
Absolute Diffusion Process: Sensitivity Measures

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Abstract

The constant elasticity of variance (CEV) model of Cox (Notes on Option Pricing I: Constant Elasticity of Variance Diffusions. Working paper, Stanford University (1975)) captures the implied volatility smile that is similar to the volatility curves observed in practice. This diffusion process has been used for pricing several financial option contracts.

In this paper we present the analytical expressions of sensitivity measures for the absolute diffusion process, commonly known as Greeks, and we analyze numerically the behavior of the measures for European options under the CEV model.

1 Introduction

Under the risk-neutral probability measure Q , the constant elasticity of variance (CEV) process of [4] assumes that the asset price $\{S_t; t \geq 0\}$ is described by the following stochastic differential equation:

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J. Lita da Silva et al. (eds.), *Advances in Regression, Survival Analysis, Extreme Values, Markov Processes and Other Statistical Applications*, Studies in Theoretical and Applied Statistics, DOI 10.1007/978-3-642-34904-1_26, 249
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