A Unified Measure of Fed Monetary Policy Shocks

Chunya Bu, John Rogers and Wenbin Wu

Discussion by Benjamin Wong
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Department of Econometrics and Business Statistics
Monash University
First-Step

$$\Delta R_{i,t} = \alpha_i + \theta_i \Delta i^{IV}_t + \mu_{i,t}$$, \(i = 1, 2, \ldots, 30\)

Second-Step

$$\Delta R_{i,t} = \alpha_i + e_t \hat{\theta}_i + \nu_{i,t}$$, \(i = 1, 2, \ldots, T\)

- \(e_t\) is the monetary policy shock.
- Comparison of \(e_t\) to a variety of extracted monetary policy shock series
- Show that \(e_t\) does not capture private information by the Fed (more on this later)
- Use \(e_t\) in VAR analysis
Identification

\[ \Delta i_t^IV = \Delta i_{t,R1} - \Delta i_{t,R2} \]
My Thoughts

- In the vein of research that use event study/high frequency information to obtain exogeneity
- Authors have clearly thought very carefully about identification
What is a Monetary Policy Shock?

\[ i_t = i_t^* + a_\pi [\pi_t - \pi_t^*] + a_y [y_t - y_t^*] + \epsilon_t^{MP} \]

Systematic/Endogenous

- Represents the “non-systematic” component of monetary policy
- Taken from a very short term interest rate that the central bank can control (i.e. overnight/Federal Funds Rate)
- Consistent with how people think about it New Keyensian DSGE models ala policy reaction function
- Obvious Challenge
  - What is systematic, what is not?
  - Related to what is exogenous and what is endogenous (classic macro problem)
- If policy is well run, the effect of monetary policy shocks should be small.
Problems brought on by Zero Lower Bound Period

\[ i_t = i^*_t + a_\pi \left[ \pi_t - \pi^*_t \right] + a_y \left[ y_t - y^*_t \right] + \epsilon^M_P \]

- Systematic/Endogenous

- What is “systematic” when \( i_t = 0 \) for a prolonged period?
- What can the central bank really control?
  - Overnight rates can be perfectly controlled using open market operations, but longer term yields becomes more questionable
  - Is forward guidance or the revelation of private information part of the monetary policy shock?
    - Monetary news shock? (i.e. revealing \( \epsilon^M_P \))
    - Forward guidance as changing the expectations structure, so is not a shock (e.g. Kulish, Morley & Robinson, JME, 2017)
- Shadow short rate “solves” the problems above, but economic agents do not transact/make decisions on the basis of a negative interest rate
Returning to the BRW Shocks

First-Step

\[ \Delta R_{i,t} = \alpha_i + \theta_i \Delta i_{t}^{IV} + \mu_{i,t}, i = 1, 2, \ldots, 30 \]

Second-Step

\[ \Delta R_{i,t} = \alpha_i + e_t \hat{\theta}_i + \nu_{i,t}, i = 1, 2, \ldots, T \]

- Closest paper in thinking about the problem (IMO) is probably Inoue & Rossi (2018)
- \( \Delta i_{t}^{IV} \) is exogenous change in the MP surprise
  - Crucially will depends if \( \Delta i_{t}^{IV} \) is exogenous
  - If \( \Delta i_{t}^{IV} \) is exogenous, the follow up question is whether this variation is a monetary policy shock.
- More philosophical/rhetorical
  - If elements of private information by the central bank, forward guidance or imperfect control of the yield curve enter \( \Delta i_{t}^{IV} \), is this a measure of monetary policy shocks?
  - Tests for private information with Blue-Chip. Great, but do those guys make any meaningful economic decision? Maybe not, but BRW do better than N& S and SS on these metrics.
Asset Prices React Before and Revert Quickly after Surprises

QE 2
Asset Prices React Before and Revert Quickly after Surprises

QE 3
More Minor Question about the SVAR

Conceptually, if $e_t$ was exogenous and measures a monetary policy shock, we should be able to run

$$X_t = \beta(L)X_{t-1} + \gamma e_t + \nu_t$$

or by local projection

$$X_{t+h} = \beta(L)X_t + \gamma e_t + \nu_{t+h}$$

or by using an interest rate (maybe say a two year rate) in the VAR and using $e_t$ as an external instrument (i.e. 2SLS)

or even

$$X_{j,t} = \gamma(L)e_t + \nu_{j,t}$$

Not sure you need to run $e_t$ in the VAR (since it is exogenous) and do a Cholesky decomposition (since $e_t$ conceptually already identifies the MP shock)
• A very careful and useful exercise
• Enduring Question: What is a monetary policy shock?