Shape invariant modeling of pricing kernels and risk aversion

Prof. Juhyun Park (Lancaster University, UK)

Abstract

Several empirical studies reported that pricing kernels exhibit a common pattern across different markets. The main interest in pricing kernels lies in validating the presence of the peaks and their variability in location among curves. Motivated by this observation we investigate the problem of estimating pricing kernels based on the shape invariant model, a semi-parametric approach used for multiple curves with shape-related nonlinear variation. This approach allows us to capture the common features contained in the shape of the functions and at the same time characterize the nonlinear variability with a few interpretable parameters. These parameters provide an informative summary of the curves and can be used to make a further analysis with macroeconomic variables. Implied risk aversion function and utility function can also be derived. The method is demonstrated with the European options and returns values of the German stock index DAX.

Link to article: https://doi.org/10.1093/jjfinec/nbs019