



85	81	3
Views	CrossRef citations to date	Altmetric

Original Articles

# Toward real-time pricing of complex financial derivatives

S. Ninomiya & S. Tezuka

Pages 1-20 | Received 01 Dec 1995, Published online: 28 Jul 2006

🗨️ Cite this article   🔗 <https://doi.org/10.1080/13504869600000001>

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

📖 References

🗨️ Citations

📊 Metrics

🖨️ Reprints & Permissions

Read this article

🔗 Share

## Abstract

In this paper, we investigate the feasibility of using low-discrepancy sequences to allow complex derivatives, such as mortgage-backed securities (MBSs) and exotic options, to be calculated considerably faster than is possible by using conventional Monte Carlo methods. In our experiments, we examine classical classes of low-discrepancy sequences, such as Halton, Sobol', and Faure sequences, as well as the very recent class called generalized Niederreiter sequences, in the light of the actual convergence rate of numerical integration with practical numbers of dimensions. Our results show that for the problems of pricing financial derivatives that we tested: (1) generalized Niederreiter sequences perform markedly better than both classical sequences and Monte Carlo methods; and (2) classical low-discrepancy sequences often perform worse than Monte Carlo methods. Finally, we discuss several important research issues from both practical and theoretical viewpoints.

Keywords:

low-discrepancy sequences

generalized Niederreiter sequences

Faure sequences

Sobol' sequences

financial derivatives

---

## Related research

People also read

Recommended articles

Cited by  
81

## 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