

The European Journal of Finance >

Volume 15, 2009 - [Issue 3](#)

1,423 69

Views | CrossRef citations to date | Altmetric | 0

Original Articles

Econometrical analysis of the sample efficient frontier

Taras Bodnar & Wolfgang Schmid 

Pages 317-335 | Published online: 28 Mar 2009

 Cite this article  <https://doi.org/10.1080/13518470802423478>

Sample our
Area Studies
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

The efficient frontier is a parabola in the mean-variance space which is uniquely determined by three characteristics. Assuming that the portfolio asset returns are independent and multivariate normally distributed, we derive tests and confidence sets for all possible arrangements of these characteristics. Note that all of our results are based on the exact distributions for a finite sample size. Moreover, we determine a confidence region of the whole efficient frontier in the mean-variance space. It is shown that this set is bordered by five parabolas.

Keywords:

asset allocation

efficient frontier

portfolio analysis

mean-variance portfolio

parameter uncertainty

interval estimation

G11 G12 C12 C13

[← Previous article](#)

[View issue table of contents](#)

[Next article >](#)

Related Research Data

[Aspects of Multivariate Statistical Theory](#)

Source: Unknown Repository

[A Test of the Efficiency of a Given Portfolio](#)

Source: Econometrica

[The distribution of the sample variance of the global minimum variance portfolio in elliptical models](#)

Source: Statistics

[The Sampling Error in Estimates of Mean-Variance Efficient Portfolio Weights](#)

Source: The Journal of Finance

[Distributional properties of portfolio weights](#)

Source: Journal of Econometrics

[Asset Pricing Models: Implications for Expected Returns and Portfolio Selection](#)

Source: Review of Financial Studies

[Statistical inference procedure for the mean–variance efficient frontier with estimated parameters](#)

Related research

People also read

Recommended articles

Cited by
69

[ESG and financial performance: aggregated evidence from more than 2000 empirical studies >](#)

Gunnar Friede et al.

Journal of Sustainable Finance & Investment

Published online: 15 Dec 2015



[The Markowitz Optimization Enigma: Is 'Optimized' Optimal? >](#)

Richard O. Michaud

Financial Analysts Journal

Information for

- [Authors](#)
- [R&D professionals](#)
- [Editors](#)
- [Librarians](#)
- [Societies](#)

Opportunities

- [Reprints and e-prints](#)
- [Advertising solutions](#)
- [Accelerated publication](#)
- [Corporate access solutions](#)

Keep up to date

Register to receive personalised research and resources by email

 [Sign me up](#)



Open access

- [Overview](#)
- [Open journals](#)
- [Open Select](#)
- [Dove Medical Press](#)
- [F1000Research](#)


Help and information

- [Help and contact](#)
- [Newsroom](#)
- [All journals](#)
- [Books](#)

Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

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

 Taylor and Francis
Group