KRZYSZTOF DRACHAL

Faculty of Economic Sciences, University of Warsaw, Poland

MODEL COMBINATION SCHEMES – HOW THEY LEAD TO MORE ACCURATE FORECASTS – AN EXAMPLE OF COMMODITIES PRICES

Abstract:

The development of commodities prices is an important topic in economics and finance. Both from the theoretical and practical point of view. These prices have significant impact on various markets, and are important issue for policymakers and investors. Numerous researches have already shown that in different time periods, different factors are the leading determinants of the prices of various commodities.

Therefore, at some periods some models work quite good, but at the other periods – some other models work much better. Moreover, if, for example, regression models are considered, it is also desirable to allow the regression coefficients to vary in time. This represents fluctuations in the strength (or even in the direction) of the impact of a given determinant on the forecasted commodity price.

One of the solutions, how to deal with it, comes from the Bayesian econometrics and model averaging approach. It is known as Dynamic Model Averaging (DMA). However, simple switching from model averaging to model selection approach results in an interesting variation: Dynamic Model Selection (DMS) or Median Probability Model (MED).

These methods join an uncertainty about the model with the time-varying parameters approach. They are capable of capturing structural breaks and are suitable to deal with a data-rich environment. They are also an extension of the already used in the literature Bayesian Model Averaging (BMA); so they are the natural continuation of the already existing econometric theory.

This study presents the application of these methods to 69 time-series of commodities monthly spot prices. The period between Dec 1983 and Oct 2017 was analysed. The conclusion is that in numerous cases these new methods produced significantly more accurate forecasts than the benchmark ones (like the naive method or ARIMA).

Keywords:

commodity prices; Bayesian econometrics; model averaging; model selection; variable selection; Dynamic Model Averaging; Dynamic Model Selection; forecasting; time-varying parameters

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