

Discussion: Characterizing the Conditional Pricing
Kernel: A New Approach

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This Paper

- Propose a new method to characterize the conditional pricing kernel
 - \mathcal{P} -measure pricing kernel: Nonlinear function of market returns, coefficients depend on conditioning variables
 - Choice of conditioning variables: VIX, term spread, lag market return
 - Extend the unconditional version by Linn, Shive, and Shumway (2018)
 - Impose a density restriction: the integral of density is 1
 - Estimate by GMM method with additional Euler equation of the aggregate market return and the risk-free rate

Methodological Innovation and Empirical Improvement

- Methodological innovation
 - Forward-looking estimate of the physical density
 - Not relying on parametric assumptions on the dynamics of returns, which is criticized in the literature
- Empirical improvement
 - Monotonicity of pricing kernel
 - Sensitivity of pricing kernel to realized returns larger when return is negative — a highlight
 - Bring equity premium closer to the data and improve on out-of-sample return forecast

Comment 1: Nonlinearity

- The average conditional pricing kernel exhibits nonlinearity
 - Is the source the higher order terms for return, or the potential correlation between market return and conditioning variables?
 - If higher order terms — they are mostly insignificant, but the confidence band helps
 - If it is not the effect of higher order term with returns, we are back to affine-linear models and we can easily estimate such models with conditioning information, say, Adrian, Crump, and Moench (2015)

Comment 2: The Cross-section of Stocks

- The author only uses the market return and the risk-free asset's Euler equation for the GMM estimation
- How sensitive are the results with the inclusion of additional cross-section of stocks?

Comment 3: Beyond Market Returns

- Why is the market return the only risk factor in the pricing kernel?
- Helpful to clarify the underlying rationale
- Bond market data?

Minor Comments

- The additional density restriction — a restriction or a moment condition?
- How important is this additional condition?
- More generally, the choice of estimation weight — more explanations?

Conclusion

- An interesting and important paper that pushes forward our understanding of the properties of conditional pricing kernel
- Important to use conditioning variables: empirical improvement
- Discussion of nonlinearity and contrast to affine-linear pricing kernel
- Use additional assets to estimate the pricing kernel, and clarify the rationale of using market return as the only risk factor