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# Perfect option hedging for a large trader

| Published: February 1998

| Volume 2, pages 115–141, (1998) [Cite this article](#)

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## Abstract.

Standard derivative pricing theory is based on the assumption of agents acting as price takers on the market for the underlying asset. We relax this hypothesis and study if and how a large agent whose trades move prices can replicate the payoff of a derivative security. Our analysis extends prior work of Jarrow to economies with continuous security trading. We characterize the solution to the hedge problem in terms of a nonlinear partial differential equation and provide results on existence and uniqueness of this equation. Simulations are used to compare the hedging strategies in our model to standard Black-Scholes strategies.

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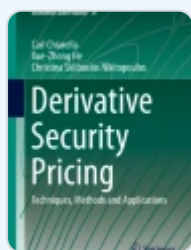
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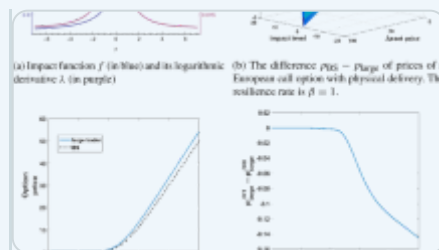
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## Cite this article

Frey, R. Perfect option hedging for a large trader. *Finance Stochast* **2**, 115–141 (1998).

<https://doi.org/10.1007/s007800050035>

Issue Date

February 1998

DOI

<https://doi.org/10.1007/s007800050035>

**Key words:** [Option pricing](#), [Black-Scholes model](#), [hedging](#), [large trader](#), [feedback effects](#) [JEL classification: G12, G13 Mathematics Subject Classification \(1991\): 90A09](#)

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