

**Zvan, R.; Forsyth, P. A.; Vetzal, K. R.**

**A finite volume approach for contingent claims valuation.** (English) Zbl 1004.91032  
IMA J. Numer. Anal. 21, No. 3, 703-731 (2001).

One of the most important topics in modern financial theory is that of pricing various kinds of financial products. Mathematically, this problem leads to a PDE (partial differential equation) that rarely has a closed-form solution and, therefore, must be solved numerically.

This article presents a general finite volume framework that can be applied to a wide variety of two-factor contingent claims valuation models. Discretizing the PDE directly in non-divergence form using a finite volume method defined on a two-dimensional computational domain which is tiled by triangles allows the authors to properly handle degenerate equations (especially at boundaries) and convection-dominated situations.

Finally, the authors use their method for pricing three examples of two-factor contingent claims: a put option on the worst of two assets, an Asian option and a convertible bond. The results are illustrative of the goodness of their general approach and its performance compared with other particular known numerical methods for pricing each of the chosen sample derivatives.

Reviewer: Miguel Ángel Mirás Calvo (Vigo)

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