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**Implicit solution of uncertain volatility/transaction cost option pricing models with discretely observed barriers.** (English) Zbl 1072.91578  
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Summary: Option pricing models with uncertain volatility/transaction costs give rise to a nonlinear PDE. Previous work has focused on explicit methods. However, pricing discretely observed barrier options requires a very small grid spacing near the barrier, and as a result, the maximum stable timestep for an explicit method is impractically small. A fully implicit method is developed for nonlinear option pricing models, and applied to arithmetic step options, where the option loses a fraction of its value for every day over the barrier.

**MSC:**

**91G60** Numerical methods (including Monte Carlo methods)

Cited in 4 Documents

**65M06** Finite difference methods for initial value and initial-boundary value problems involving PDEs

**91G20** Derivative securities (option pricing, hedging, etc.)

**Keywords:**

option pricing; nonlinear PDE; implicit method

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