Discussion: Inflation in the Great Recession and New Keynesian Models

Del Negro, Giannoni, Schorfheide

Jon Faust

http://e105.org/e607

FRBoard/JHU

Tom Sargent, June 2010

[NK DSGE models] are not designed to be theories of financial crises.

Question for Sargent

What about the aftermath?

When do the models ‘kick back in’?

Bob Hall

[NK DSGE models] cannot explain the stabilization of inflation at positive rates in the presence of long-lasting slack

Key equation of paper

$$SW + BGG = \text{Sargent/Hall wrong}$$

This paper

We conclude that while the model considered does not capture all short-term fluctuations in key macroeconomic variables, it has proven to be surprisingly accurate during the recent crisis and the subsequent recovery.

Interesting standard

‘surprisingly accurate’

‘Early morning call from Stockholm’ surprises

Stephen King surprises

‘Congratulations, you’ve been selected’ surprises

Bottom line

- Paper invites us to think ‘good surprise’
- I see an * that needs a bit more exploring

Note:

Authors and their RA very helpful in providing me some extra info. to begin that exploration

Main question

Can NK DSGE model match joint GDP and inflation dynamics of the crisis?

Main question, with refinement

Can NK DSGE model match joint GDP and inflation dynamics of the crisis without large, exogenous ‘markup’ shocks?

Preliminary: Analytic NKPC reality

Ignoring markup shocks, inflation driven by discounted pres. val. of expected future marg. cost

If. . .

- If MC is smooth & persistent, only 2 ways to keep inflation stable
- 1. MC is stable

  hence, expected to stay stable
- 2. MC falls (or rises), but is expected to quickly mean revert

  2 has been under-emphasized, main contribution of the paper

Approach 1

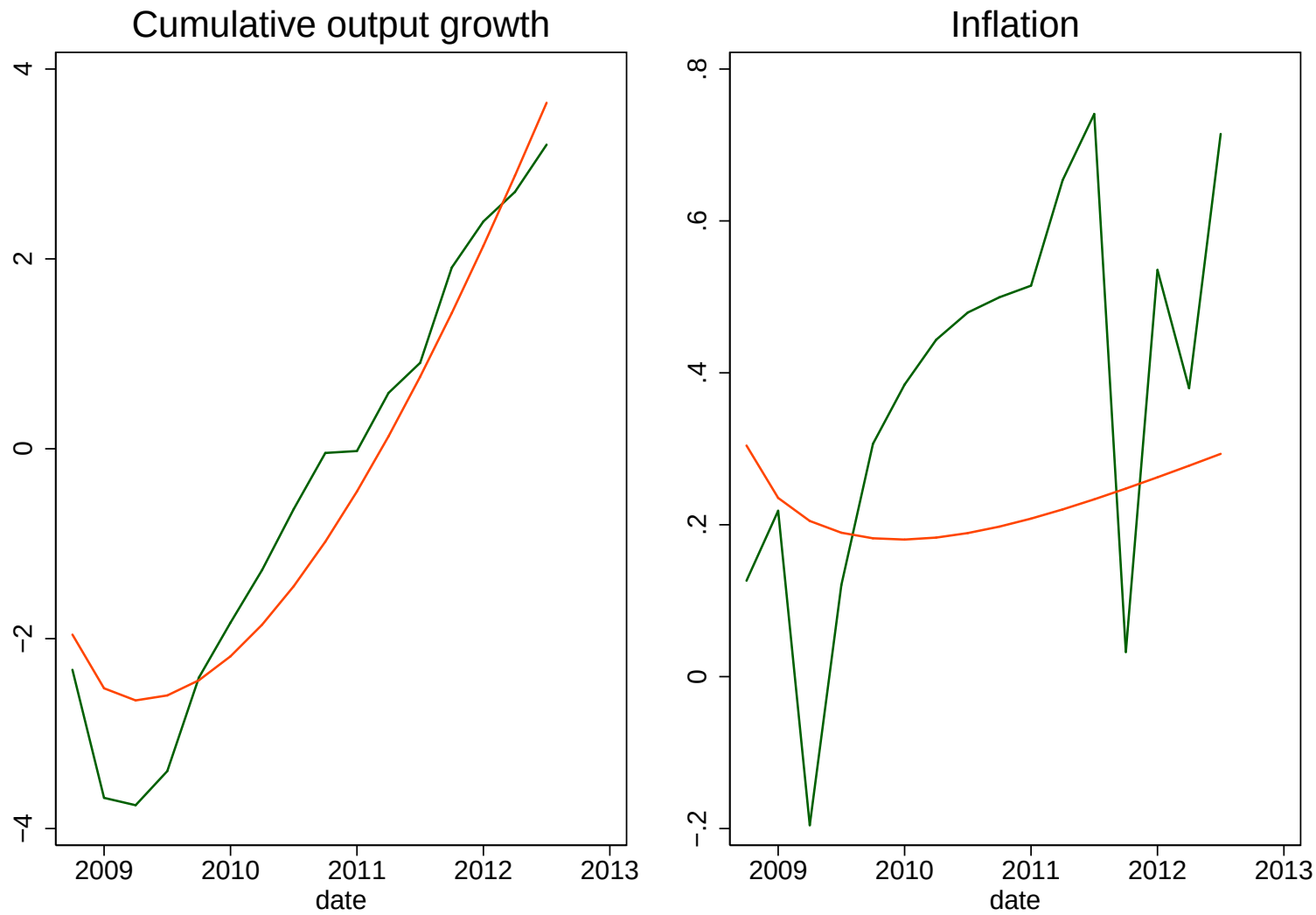
A dynmic simulation

What if in Sept. 2008. . .

We told people the funds rate & credit spread in 2008:Q4 . . .

What would they have predicted for next 4 years?

In SW+BGG


Cumulative output growth
4
2
0
−2
−4
2009
2010
2011
2012
2013
date
Inflation
.8
.6
.4
.2
0
−.2
2009
2010
2011
2012
2013
date

Surprising

. . . but which kind of surprise?

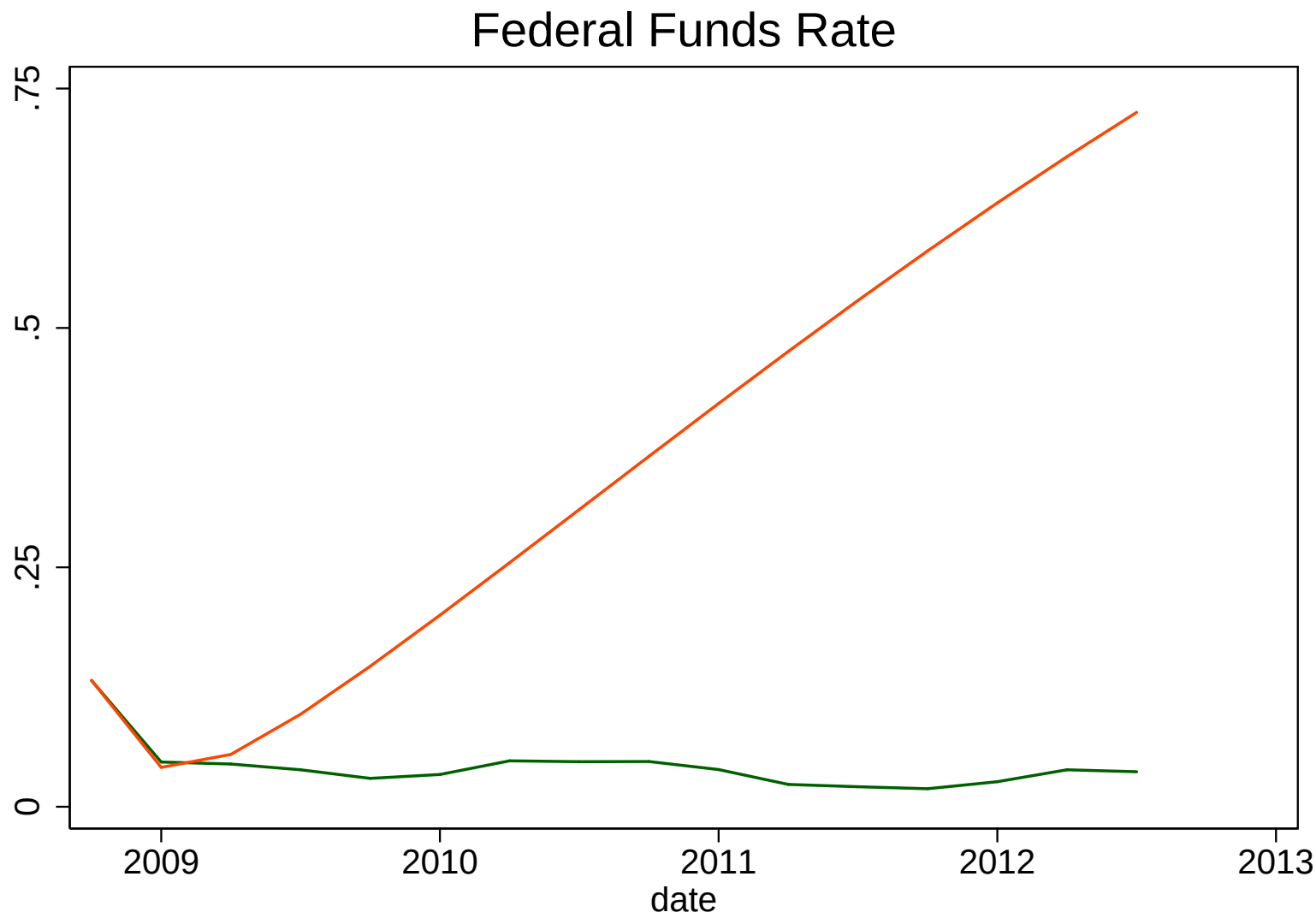
If this sim. represents the crisis

very bad surprise for policymakers

This sim.

- No TARP, No Stimulus, No extraodinary accommodation

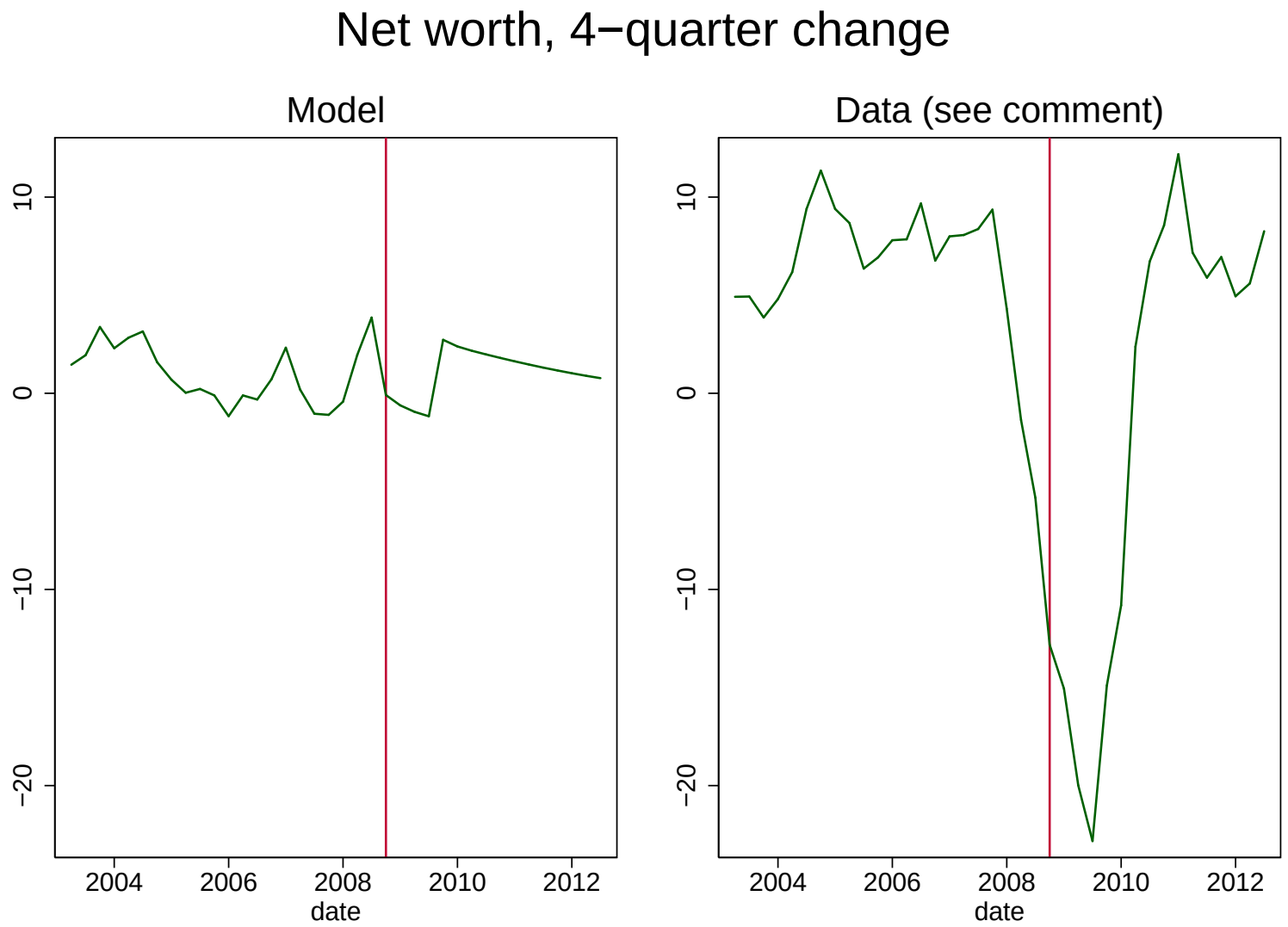
Funds rate



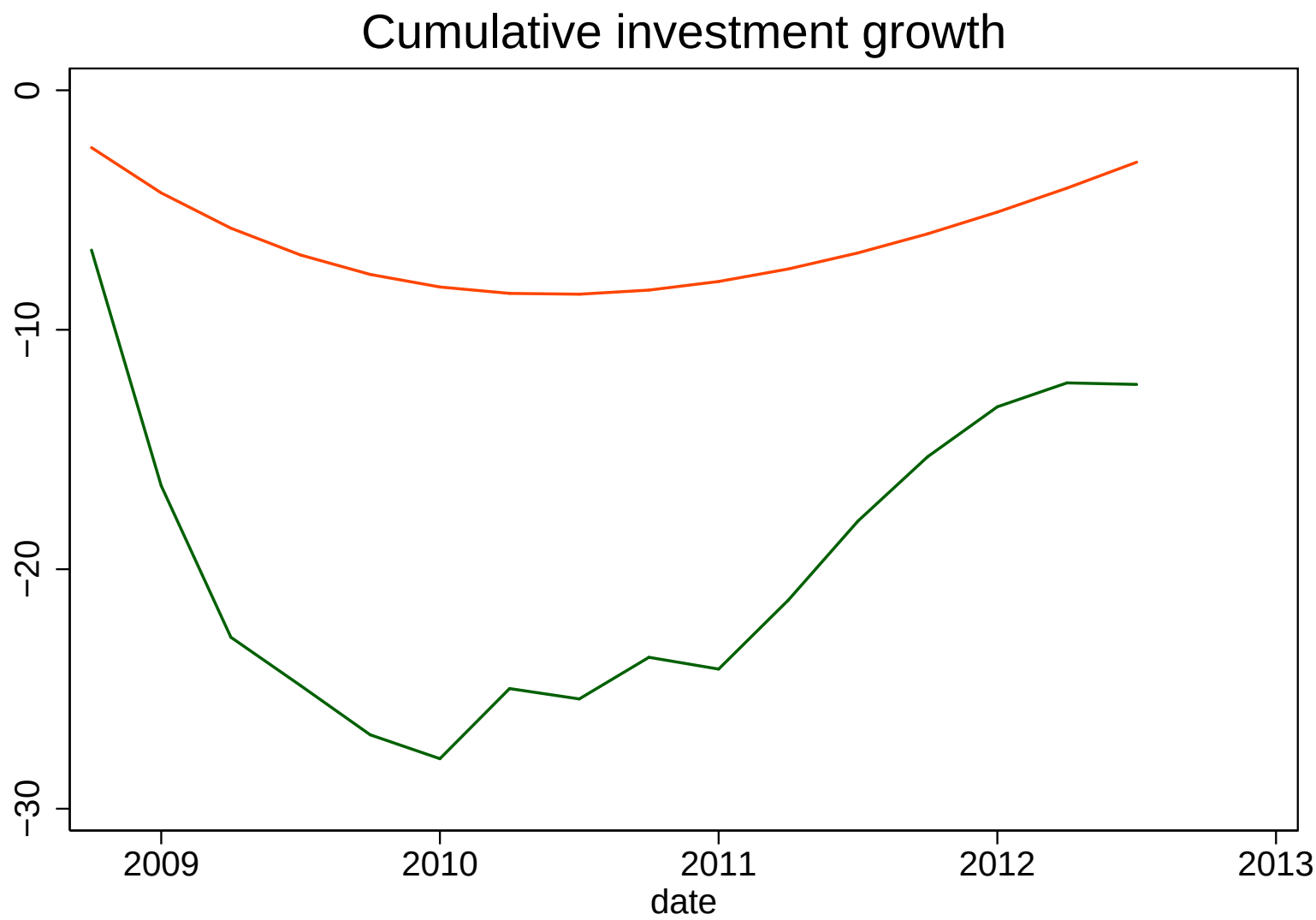
The *

I think the paper needs to explore whether this is a simulation of the crisis.

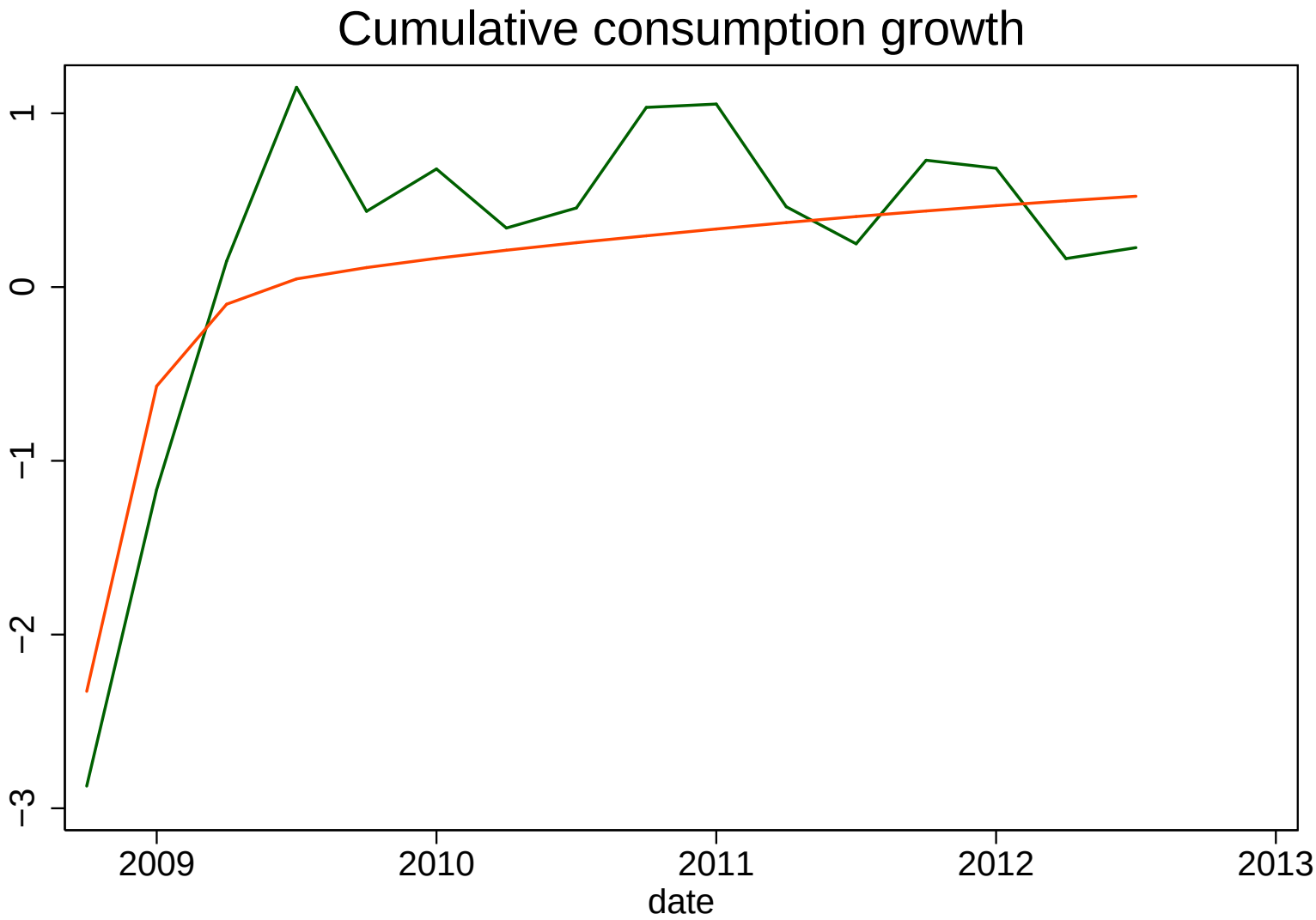
Net Worth


Net worth, 4−quarter change
Model
Data (see comment)
10
0
−10
−20
2004
2006
2008
2010
2012
date

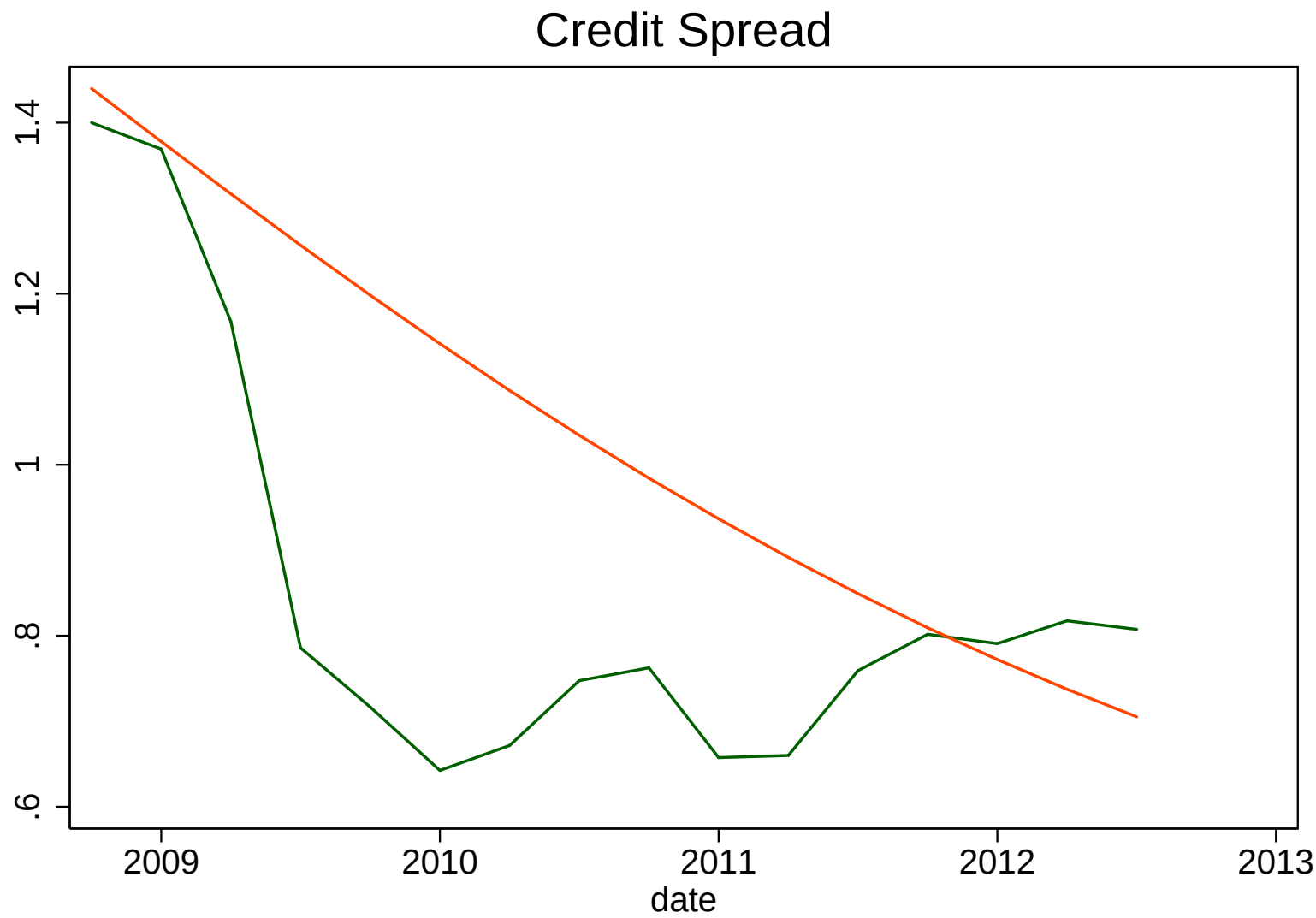
Investment


Cumulative investment growth
0
−10
−20
−30
2009
2010
2011
2012
2013
date

Consumption



The spread



The problem

- In U.S., crisis looked like 2 hideous quarters
- Followed by rapid return to tepid outcomes for many years

My own Hall-like statement

- Persistent Gaussian shocks won’t (are highly unlikely to) do that
- Model will smear any event out over every shock and over time

Suggestion: Clarify what shock(s) we are viewing

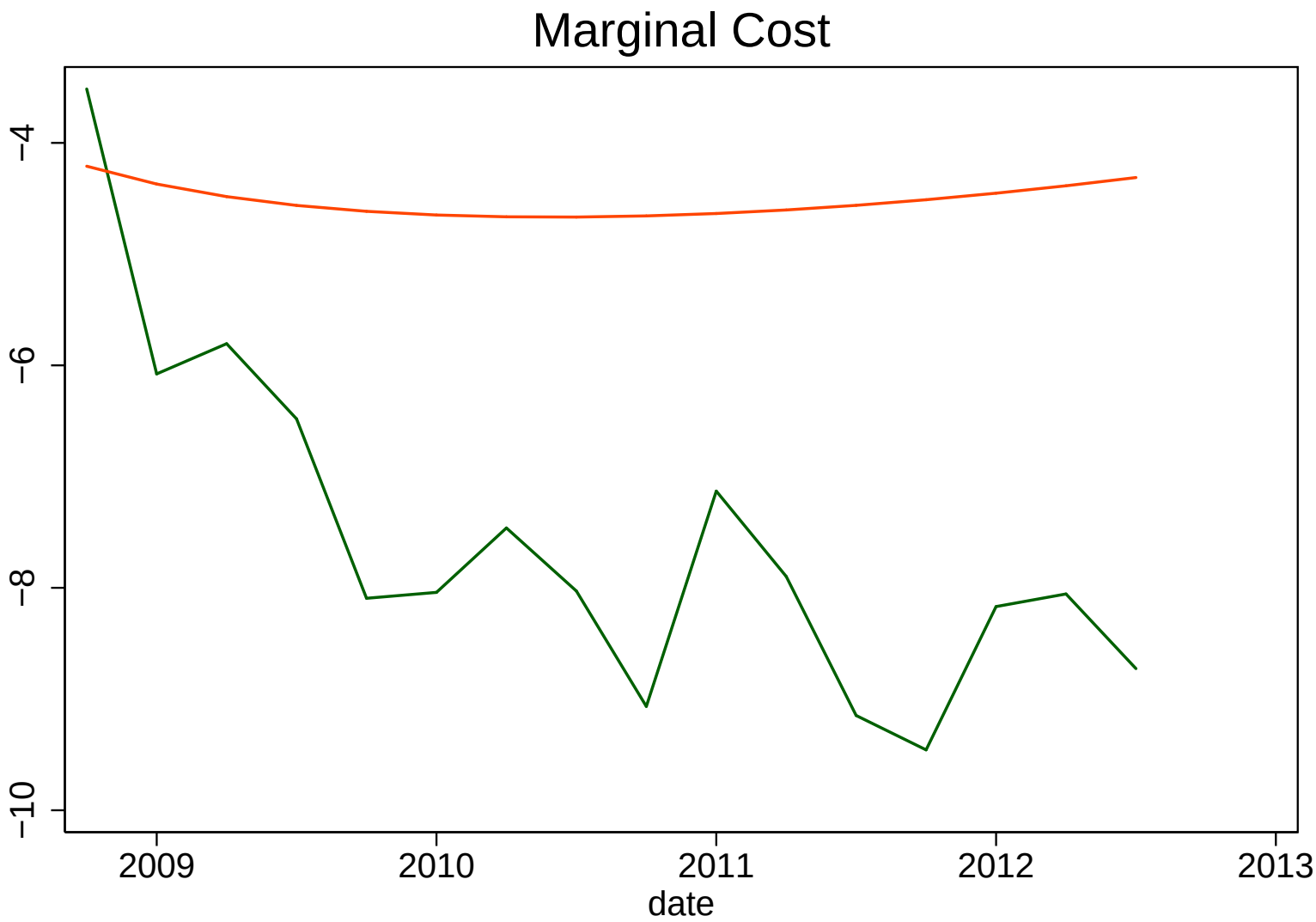
- Difference a dynamic simulation from 2008:Q3 & 2008:Q3+
- Explore and report the implied update to the smoothed strucutral shocks

  as well as other latent and observed variables

Bottom line on the simulation

- The sim. is not obviously about the crisis.
- This sim. is an example of a shock that makes GDP follow the crisis path and inflation remains stable

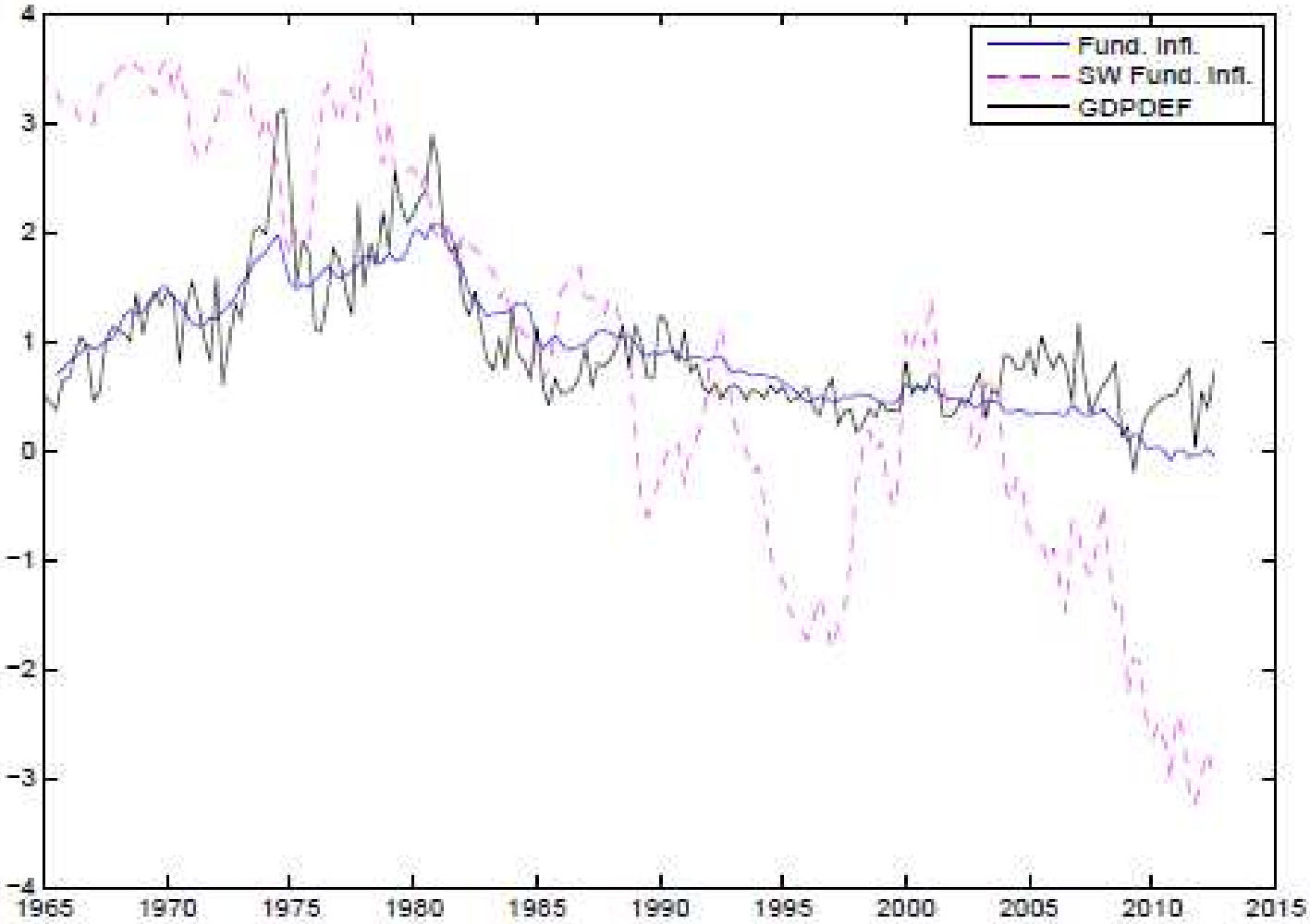
But. . .



Method 2

Look at inflation, stripped* of markup shocks in the smoothed (full sample) estimates of latent variables

Method 2


Fund. Infl.
SW Fund. Infl.
GDPDEF
4
3
2
1
0
−1
−2
−3
−4
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015

2 related comments

- 1. Very, very different exercise than the dynamic sim.

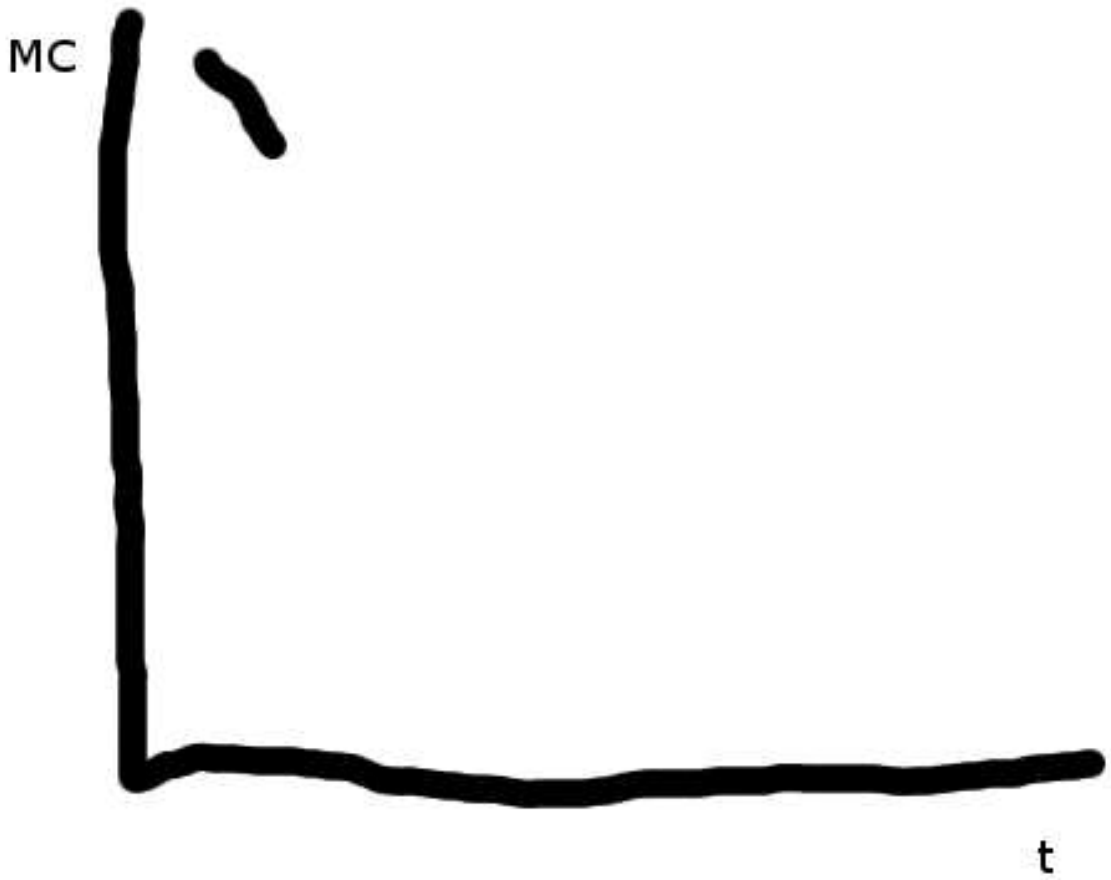
  We need to know much more about what the model thinks happened in the aftermath data

- 2. We can deduce one important thing

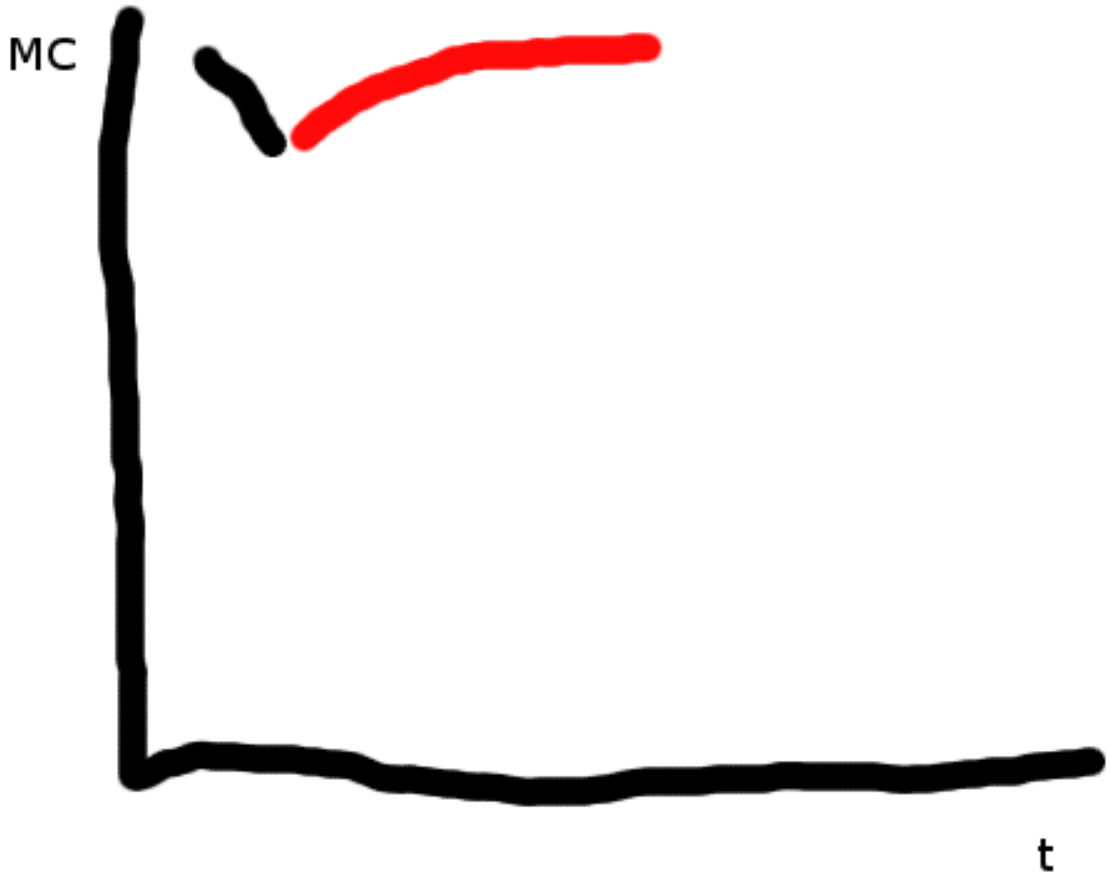
Remember

Ignoring markup shocks, how do we keep inf. stable with falling MC?

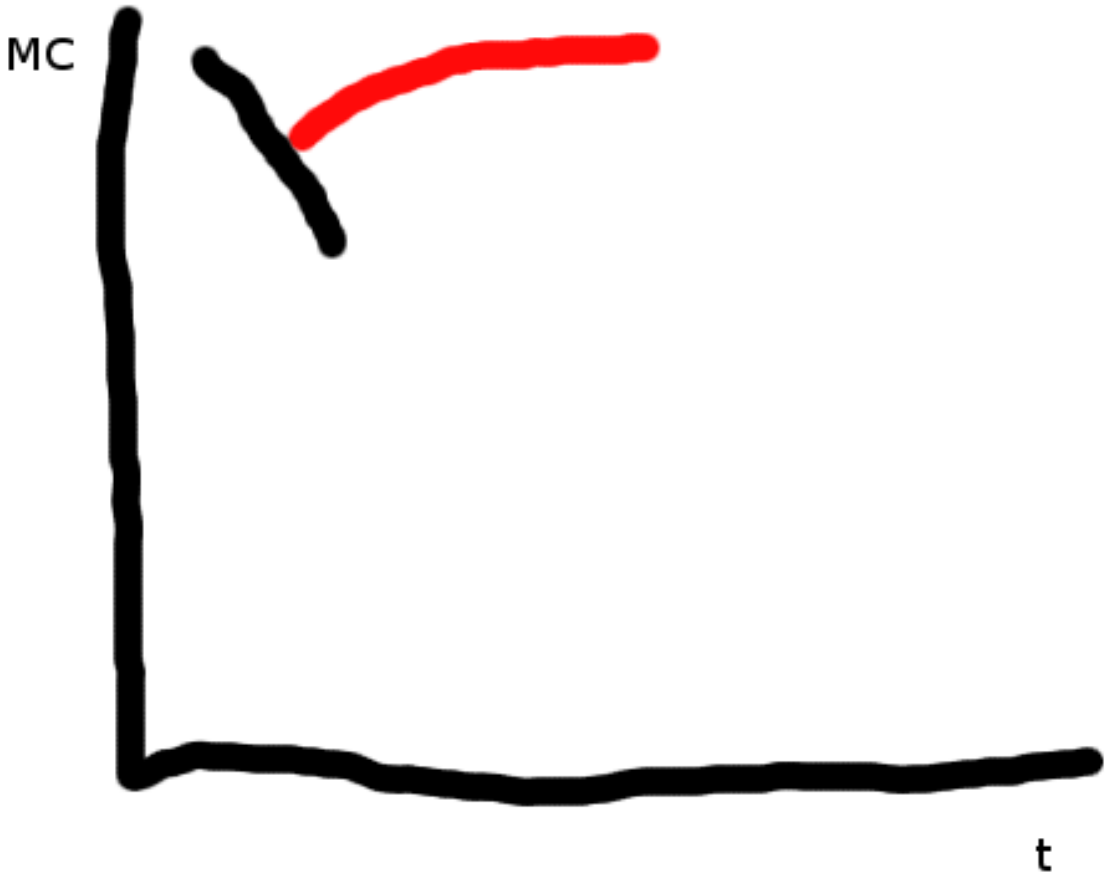
MC



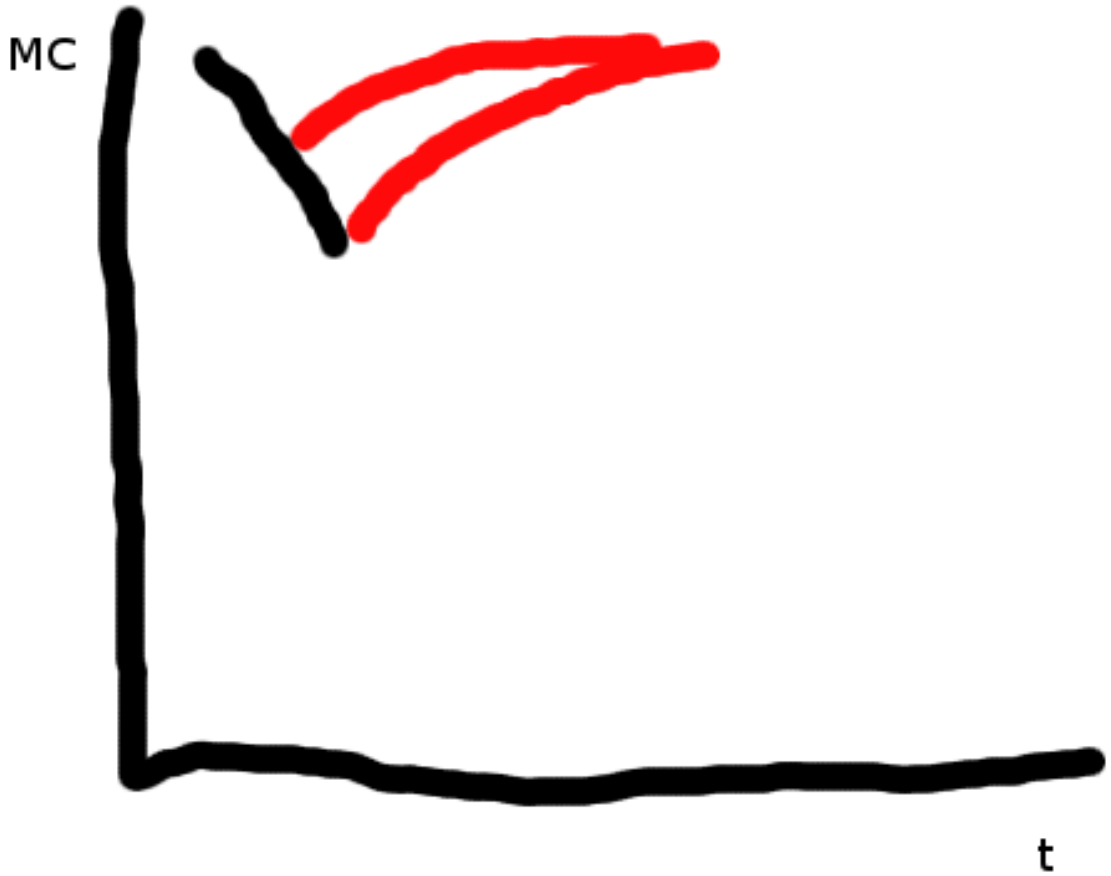
MC and forecast



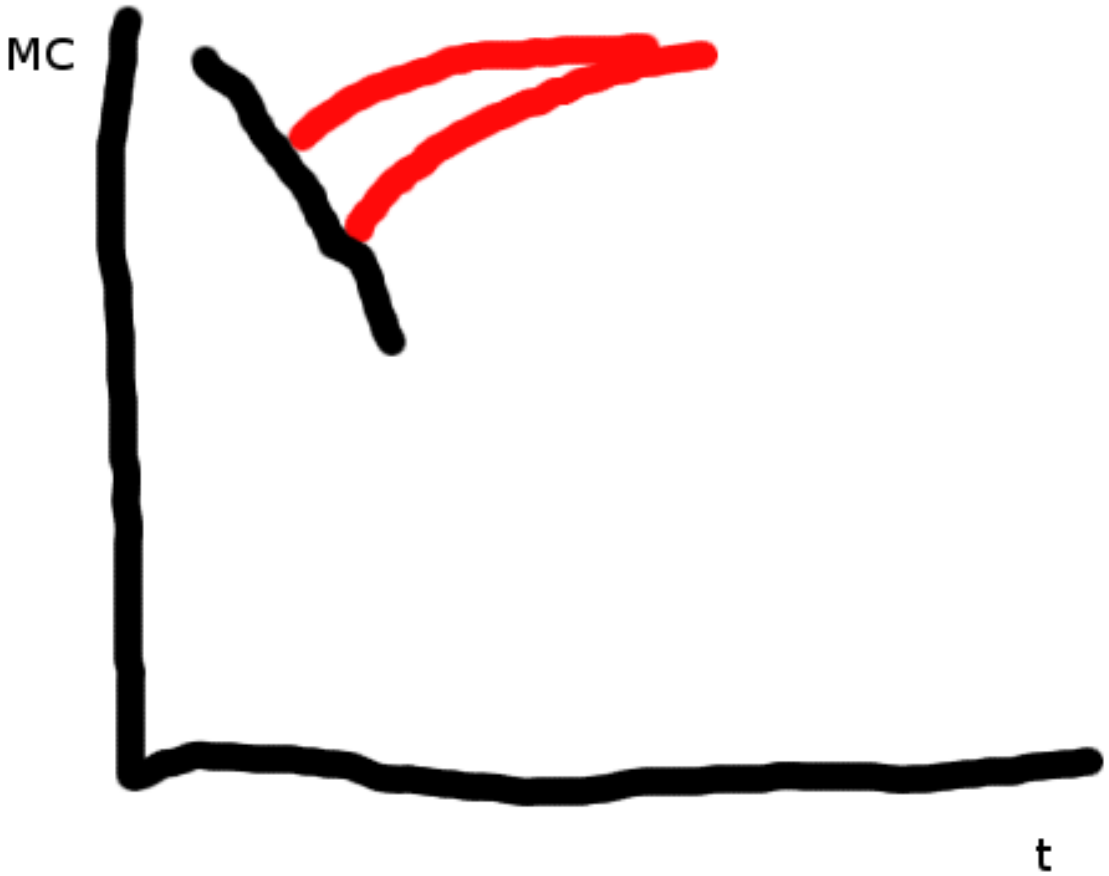
Doh!



Surely it’ll come back



Doh!

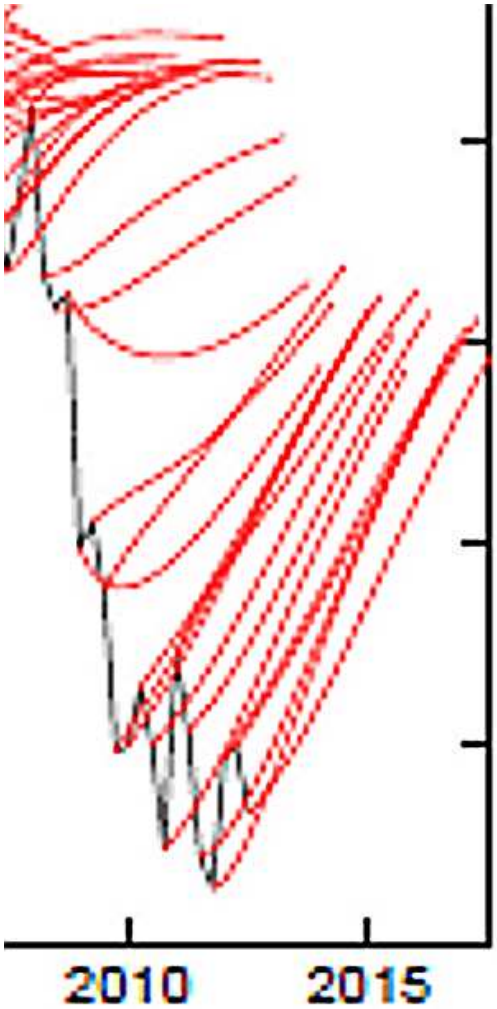


Surely it’ll come back

Doh!

And so forth

Whiskers



Hall problem, now 2 solutions

- Old: Highly implausible sequence of markup shocks
- New: Highly implausible sequence of shocks driving MC

Defense in the paper

- The NKPC-based expectation has similar RMSPE to ‘natural’ benchmarks
  - To me, largely irrelevant

The issue: What is an ‘explanation’?

- This multi-year sequence of ‘surprises’ is an extreme tail event

  Of course, low probability sequences happen

- But should be clear when our ‘explanation’ is more or less:

  Rare s$***$ happens.

For example,

- Policy implications? Lesson for aftermath of other financial crises?
- None, Forget it, won’t happen again.

Suggestion

- We can properly evaluate the ‘freakishness’ of stable inflation in the face of falling MC.

  Faust-Gupta, posterior predictive analysis

- Less intuitive, but more relevant than the forecast benchmark exercises

Fairly General Result

- Macroeconomics focusses on repeated, troubling, events
- Current DSGE models think the world is very, very smooth
- In these models, the main objects of our studies are repeated instances of similar freak events

  Collectively unimaginably unlikely

My view of this paper and lierature

- We are at very early stage in DSGE modelling of business cycles and crises
- This paper is exactly the kind of work we need

  These authors are the very best in the field

My view of this paper and lierature

- Many opportunities to more fully explore the Hall puzzle
- and strenths and weaknesses of SW-BGG in this regard