

Semiparametric Conditional Factor Models: Estimation and Inference

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We develop a simple and tractable sieve estimation of semiparametric conditional factor models with latent factors. We establish large- N asymptotic properties of the estimators without requiring large T . We also develop a simple bootstrap procedure for conducting inference about the conditional pricing errors as well as the shapes of the factor loading functions. We employ this method on the large cross-sectional individual stocks, corporate bonds and options. A common risk factor structure prominently emerges across asset classes. Several common factors explain a substantial amount of time-series variation of individual asset returns across all three asset classes, and have sizable Sharpe ratios. Several of our factors are highly correlated with some of asset-class-specific factors as well as macroeconomic and financial variables. However, a small set of common factors does not fully capture the cross-section of average returns. A mean-variance efficient portfolio that utilizes asset characteristics achieves a high Sharpe ratio as different asset classes hedge each other's exposures to the common factors.