A Convertible-Bond-Pricing Method Based on Bond Prices on Markets

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Abstract

This thesis is devoted to evaluating two-factor convertible bonds. Different zero-coupon bond curves are inputted when evaluating convertible bonds issued by companies with different credit ratings. Thus the effect of the company's credit on the price of the convertible bond is easily and accurately included during the computation. In the model for the interest rate, the parameters in the variance are determined from the market data by statistics and the market price of risk is determined by a zero-coupon bond curve through solving an inverse problem. When we price the convertible bond, a free-boundary problem is solved. A Singularity-Separating Method (SSM) is proposed in order to solve this problem efficiently. Taking the market data as input, we can easily, quickly, and reasonably obtain the price of a convertible bond.

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