

On the Functional Modeling of Risk-neutral Inflation Densities

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Abstract

In this paper, the daily dynamics of risk-neutral density functions (RNDs) implicit in Euro area inflation options are modeled by some methods in Functional Data Analysis (FDA). Due to the non-linear structure of a density space, the RNDs are first mapped into a linear function space and basic FDA methods are subsequently performed therein. Interpretations of the RND dynamics are obtained by mapping some analytical results back to the density space. The analyzes reveal that the functional time series of RNDs is mainly characterized by jumps, whose occurrences can be associated with monetary policy announcements, unexpected macroeconomic news releases and co-jumps in other financial variables.

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