Discussion of the paper

Forecast Accuracy and Economic Gains from Bayesian Model Averaging using Time Varying Weights

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The proposed approaches allow for parameter uncertainty, model uncertainty an robust time varying model weights

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- In terms of Bayes Factors ($K + 1$ models, thus $k = 0, \dots, K$)

$$p(\mathcal{M}_k|y_{1:T}) = \frac{\alpha_k B_{k0}}{\sum_{r=1}^{K} \alpha_r B_{r0}}$$

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- In terms of predictive likelihood (the paper is in this framework)

$$p(\mathcal{M}_k|y_{1:T}) = \frac{p(y_T|y_{1:T-1}, \mathcal{M}_k)p(\mathcal{M}_k)}{\sum_{r=1}^{K} p(y_T|y_{1:T-1}, \mathcal{M}_r)p(\mathcal{M}_r)}$$

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Further references for the literature review in Introduction (pp. 2-3)

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• Leamer (1978), Hodges (1987), Draper (1995)...

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• Stochastic Search Variable Selection (SSVS) see for example George and McCulloch (1993) JASA and more recently see the model search approach for state space models in Frühwirth-Schnatter and Wagner (2009) JoE.

Forecast Combination Schemes (a $\mathcal{M} - \mathit{open}$ approach?)

Section 2, pp. 4-8 of the paper.

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and we may expect that a BMA procedure should allow a new model to enter into the pool of models.

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Note that the basic Ocam's Window (Madigan and Raftery (1994) JASA) approach

$$\mathcal{A}'_T = \left\{ \mathcal{M}_k | \frac{\max_r p(\mathcal{M}_r | y_{1:T})}{p(\mathcal{M}_k | y_{1:T})} \leq C \right\}$$

is $\mathcal{M}$-open (at each time iteration a new model can enter and an old model can exit the class of models)

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$$y_t = w_0 + \sum_{i=1}^{n} w_i y_{t,i} + u_t$$

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It would be interesting to discuss how the proposed BMA approach is related to the Bernardo and Smith (1994) classification. (See next slide!)

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• How to interpret the analysis of the residuals in a BMA context? (may stability tests (e.g. CUSUM test) help?)

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The authors focus on a diagonal structure for Σ and non-diagonal Σ is for future research.

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Could one expect that change in the model weights are related to change in the prediction errors? that is use the following specification

$$\mathbb{E}(u_t \xi_t) = (\lambda_1, \ldots, \lambda_{n+1})'$$

or a more parsimonious model: $\lambda_1 = \ldots = \lambda_{n+1}$.

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• In the time varying model I would expect (in financial applications for example) that the volatility of the observed values influences the forecast ability of the some models. It could be interesting to have some variables, z_t, in the dynamics of the weights $w_t = w_{t-1} + \beta' z_t + \xi_t$.

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- consider a robust scheme instead (or as a further extension) the unobserved $\eta_t \in \{0, 1\}$ influences u_t, e.g.

$$u_t \sim \mathcal{N}(0, \sigma_t^2)$$

with $\sigma_t^2 = \sigma_0^2(1 - \eta_t) + \eta_t \sigma_1^2$

Active Portfolio Performances

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In Tab. 1 Panel C, p. 21. Is (should) the comparison between the Sharpe ratio and realized utility be done in statistical terms?