"Estimation and Inference of Expected Shortfall for Time Series with Infinite Variance" (with O. Linton)

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Abstract: The prediction of multivariate outcomes in a linear regression setting with a large number of potential regressors is a common problem in macroeconomic and financial forecasting models. We exploit that the frequently encountered problem of nearly collinear regressors can be addressed using standard shrinkage type estimation. Moreover, independently of near collinearity issues, when the outcomes are correlated random variables, univariate forecasting is often sub-optimal and can be improved upon by shrinkage based on a canonical correlation analysis. In this paper, we consider a family of models for multivariate prediction that employ both types of shrinkage. The approach is designed to jointly forecast a vector of variables of interest based on a common (potentially very large) set of predictors. We illustrate its promising performance in applications to several standard forecasting problems in macroeconomics and finance relative to existing approaches. In particular, we show that it is possible to almost double the predictability of 1-month bond excess returns by using a set of predictors combining yield slopes and the maturity related cycles of Cieslak and Povala (2011). In addition, our theory offers a formal justification for why the Stock and Watson (2011) choice of five principal components is often the