Discussion of "Forecast Combination With Entry and Exit of Experts"

By Capistrán and Timmermann

Feng Zhu

Bank for International Settlements

Main Issues

- Excellent paper
  - One clearly-stated and well-posted question
  - One simple solution, showed how it could work
- Forecasts combination
  - Combination weights: equal-weights (EW), least squares, shrinkage, odds matrix;
  - Profound forecast uncertainty (data, parameters, model etc)
  - Out-of-sample performance?
  - Real-time forecasting?

Problem

- Survey data
  - Unbalanced panels: frequent entry & exit
  - Conventional OLS methods do not work
  - Trimming throws away useful info

Solution

- Projection on equal-weighted (PEW) forecasts approach
  1. Compute equal-weighted (EW) forecasts
  2. Regress actual value on constant plus EW
  - ❖ OLS on EW instead of *N* individual forecasts
  - ❖ Avoid loss of information due to trimming

Main Results I

- Simulations suggest good properties PEW
  - Common factor model with heterogeneity (individual forecast bias) & temporal dependence (factor dynamics)
  - Clear structure of cross-section dependence
  - 1-period-ahead forecasts, recursive estimation
  1. Balanced panel: least squares ok (except cases of small *T*: Nickel Bias?)
  2. Unbalanced panel: EW & PEW

Main Results II

- Application to inflation forecasts (SPF,1979:4-2006:3)
  - 1- or 4-period-ahead inflation forecasts
  - Out-of-sample performance
  - PEW with real-time & revised data
  - Recursive or rolling window estimation
  - PEW good overall performance (RMSE & 3 tests)
  - PEW improves on EW by adjusting for possible bias & noise
- Method potentially of wide applicability
  - New data sets as unbalanced panels

Comments & Suggestions I

- Simulations
  - Why “previous best” has notably worse performance except for survey-like data?
  - Cross-section dimension *N* & SPF (10,30,50)? Data sets of larger *N* but smaller *T*
  - Dynamic factors: varying degree of temporal & cross-section dependence & heterogeneity?
  - Cross-section dependence in error structure?
  - Unbalanced panels with frequent forecasters at 75% cutoff: arbitrary? Optimal cutoff?

Comments & Suggestions II

- Beyond simulations: asymptotics?
  - Dynamic factor models
  - Dynamic panel data: *N/T* asymptotics
  - Asymptotic properties for *α* & *β* estimates
- Richer dynamics?
  - Non-stationarity, instead of 0.9, $B_F = \mathrm{I}_{n_f}$
  - Or near unit roots?

Comments & Suggestions II

- Comparison to combination forecasts from Bayesian model averaging?
- Comparison to non-combination forecasts?
  - Random walks?
  - Naïve forecasts (aggregate or individual)? (≠ previous best)
  - Conventional VAR forecasts?
  - Forecasts based on economic models?
  - Green Book or other **judgmental** forecasts?

Comments & Suggestions III

- Robustly predicting turning points
  - Detect changes in inflation expectations
  - PEW & (multiple) structural break(s)?
  - PEW & end-of-sample structural break(s)?
- MSE & bias-variance trade-off
  - PEW gains in terms of both bias & variance?
  - PEW achieves optimal trade-off?
  - Compute confidence bands for PEW estimates

Comments & Suggestions IV

- Try more sophisticated functional forms?
- Density forecasts combination (SPF)?
  - Individual & aggregate uncertainty
  - Balanced vs unbalanced panels
  - Or quantile forecasts combination?
- A few minor issues