Central Bank Modelling: Retrospect and Prospects

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The Federal Reserve in 2005-2008

- During 2005-06, officials at the Federal Reserve and other agencies overlooked warning signs regarding the risk of a collapse in house prices.

- During autumn 2007 and early 2008, Fed officials misattributed the widening of interbank spreads to liquidity factors rather than counterparty risk.

- The FOMC met on Tues. 16 Sept. 2008, two days after Lehman’s failure, but still did not perceive that the U.S. might be heading into a financial crisis and a severe economic downturn.
Strains in U.S. Interbank Markets

LIBOR-OIS Spread
CDS Spread

Percent

2007 2008

Feb Apr Jun Aug Oct Dec Feb Apr Jun Aug Oct Dec
“Strains in financial markets have increased significantly and labor markets have weakened further. **Tight credit conditions**, the ongoing housing contraction, and some slowing in export growth are likely to **weigh on economic growth over the next few quarters**. The Committee expects inflation to moderate later this year. **The downside risks to growth and upside risks to inflation are both of significant concern.**”
FOMC Greenbook Alternative Scenarios as of 10 Sept. 2008
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Projected Unemployment Rate
"Persistent Headwinds" Scenario
"Typical Recession" Scenario
Actual Unemployment Rate

Note: Dark shading and light shading denote confidence intervals of 70 percent and 90 percent, respectively, based on stochastic simulations of the FRB/US model.
“For some time now I have been gloomy about prospects in the United States, which now seems clearly to be in recession. Developments in the U.K. are starting to look eerily similar....My biggest concern right now is that the credit crisis will trigger a rapid downward spiral in activity. Now it is time to get ahead of the curve.”

David Blanchflower, MPC Member
Speech to the Royal Society
29 April 2008
Bank of England MPC Votes, 2007-08

Vote Count

- Green bars represent votes to cut 0.25%
- Orange bars represent votes to raise 0.25%
- Blue bars represent votes to cut 0.50%

Dates:
- Oct 2007
- Nov 2007
- Dec 2007
- Jan 2008
- Feb 2008
- Mar 2008
- Apr 2008
- May 2008
- Jun 2008
- Jul 2008
- Aug 2008
- Sep 2008
- Oct 2008
The Evolution of the FOMC’s Outlook for Real GDP Growth

Actual GDP Growth
Nov. 2010 SEP
Nov. 2011 SEP
Mar. 2014 SEP
Mar. 2015 SEP
Average Rate (2010-2014)
Longer-Run Normal Rate
Persistent Inflation Shortfalls

Market-Based Core PCE Price Index
*(12-month change)*

Percent

0.0 0.5 1.0 1.5 2.0 2.5 3.0

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate

The FOMC "Dot Plot" as of December 2015

Note: Each shaded circle indicates the value (rounded to the nearest 1/8 percentage point) of an individual participant’s judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run.
Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate

Comparing the Dec. 2015 FOMC "Dot Plot" to the Current Outlook of Professional Forecasters

Percent

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Persistent Employment Shortfalls

Labor Force Participation Rate
Females, 45-54 Years Old

Mean 1997-2007

Yearly data for females aged 45-54 years old from 1998 to 2016, showing fluctuations in labor force participation rate with a downward trend and a mean line for the period 1997-2007.
The Wage Curve

Source: Blanchflower & Levin (NBER WP, April 2015)
The Wage Curve as of Late 2016

Regression Line
(1985-2007)
Some Key Directions for Model R&D

- Heterogenous Agents
- Demographics
- Adverse Feedback Loops
- Threshold Effects
- Occasionally Binding Constraints
What Can Central Banks Do?

- Foster an environment of creativity & diversity and encourage “outside-the-box” thinking.
- Formulate transparent & systematic policy strategies that are robust to model uncertainty.
- Identify material risks and formulate contingency plans for mitigating such risks; i.e., “stress tests for monetary policy.”