Hedging interest rate risk with the dynamic Nelson/Siegel model

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An accurate forecast of the yield curve is an important input for the pricing and hedging interest-rate-sensitive securities. Diebold and Li (2006) formulate the widely-used Nelson and Siegel (1987) model in a dynamic context and provide a factor interpretation of the estimated parameters as level, slope and curvature. This model can be used to forecast the future yield curve.

We implement the dynamic Nelson/Siegel model in R by extending the CRAN package `termstrc`, which allows us to efficiently use market data from coupon bonds (see Ferstl and Hayden, 2008). Further, we test the performance of bond portfolio and interest rate risk management problems, where the dynamic Nelson/Siegel yield curve is used for pricing and hedging the underlying securities. We compare our results to common strategies in practice, e.g. duration hedging, duration vector models.

References

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