Quantitative Finance ›
Volume 18, 2018 - Issue 10

Invited Paper

Machine learning for quantitative finance: fast derivative pricing, hedging and fitting

Jan De Spiegeleer, Dilip B. Madan, Sofie Reyners & Wim Schoutens

Pages 1635-1643 | Received 08 Jun 2018, Accepted 18 Jun 2018, Published online: 27 Jul 2018

Cite this article https://doi.org/10.1080/14697688.2018.1495335 Check for updates

Full Article | Figures & data | References | Citations | Metrics
Reprints & Permissions | Read this article

Abstract

In this paper, we show how we can deploy machine learning techniques in the context of traditi… s, we can arrive at … earning techniqu… y for this extra sp… accuracy is often we… cal point of view. Th… ontext, we fit soph… ne estimati… illa option values u… cing of exotic op…

Keywor… rface

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Dilip B. Madan http://orcid.org/0000-0002-0033-9077

Notes

† Matrix inversion is often implemented via a Cholesky decomposition (Benoît 1924, Rasmussen and Williams 2006), which is more stable than actually inverting the matrix. For small matrices, i.e. small values of n, ordinary matrix inversion can be performed. For the results in this paper we used the Matlab functions fitrgp and predict. However if the dimension increases, special techniques need to be deployed. We mention LU-factorization and blockwise Cholesky decomposition, which aim at solving traditional memory problems that one encounters when inverting large matrices. For future work we will employ Cholesky and blockwise Cholesky routines to handle problems with many more data points.

† κ = rat long run variance

† For eac construct the 100

Relate