Journal Menu

About 🗄 Sections



Portfolio Investment with the Exact Tax Basis via Nonlinear Programming

Victor DeMiguel, Raman Uppal

Published Online: 1 Feb 2005 https://doi.org/10.1287/mnsc.1040.0315

Abstract

Computing the optimal portfolio policy of an investor facing capital gains tax is a challenging problem: because the tax to be paid depends on the price at which the security was purchased (the tax basis), the optimal policy is path dependent and the size of the problem grows exponentially with the number of time periods. Dammon et al. (2001, 2002, 2004), Garlappi et al. (2001), and Gallmeyer et al. (2001) address this problem by *approximating* the exact tax basis by the weighted average purchase price. Our contribution is threefold. First, we show that the structure of the problem has several attractive features that can be exploited to determine the optimal portfolio policy using the *exact* tax basis via nonlinear programming. Second, we characterize the optimal portfolio policy in the presence of capital gains tax when using the *exact* tax basis. Third, we show that the certainty equivalent loss from using the average tax basis instead of the exact basis is very small: it is typically less than 1% for problems with up to 10 periods, and this result is robust to the choice of parameter values and to the presence of transaction costs, dividends, intermediate consumption, labor income, tax reset provision at death, and wash-sale constraints.

< Previous

Back to Top

Next >



Volume 51, Issue 2

February 2005 Pages 151-313

Article Information

Metrics

Downloaded 26 times in the past 12 months

Cited 60 times

Information

Received: February 10, 2002 Published Online: February 01, 2005

© 2005 INFORMS

Cite as

Victor DeMiguel, Raman Uppal, (2005) Portfolio Investment with the Exact Tax Basis via Nonlinear Programming. Management Science 51(2):277-290.

https://doi.org/10.1287/mnsc.1040.0315

Keywords



PDF download





Institute for Operations Research and the Management Sciences

5521 Research Park Drive, Suite 200 Catonsville, MD 21228 USA

phone 1 443-757-3500

phone 2 800-4INFORMS (800-446-3676)

fax 443-757-3515

email informs@informs.org

Get the Latest Updates

Discover INFORMS Explore OR & Analytics Get Involved Impact Join Us

Recognizing Excellence Professional Development Resource Center Meetings & Conferences Publications About INFORMS Communities

PubsOnLine 2024 INFORMS/ALIO/ASOCIO International Conference Certified Analytics Professional Career Center INFORMS Connect

Copyright 2025 INFORMS. All Rights Reserved INFORMS Code of Conduct | Terms of Use | Privacy | Contact INFORMS | Sitemap

