

Bond Portfolio Optimization using Regime Switching Dynamic Nelson Siegel Models

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November 2017

Abstract

In this paper, we apply Markowitz's approach of portfolio selection to government bond portfolios. As a main feature of our analysis, we use dynamic Nelson Siegel yield curve models to estimate expected value of portfolios, and variances, and covariances of portfolios. By introducing regime switching dynamic term structure model, we analyze to what extent regime shifts of the yield curve are helpful in constructing bond portfolios. We find that the mean-variance portfolio delivers better risk adjusted return with respect to the traditional bond portfolio strategies. We also show that regime switching dynamic factor model is useful in constructing bond portfolios which realize higher risk adjusted return during yield curve regime shifts.

Keywords: Term structure model; Regime shifts; Portfolio optimization

JEL Classification Codes: C53,E43,G17