by Ukhov [7] can be re-written as:...

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2013, Economic Modelling

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...First, issuing or exercising warrants can affect the firm's aggregate level of investment and increase the number of outstanding shares of the firm, and thus dilutes the equity of the firm (Galai and Schneller, 1978). Second, the underlying asset of a warrant is not the stock but the value of the firm (Schulz and Trautmann, 1994). In order to obtain the valuation of warrants, many scholars have considered the problem of pricing equity warrants under the assumption that the value of the firm follows a geometric Brownian motion during the lifetime of the outstanding warrants (instead of the stock process)....

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- * Corresponding author. This is a revised version of the paper "Valuation of warrants-theory and empirical tests for warrants written on German stocks" presented at the Annual Meeting of the European Finance Association in Stockholm on September 1, 1989. The authors gratefully acknowledge the detailed and constructive comments of the referee. They are also grateful for the helpful comments and suggestions of Michael Adler, Clifford Ball, Wolfgang Bühler, Nathalie Dierkens, Günter Franke, Hermann Göppl, Robert Jarrow, and the seminar participants at the Koblenz School of Corporate Management, University of Konstanz, and Cornell University.

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