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Asset/liability management under uncertainty for fixed-income securities. (English)

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Summary: Short-sighted asset/liability strategies of the seventies left financial intermediaries – banks, insurance and pension fund companies, and government agencies – facing a severe mismatch between the two sides of their balance sheet. A more holistic view was introduced with a generation of portfolio immunization techniques. These techniques have served the financial services community well over the last decade. However, increased interest rate volatilities, and the introduction of complex interest rate contingencies and asset-backed securities during the same period, brought to light the shortcomings of the immunization approach.

This paper describes a series of (optimization) models that take a global view of the asset/liability management problem using interest rate contingencies. Portfolios containing mortgage-backed securities provide the typical example of the complexities faced by asset/liability managers in a volatile financial world. We use this class of instruments as examples for introducing the models. Empirical results are used to illustrate the effectiveness of the models, which become increasingly more complex but also afford the manager increasing flexibility.

MSC:

91B28 Finance etc. (MSC2000)
90C90 Applications of mathematical programming
90C15 Stochastic programming

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portfolio immunization; mortgage-backed securities

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