



E Q U I T I E S

Estimating the Risk-Return Trade-Off With Overlapping Data Inference

June 10, 2014

Netspar Discussion Paper

When financial economists empirically investigate the predictions of their models, they must choose the horizon over which the agents in the model hold their investments. For example, Merton's Intertemporal Capital Asset Pricing Model (ICAPM) is a theoretical continuous-time model, but empirical researchers usually choose a one-month or one-quarter horizon as the most appropriate test environment even though daily data are available.

The most popular methods for modeling the conditional variances and covariances that are the sources of risk in these models are generalized autoregressive conditional heteroskedasticity (GARCH) and mixed data sampling (MIDAS), which are usually implemented with maximum likelihood estimation (MLE) by sampling the data at the same frequency as the horizon chosen for the model.

Here the authors demonstrate that when the data are sampled more finely than the horizon of the model, researchers can use all of the available data to lower the standard errors of the estimates and improve the power of the tests of the theories by using overlapping data inference (ODIN). Their insight is to use the first order conditions of MLE as orthogonality conditions of Hansen's Generalized Method of Moments (GMM).

The authors estimate the parameters of the model from the average of the overlapping MLE samples and construct appropriate standard errors that account for the serial correlation induced by the overlapping data.

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