



281 | 47 | 3
Views | CrossRef citations to date | Altmetric

PAPERS

Valuing Volatility and Variance Swaps for a Non-Gaussian Ornstein–Uhlenbeck Stochastic Volatility Model

Fred Espen Benth , Martin Groth & Rodwell Kufakunesu

Pages 347-363 | Received 18 Jul 2006, Published online: 27 Jul 2007

 Cite this article  <https://doi.org/10.1080/13504860601170609>

Sample our
Economics, Finance,
Business & Industry Journals
>> [Sign in here](#) to start your access
to the latest two volumes for 14 days

 Full Article

 Figures & data

 References

 Citations

 Metrics

 Reprints & Permissions

Read this article

 Share

Abstract

Following the increasing awareness of the risk from volatility fluctuations, the market for hedging contracts written on realized volatility has surged. Companies looking for means to secure against unexpected accumulation of market activity can find over-the-counter products written on volatility indices. Since the Black and Scholes model require a constant volatility the need to consider other models is obvious. Swaps written on powers of realized volatility in the stochastic volatility model proposed by Barndorff-Nielsen and Shephard are investigated. A key formula is derived for the realized variance able to represent the swap price dynamics in terms of Laplace transforms, which makes fast numerical inversion methods viable. An example using the fast Fourier transform is shown and compared with the approximation proposed by Brockhaus and Long.

Keywords:

- Risk
- hedging contracts
- realized volatility
- stochastic volatility
- Levy processes
- Laplace transforms

Acknowledgments

The authors thank Carl Lindberg for providing parameter estimates and an anonymous referee for very useful comments and suggestions.

Related research

People also read	Recommended articles	Cited by 47
A Non-Gaussian Ornstein–Uhlenbeck Process for Electricity Spot Price Modeling and Derivatives Pricing >		
Fred Espen Benth et al. Applied Mathematical Finance Published online: 16 May 2007		

Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2025 Informa UK Limited [Privacy policy](#) [Cookies](#) [Terms & conditions](#)

[Accessibility](#)



Taylor & Francis Group
an informa business

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG