

An alternative to Itô's formula to solve linear financial stochastic differential equations.

Flores S.; Govindan, T. E.

Resumen.

En este trabajo presentamos un método para resolver muchas ecuaciones diferenciales estocásticas de finanzas en una forma muy sencilla, utilizando la fórmula usual de Itô. Nuestro enfoque es directo y se basa en utilizar un método lineal ordinario de ecuación diferencial. La aparente simplicidad de este método lo hace atractivo y accesible para una audiencia más amplia. Ilustramos nuestro enfoque al derivar soluciones de algunos modelos financieros estocásticos bien conocidos, como Vasicek, Cox-Ingersoll-Ross, Hull y White, puente Browniano, entre otros.

Abstract.

In this paper, we present a method for solving many stochastic differential equations from finance in a very simple way without using the usual Itô's formula. Our approach is straightforward and relies on using a linear ordinary differential equation method. The apparent simplicity of this method makes it attractive and accessible to a wider audience. We illustrate our approach by deriving solutions of some well-known stochastic

nancial models like Vasicek, Cox-Ingersoll-Ross, Hull and White, Brownian bridge, among others.

Bibliografía.

Flores, S., & Govindan, T. (2018). An alternative to Itô's formula to solve linear financial stochastic differential equations. *Dynamics of Continuous, Discrete and Impulsive Systems Series A: Mathematical Analysis*, 25, 419-434. Disponible en <https://www.researchgate.net/publication/328800067> [An alternative to Ito's formula to solve linear financial stochastic differential equations.](#)