Does Macaulay Duration Provide The Most Cost-Effective Immunization Method? – A Theoretical Approach

Foundations of Management
Volume 9 (2017): Issue 1 (February 2017)
By: Leszek Jaremba
Open Access
|Mar 2017

Abstract

Abstract

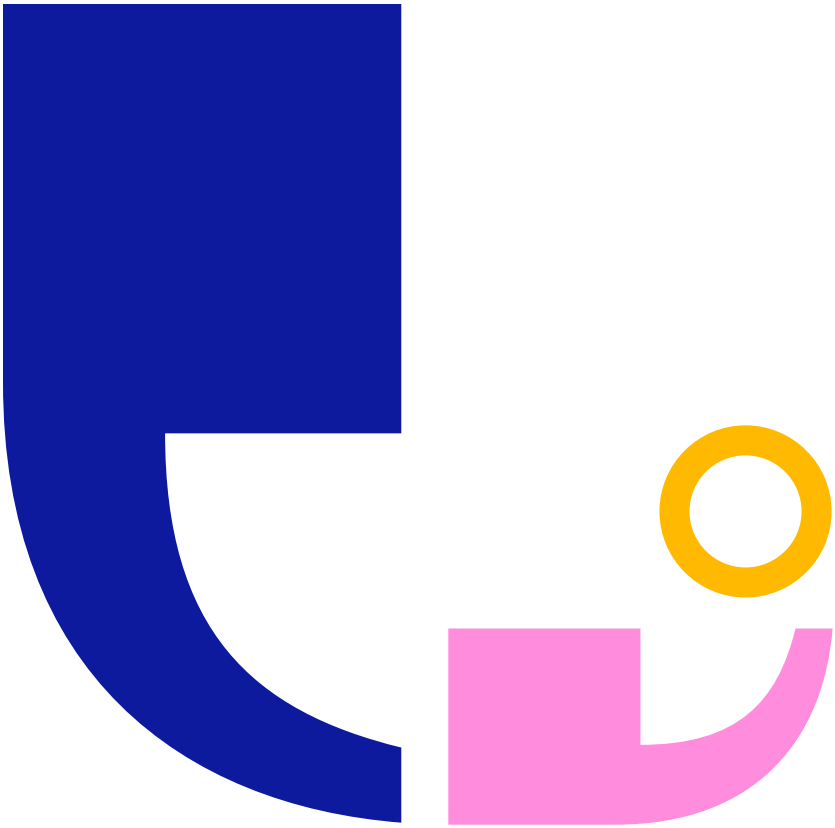
In the following, we offer a theoretical approach that attempts to explain (Comments 1-3) why and when the Macaulay duration concept happens to be a good approximation of a bond's price sensitivity. We are concerned with the basic immunization problem with a single liability to be discharged at a future time q. Our

idea is to divide the class K of all shifts a(t) of a term structure of interest rates s(t) into many classes and then to find a sufficient and necessary condition a given bond portfolio, dependent on a class of shifts, must satisfy to secure immunization at time q against all shifts a(t) from that class. For this purpose, we introduce the notions of dedicated duration and dedicated convexity. For each class of shifts, we show how to choose from a bond market under consideration a portfolio with maximal dedicated convexity among all immunizing portfolios. We demonstrate that the portfolio yields the maximal unanticipated rate of return and appears to be uniquely determined as a barbell strategy (portfolio) built up with 2 zero-coupon bearing bonds with maximal and respective minimal dedicated durations. Finally, an open problem addressed to researchers performing empirical studies is formulated.

DOI: https://doi.org/10.1515/fman-2017-0008 | Journal eISSN: 2300-5661 | Journal ISSN: 2080-7279
Journal RSS Feed
Language: English
Page range: 99 - 110
Published on: Mar 22, 2017
Published by: Warsaw University of Technology
In partnership with: Paradigm Publishing Services
Publication frequency: 1 issue per year
Keywords:
barbell strategy,
convexity,
dedicated duration,
Macaulay duration,
unanticipated rate of return
Related subjects:
Computer sciences,
Business computing,
Business and economics,
Business management,
Management accounting, financial controlling, cost calculation, investment

Volume 9 (2017): Issue 1 (February 2017)
Previous article
Next article

Footer



Paradigmreference-global.com
contact@pps.pub
Boston+1 857 214 2298
London+44 (0) 207 323 0343
Warsaw+48 22 245 33 55

Paradigm

ContactFAQAbout us

My account

Log in Register Reset password

Sign up for our newsletter

Preferred newsletter lists Editors and researchers Librarians * Preferred newsletter lists

* Enter your email address

*

I consent to the processing of my personal data for purposes and to the extent necessary for the provision of the newsletter service, as described in the Privacy Policy.

Subscribe

Currency:

EUR € USD $ GBP £