What are the effects of Forward Guidance?

- Different answers from theoretical and empirical models
  - Strongly expansionary [Eggerston and Woodford (2003)]
  - Overrated by theory [Del Negro et al (2012), Kiley (2014)]
  - Contractionary due to signalling channel [Campbell et al (2012), Nakamura and Steinsson (2015)]
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- This paper:
  - High-frequency identification of FG shock at the ZLB
  - Standard model with nominal rigidities matches empirical findings
  - FG induces significant and sustained increase in both output and prices
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Paper Results

![Graphs showing consumption, price level, and 12-month ahead futures trends with empirical and model impulse response curves.](image-url)
#1: VAR Specification

- 1Lag, 80% Bands – 5,000 bootstrap samples

![Graphs of Real Consumption, PCE Price Index, and 12 Month FFF](image)
#1: VAR Specification

- 2 Lags

![Graphs showing Real Consumption, PCE Price Index, and 12 Month FFF with basis points.](image)
#1: VAR Specification

- 3 Lags
#2: QE OR FG?

Daily Change in Rate Expected after 7th FOMC Meeting

- ZLB
- LSAP extended
- Operation Twist
- Taper Tantrum
- QE1
- QE2
- QE3
- No Tapering

mid-2013
mid-2015
#3: Monetary Policy or News?


External Proxy Identification
Alternative Identification

- Forward Guidance part of CB toolset prior to ZLB
Alternative Identification

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- FG shocks are:
  1. Orthogonal to changes in the current rate: Path Factor of Gürkaynak, Sack and Swanson (2005)
  2. Orthogonal to CB forecasts of output and prices: project onto Greenbook forecasts and forecast revisions
  3. Not forecast by the markets: surprise in 30-min window surrounding FOMC announcement

- Builds on Miranda-Agrippino and Ricco (2015) FG Shock Series
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**Alternative Identification #1: FG Proxy pre ZLB**

- Path Factor orthogonal to Greenbook forecasts for inflation and output for identification from 1993 to 2007
  - Use as external instrument: Proxy SVAR
  - No QE/ZLB interference: *conventional policy* sample
  - No news interference: orthogonal to CB projections

- Estimate VAR over the ZLB subsample: 2008 to 2014

- **Identification Assumptions:**
  1. FG part of CB toolset prior to ZLB
  2. No break in use of FG over the two subsamples: Potentially strong one
**Alternative Identification #1: FG Proxy pre ZLB**

- BVAR(4) with NIW priors – 2008:12 to 2014:12 (ZLB)
- Proxy SVAR – 1993:2007, **caveat:** no $B_0$ uncertainty
- CF: Consensus Economics Forecasts
- **Open issue:**
  CB forecasts in estimation sample, break in implementation of policy
Alternative Identification #2: Surprise as Proxy

- EFFR after 7th FOMC for identification from 2008 to 2014
  - Orthogonal to VAR lags: partial account of news
  - No prior cumulation: market surprise
  - Use as external instrument: Proxy SVAR

- Estimate VAR over the ZLB subsample: 2008 to 2014

- **Identification Assumptions:**
  1. No QE interference: **STRONG!**
  2. No news effect: **STRONG!**
**Alternative Identification #2: Surprise as Proxy**

- **BVAR(4) with NIW priors** – 2008:12 to 2014:12 (ZLB)
- Surprise in EFFR after 7th FOMC orthogonal to VAR lags
- Proxy SVAR – 2008:12 to 2014:12, **caveat**: no $B_0$ uncertainty
- **Open issue:**
  CB forecasts in estimation sample, no obvious distinction between FG and QE
Summary

• Very challenging question! Significant step towards providing an answer

• Open Issues:
  1. **Limited sample span** → High estimation uncertainty, risks of model misspecification
  2. **Break in the implementation of policy** → Explicit signalling ≠ inferring from policy actions
  3. **MP shocks or macro news** → Need to control for CB information
  4. **Unconventional MP** → Need to disentangle QE from FG
  5. **Important nonlinearities at ZLB**
**Cumulated Surprises**

\[
\underbrace{\mathbb{E}_t(r_{t+h}) - \mathbb{E}_{t-1}(r_{t+h})} + \ldots + \underbrace{\mathbb{E}_{t+n}(r_{t+n+h}) - \mathbb{E}_{t+n-1}(r_{t+n+h})}
\]

Revision of expectation for \( r_{t+h} \)  

Revision of expectation for \( r_{t+n+h} \)

Baseline VAR without cumulation: