Consumption and Portfolio Choice with Option-Implied State Prices

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Abstract

We propose an empirical implementation of the consumption-investment problem using the martingale representation alternative to dynamic programming. Our method is based on the direct observation of state prices from options data. This greatly simplifies the investor’s task of specifying the investment opportunity set and inherits the computational convenience of the martingale representation. Our method also makes explicit the economic trade-off between exploiting differences in state prices and probabilities, which generate variation in consumption, and the consumption smoothing induced by risk aversion. Using options-implied information, we find quantitatively different optimal consumption and portfolio policies than those implied by standard return dynamics.

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