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contracts, so that they reflect information expected for different time periods. Third, commodity indices comprise a basket of commodities, and it could well be that any autoregressive process for the commodity indices come from cross-predictability across different commodities within the indices.

In addition, I have some other comments. One is that the chapter is not clear on the methodologies and variables being used. For example, it is not clear how many macroeconomic variables are being used for forecasting commodity prices. It is also not clear how the authors select the variables to predict commodity prices. There is also no mention about the number of principal components or number of factors being extracted in factor-augmented regression models.

Overall, I do not think the chapter has fully achieved the objective of answering what really affects commodity prices. While there are a few key factors, such as macroeconomic activities, commodity supply, and monetary policy, the chapter is unable to distinguish them.

Reference

Chen, Y., K. Rogoff, and B. Rossi. 2008. Can exchange rates forecast commodity prices? NBER Working Paper no. 13901. Cambridge, MA: National Bureau of Economic Research, March.

Comment Roberto S. Mariano

In dealing with commodity price movements, this chapter compares the forecasting performance of fundamentals-based methods with baseline autoregressive or random walk models. Though still preliminary, this chapter shows thoroughness and care in dealing with the motivation, the substance, and the technical details of the study.

The authors begin the chapter with the result of Chen, Rogoff, and Rossi (2008, hereafter CRR), that exchange rate fluctuations of relatively small commodity-exporting countries (Canada, Australia, New Zealand, Chile, and South Africa) with market-based floating exchange rates have "remarkably robust power in predicting future global commodity prices."

The forecast variable in the chapter is a broad index of different spot commodity prices (ten alternative indices and subindices for three different commodity classes). The three forecasting models analyzed in the chapter are:

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1. A baseline autoregressive or random walk process (equations [1] and [2] in the chapter).
2. An "exchange-rate model" that adds to the baseline model only commodity currencies, as in CRR (equation [3] in the chapter).
3. A factor-augmented regression model that makes use of information from a relatively large data set of economically relevant "indicator" or "predictor" variables, including commodity exchange rates, again, in conjunction with the baseline model (equations [4] and [5] in the chapter).

In the third group of models, the authors consider two ways of obtaining proxies for the latent (unobservable) factors in the model, based on a large number of observable predictors including commodity currencies:

1. Use a fixed number of principal components of the predictor variables. As the authors point out, one of the problems with this approach is that while the first few principal components generate, by definition, the linear combinations with maximum variation, they need not be the best predictors for commodity price fluctuations.
2. The authors use partial least squares to determine observable factors that are "relevant for modeling the target variable." These are orthogonal linear combinations of the predictor variables (just like the principal components), but this time they are so chosen to maximize the correlation with the *h*-period-ahead commodity price changes. The procedure is based on an earlier paper of Groen. The authors also point out correctly the additional complication in this procedure due to the fact that the factor proxies are generated regressors that require further modification in the selection procedure (again, based on another earlier paper of Groen).

In this third group of models, I wonder if it would be useful for the authors to consider a third alternative that nests the exchange-rate model. That is, why not separate the commodity currencies as separate regressors as in model 2, and then get the PCs or PLS proxy factors from the rest of the predictor variables?

The authors provide a detailed analysis of their assessment of forecasting properties. I endorse their approach of updating their forecasting models based on a fixed rolling window of historical data, since commodity price dynamics have not been stable over time. They also provide enough technical details for their testing procedure for the null hypothesis that the fundamentals-based predictor (model 2 or 3) does not significantly outperform the benchmark predictor. The argument they present is compelling for the bias correction in the mean square error (MSE) calculations for the fundamentals-based forecasts, but I wonder if even the HAC variance estimator still may need a further finite-sample correction.

One other technical question I have pertains to the fact that in model 2

and model 3, the predictor variables themselves have to be predicted. Are forecast errors on their prediction also taken into account in the forecast assessment in the chapter?

The main conclusions of the chapter, as the authors put it, are:

- The chapter shows mild corroboration of the CRR results that . . . commodity currencies are "somewhat priveleged variables" in terms of their predictive power for forecasting commodity price movements.
- The results in the chapter are unable to provide robust validation of this notion across commodity indices and across forecasting horizons.
- Empirical results also show that information from larger sets of macrovariables can help, but their forecasting properties are "nuanced and by no means overwhelming."
- From a policy perspective, the tentative results in the chapter indicate that forecasts of commodity prices provide highly noisy information—hence, "estimates of the inflationary pressures associated with expected commodity price swings remain tentative at best."

I would add that the results in the chapter are encouraging, and point to further research directions in getting more signals and less noise from the forecasts of commodity prices.

Reference

Chen, Y., K. Rogoff, and B. Rossi. 2008. Can exchange rates forecast commodity prices? NBER Working Paper no. 13901. Cambridge, MA: National Bureau of Economic Research, March.