Discussion to:

Real-time monitoring of bubbles and crashes

- by E. J. Whitehouse, D. I. Harvey, and S. J. Leybourne

given by Josefine Quast
(University of Wuerzburg, Research Centre of the Deutsche Bundesbank)
Conference on Real-Time Data Analysis, Methods, and Applications
Cleveland Fed

October, 6^{th} 2022

This Paper

Proposes to use a two-step procedure to detect bubbles and crashes in univariate time series settings, where:

1. The step follows Astill et al. (2017) to detect a bubble, i.e. tests for an end-of-sample explosive behavior, based on instability tests (Andrews, 2003; Andrews and Kim, 2006)
2. Step: conditional on bubble detection, test for differing signs of the Δy (subsample) means to detect a subsequent stationary crash

Shows the usefulness of the procedure along the lines of quasi-real application to the US house price to rent ratio in context of Global Financial Crisis

Comment 1: Series-specific Critical Values

1. How exactly is the training period chosen? - mentioned that it's a period, during which no bubble occurred
   $\rightarrow$ Or better: how is ensured that the training period is 'representative'?

2. Relatedly, could those critical values be time-varying or state-dependent over the course of a series?

3. How robust are the series-specific critical values against, e.g., the length of the series?

Comment 2: Policy Perspective

From a policymaker's perspective there might be interest in:

1. Monitoring and leaning against the bubble with preventive policies
   $\rightarrow$ What can policy do once the crash is identified? How much time is there really to react: difference between 'sudden' or 'slowly'-deflating crash?

2. Comovement: joint movement in many similar sector-related indicators (house prices, equity prices, etc.) in spirit of Burns and Mitchell (1946)
   - What happens if one series indicates bubble-building and potential crash while another, potentially similar, indicator does not? Which signal to follow? How many series, behaving similarly, would be sensible to consider economy-wide relevant bubble-building?

Comment 3: Quasi-real time vs. Real-time

- Is there a role for using 'real' real-time vintages, i.e. considering data revisions instead of using a pure recursive set-up, where using a current vintage introduces 'look-ahead biases'?

- Amburgey & McCracken (2022) show that considering a 'real' real-time analysis can improve the predictive power of Financial Conditions Indices for U.S. real GDP growth

→ Especially leading up to recession when monitoring is most sought after

References

Amburgey, A., & McCracken, M. W. (2022). On the real-time predictive content of Financial Conditions Indices for growth. FRB St. Louis Working Paper, (2022-3).

Andrews, D. W. K. (2003). End-of-sample instability tests, Econometrica 71, 1661–1694.

Andrews, D. W. K. & Kim, J.-Y. (2006). Tests for cointegration breakdown over a short time period, Journal of Business and Economic Statistics 24, 379–394.

Astill, S., Harvey, D. I., Leybourne, S. J., Sollis, R. and Taylor, A. M. R. (2018). Real-time monitoring for explosive financial bubbles, Journal of Time Series Analysis 39, 863–891.

Burns, A. F., & Mitchell, W. C. (1946). Measuring business cycles (No. 46-1). National Bureau of Economic Research.