

Assessing the Effectiveness of Date-Based Forward Guidance at the Zero Lower Bound with a Non-Gaussian Affine Term-Structure Model

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Summary

This paper evaluates the effectiveness of the Federal Open Market Committee's (FOMC) date-based forward guidance and its projections on future policy rate using a non-Gaussian affine term-structure model. Although previous studies have cautioned against the use of affine models because of their inferior performance in modelling a persistently low interest rate environment, we show that a carefully implemented non-Gaussian affine model is capable of generating plausible dynamics for both short and long-term interest rates for the US Treasury bond market from 1990 to the present. As the short rate and its long-term mean level are under a coupled stochastic process in the model, their dynamics affect each other. The novel contribution in this paper is that the proposed term-structure model allows us to summarize the information embedded in the entire US Treasury yield curve into two dynamic state variables through which we can assess how the FOMC's communications affect investors' expectations about both short and long-term interest rate movements.

Consistent with the findings in previous studies, based on the simulations and event study using the estimated model results, we find that the first announcement of date-based forward guidance in the August 2011 FOMC meeting had significant effects on the dynamics of the short rate and its long-term mean. In addition, the tapering speculation in May 2013 also affected the market expectations on future interest rate movements. Meanwhile, the term-structure model offers a probabilistic approach in assessing investors' perceptions of the FOMC projections of the federal funds rate. For example, based on the information as of March 2014, the term-structure model suggests that the probability of the model's implied short-term interest rate reaching the FOMC projected 1% at end-2015 and 2% at end-2016 are around 60% and 40% respectively.