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Yield Curve Risk in Japanese Government Bond Markets

Kenneth J. Singleton

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Abstract

This paper characterizes the nature of yield curve risk in the Japanese government bond (JGB) market, and explores the effectiveness of risk management based on a linear factor representation of yield curve risk. The implied optimal hedges against factor risk are related to duration-based hedging strategies, which are shown in many cases to be substantially sub-optimal. In addition, the drift over time in optimal hedge ratios due to the local nature of optimal hedging is investigated. The results show substantial drift especially for the weights on the factor representing the risk of a changing slope of the JGB yield curve. Though our focus is on government bond markets, the findings have implications for risk management for most interest-sensitive instruments, especially those that are priced relative to government bonds (e.g. corporate bonds).