Comments of “Measuring the Macroeconomic Impact of Monetary Policy at the Zero Lower Bound”

Borağan Aruoba
University of Maryland

Paper presented at the 16th Jacques Polak Annual Research Conference
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Discussion of Wu and Xia

S. Borağan Aruoba
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November 5, 2015

IMF 16th Jacques Polak Annual Research Conference
Summary

- Start with a standard Gaussian Affine Term Structure model, except

\[ r_t = \max(r, s_t) \]

and \( s_t \) is an affine function of states, not \( r_t \).

- Use an approximation for the forward rate using \( g(z) \).
  - Faster than alternatives, not much loss in accuracy.

- Use extended Kalman filter (approximate the nonlinear state space model with a linear one) to estimate.
  - Data: One-month forward rates for maturities of 3-month, 6-month, 1-year, 2-year, 5-year, 7-year and 10-year.

- Obtain an estimate of \( s_t \), the shadow rate.
  - Use it in a FAVAR as a measure of monetary policy.
  - Impulse responses
  - Link between unconventional policies and shadow rate.
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Is the Shadow Rate “Unconstrained”?  

Swanson and Williams (2015, AER)  

(a) 3-Month Treasury Yield Sensitivity to News
Is the Shadow Rate “Unconstrained”? 

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They test (simplifying notation) if $\rho_1 = \rho_3$ in

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- Why expect equality? A major structural change is occurring in the economy.
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Fernandez-Villaverde et al. (2010, St. Louis Fed Review)

Smoothed Path for the Taylor Rule Parameter on Inflation ±2 SDs
Does the shadow rate reflect the stance of monetary policy?

Fed Balance Sheet (Right)  Wu-Xia (Left)

QE1  QE2  Twist  QE3

B. Aruoba  Wu-Xia Discussion
Was the Fed policy not nearly expansionary as it should be in 2009-2010?

Comparison of Shadow Rate with Unconstrained Policy Rate from a DSGE Model

-8 -6 -4 -2 0 2 4


R* (Aruoba Cuba-Borda Schorfheide, 2015)

Wu-Xia

B. Aruoba

Wu-Xia Discussion
Promises replacing federal funds rate in one’s favorite empirical model (DSGE, VAR etc.)

Not clear if it is a sufficient description of Fed’s stance.

Lift-off? (End of September: −0.74%) Is the Fed keeping the policy rate down by 100 basis points?

Major challenge: When looking back to the U.S. data in 2020, how are we going to estimate our models?

- Continuous regime?
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