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## Arbitrage-free approximation of call price surfaces and input data risk <br> Judith Glaser \& Pascal Heider ~ <br> Pages 61-73 | Received 29 Sep 2009, Accepted 04 Aug 2010, Published online: 14 Dec 2010 <br> Sf Cite this article $\boldsymbol{T}$ https://doi.org/10.1080/14697688.2010.514005

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## Abstract

In this paper we construct arbitrage-free call price surfaces from observed market data by locally constrained least squares approximations. The algorithm computes derivatives of the call surface accurately so that implied volatility, local volatility and transition probability density can be obtained at no additional cost. Observed input data are afflicted by a price uncertainty due to the bid-ask spread, quote imprecision and non-cunchmnu and rauco on innut dato rick on tho ramnutod rall curface and
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The authors would like to thank two anonymous referees for helpful comments and
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