

Discussion of  
“Have We Underestimated the Probability of Hitting  
the Zero Lower Bound?”

by Chung, Laforte, Reifschneider, and Williams

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Revisiting Monetary Policy in a Low Inflation Environment

Federal Reserve Bank of Boston

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The views expressed in this discussion are those of the author and are not necessarily reflective of views at the Federal Reserve Bank of New York or the Federal Reserve System.

- “Have We Underestimated the Probability of Hitting the ZLB?”

# The Question

- “Have We Underestimated the Probability of Hitting the ZLB?”
- Answer depends on
  - 1 Shocks
  - 2 Dynamics
  - 3 Policy

# The Modelling Approach

- Stochastic simulations of dynamic models

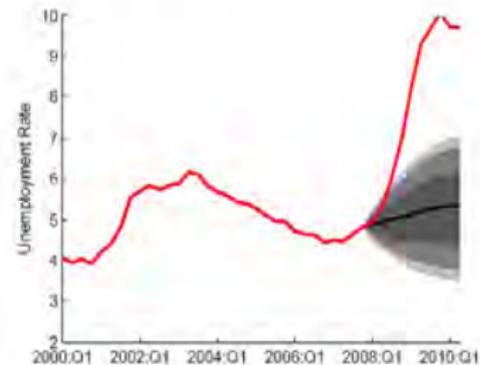
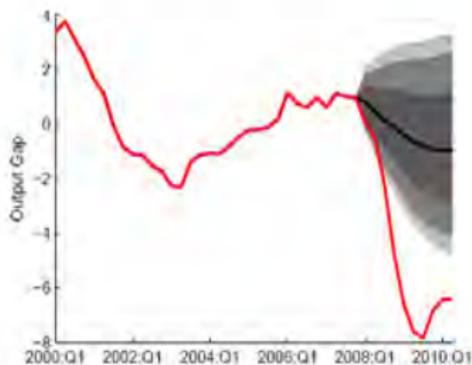
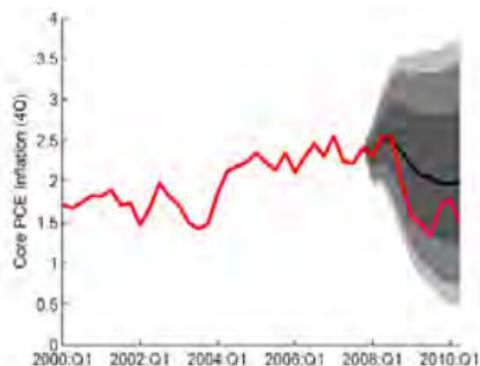
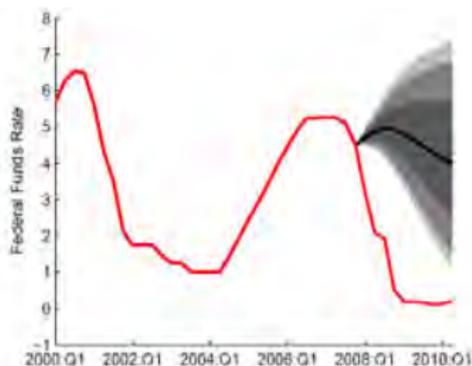
# The Modelling Approach

- Stochastic simulations of dynamic models
- ① Shocks
  - Residuals estimated on samples ranging from 1961- to 1984-
- ② Economic Structure
  - Wide range of models: FRB/US, EDO, TVP-VAR, LW, GARCH
  - Structural and statistical, including time-varying parameters and volatilities

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  - Wide range of models: FRB/US, EDO, TVP-VAR, LW, GARCH
  - Structural and statistical, including time-varying parameters and volatilities
- ③ Policy
  - Estimated interest rate rules, with ZLB imposed on FRB/US, EDO and LW

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  - 3 Policy?

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- Looking at the last 55—rather than 25—years, the Great Recession is not that unusual as a macro phenomenon
- But is this the right answer?
- Emerging narrative on the Great Recession features a chain of “structural” events (including some policy choices), with perhaps one genuine random event (Lehman’s failure)
- Reproducing the macro consequences of those events—including hitting the ZLB—through a series of large aggregate shocks is possible and might be useful as data description, and even as a forecasting tool, but is of limited use when trying to improve policies

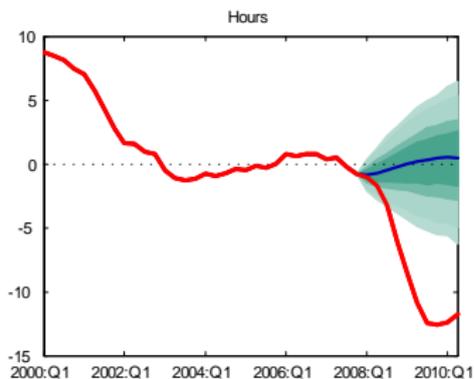
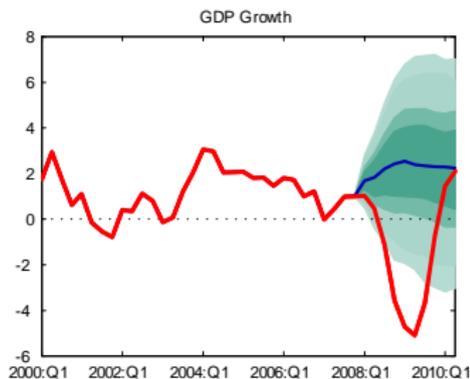
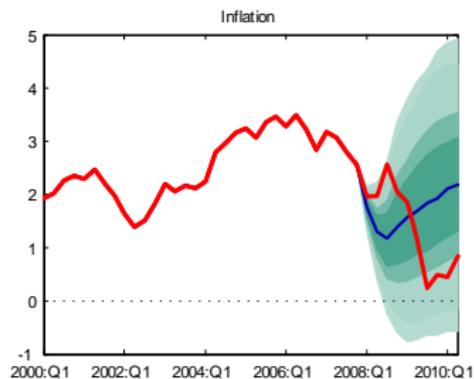
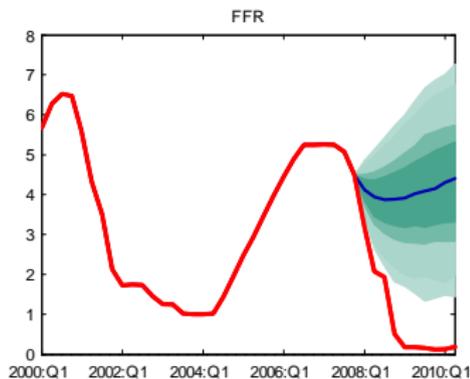
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- Not convinced of “The GR was a 2% probability event that we assessed at 0.02% because of the GM”
  - If true, we are on the hook, but fix is easy

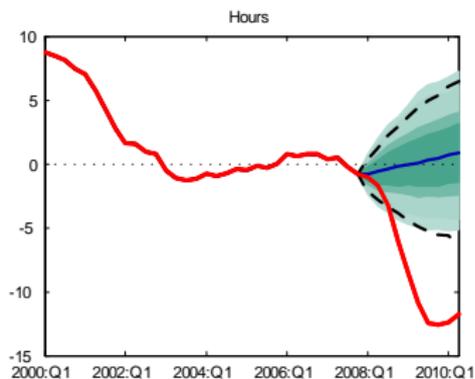
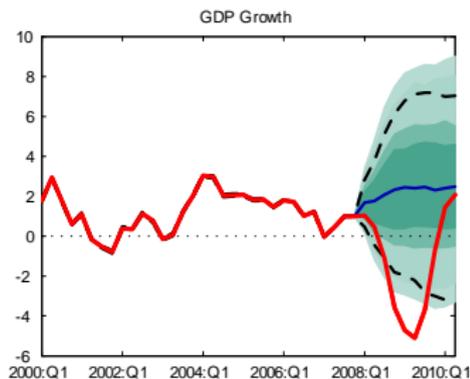
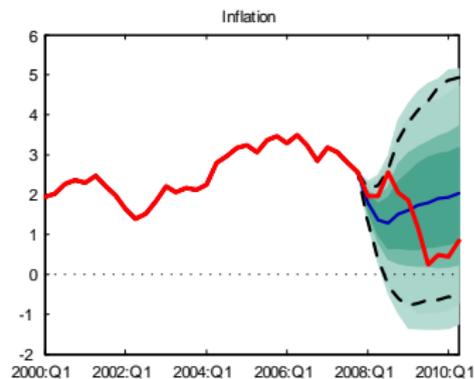
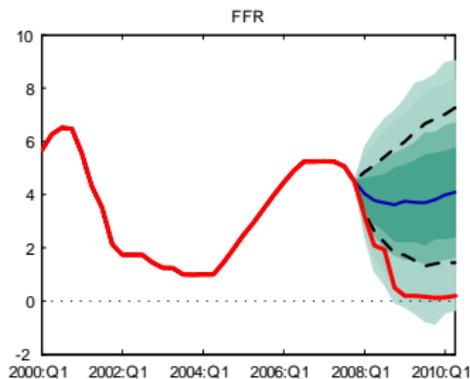
# How Surprising Was the Great Recession?

- Paper mixes models and samples: difficult to isolate role of shocks and structure
- Replicate CLRW's macro forecasts as of 2007:Q4
  - With medium-scale DSGE in Justiniano, Primiceri, Tambalotti (2010)
  - Changing samples and shocks

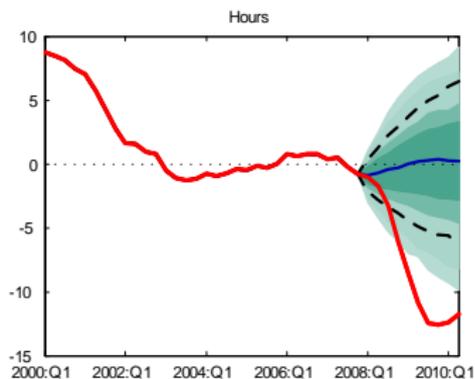
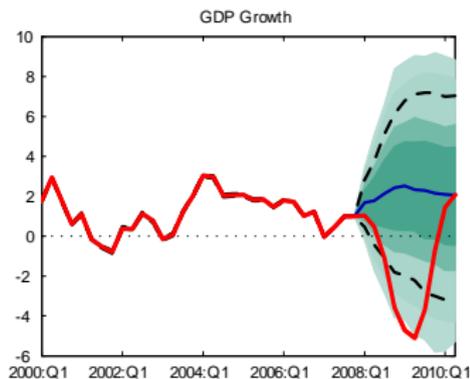
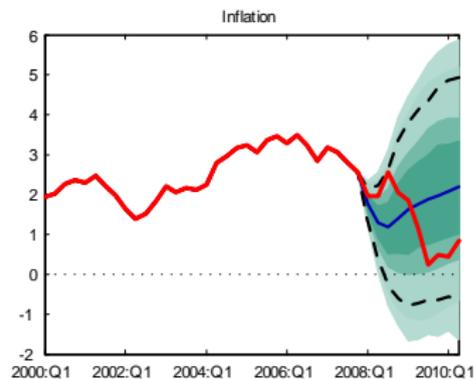
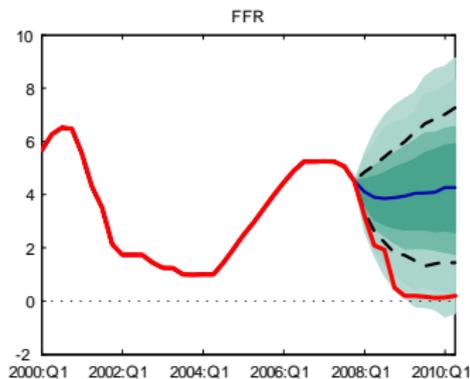
# GM Sample (1984-2007)



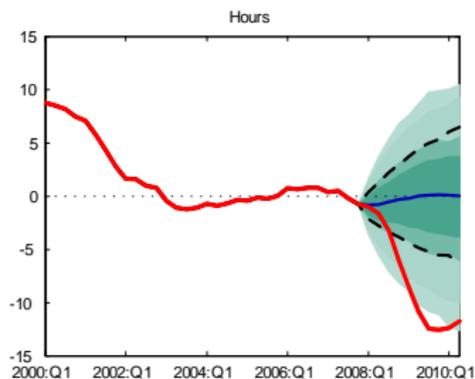
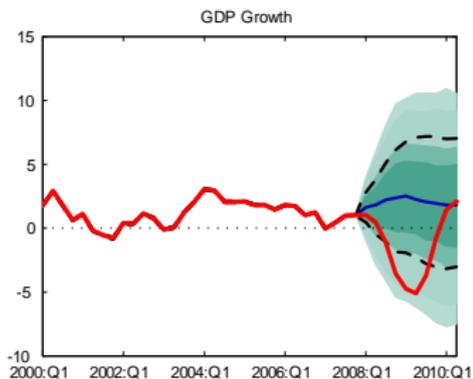
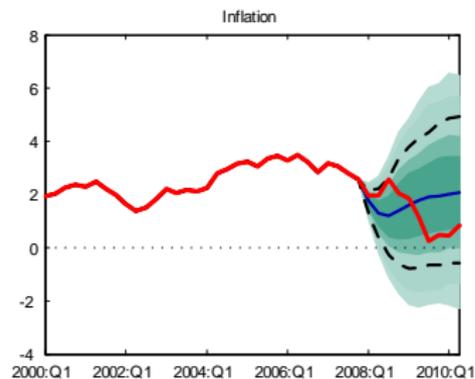
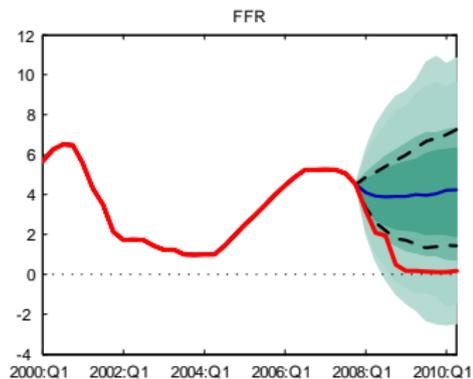
# Long Sample (1954-2007)



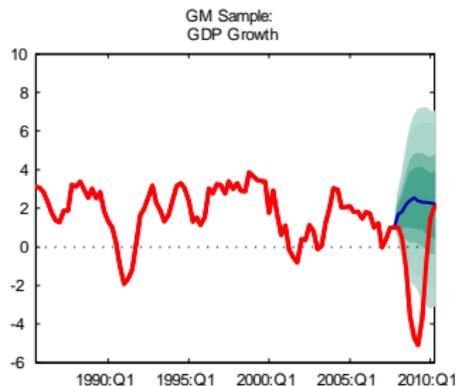
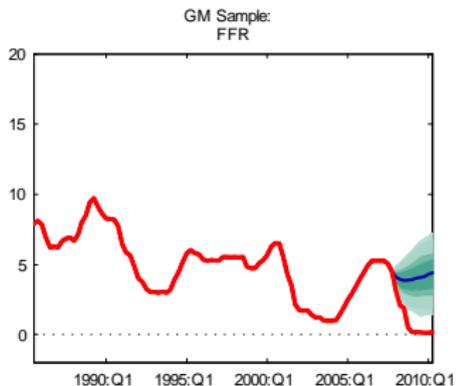
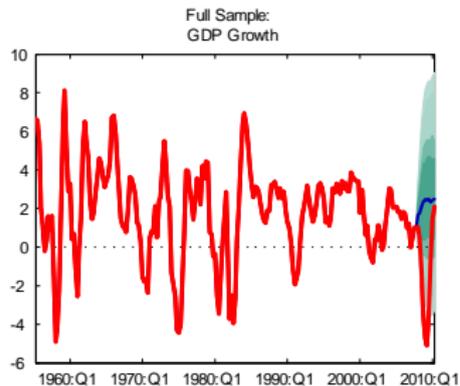
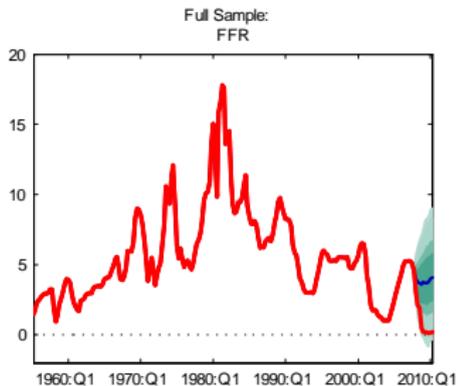
# GM Estimates with Long Sample Shocks



# GM Estimates with Pre-GM Shocks



# The Long View



- From a probabilistic perspective, a standard macro model calibrated to the evidence on the last 55, rather than 25 years, puts the Great Recession squarely within the realm of the possible
- This seems more a challenge than a success for the model: most would agree that the GR *was* different!
- Understanding and modelling how it was different, even if it produced “familiar” macro outcomes, should lead to better macroeconomics and better policy