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How to hedge extrapolated yield curves

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Abstract

We present a framework on how to hedge the interest rate sensitivity of liabilities discounted by an extrapolated yield curve. The framework is based on functional analysis in that we consider the extrapolated yield curve as a functional of an observed yield curve and use its Gâteaux variation to understand the sensitivity to any possible yield curve shift. We apply the framework to analyse the Smith-Wilson method of extrapolation that is proposed by the European Insurance and Occupational Pensions Authority (EIOPA) in the coming EU legislation Solvency II, and the method recently introduced, and currently prescribed, by the Swedish Financial Supervisory Authority.