

The Effects of Monetary and Fiscal Policies: Analysis Using a Macro-Modelbase

Volker Wieland

ECB*, CFS and Goethe University of Frankfurt

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*•Disclaimer: Duisenberg Research Fellow. The views expressed should not be attributed 1
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Outline

1. A quick look at the development of an archive of macroeconomic models for policy analysis (Macro-Modelbase).
2. Monetary versus fiscal stimulus – some model comparisons.
3. Some issues concerning the economic outlook in the midst of financial crisis.

1. Quantitative models for managing macroeconomic risks

- Economy-wide dynamic stochastic models that may be used by
 - central banks and finance ministries for designing stabilization policies that help reduce macroeconomic risk.
 - business economists to assess macroeconomic fluctuations and likely policy responses, as an input for risk management at asset managers, banks, other large enterprises.

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A platform for model comparison: *MacroModelBase*

- Initiative of J. Taylor and V. Wieland to create a public archive of macroeconomic models on a common platform. Part of EU-sponsored network on optimal monetary and fiscal policy.
 - Tool to encourage comparative instead of insular approach to model-based research.
 - Tool to provide policy advice at central banks and treasuries by comparing competing models, or across different economies.
 - Tool for quantitative assessments of macroeconomic risks and likely policy reactions for asset managers, banks, etc.

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Dynare Model Base
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1 Small Calibrated Models
  1.1. NK RW97: Simple NewKeynesian model as in Woodford & Rotemberg (1997)
  1.3. NKHy CGG99: Hybrid NK model as in Clarida, Gali, Gertler (1999)
  1.4. NK2C CGG02: Two-Country NK model as in Clarida, Gali, Gertler (2002)
2 Estimated US Models
  2.1. US FM95: Small US model by Fuhrer & Moore (1995)
  2.2. US MSR04: Small US model by FRB Monetary Studies, Orphanides & Wieland (2004)
  2.3. US FRB03: FRB-US model linearized by Levin, Wieland, Williams (2003)
  2.4. US FRB08: FRB-US model 08 linearized by Laubach (2008)
  2.5. US FRB08mx: FRB-US model 08 mixed expectations, linearized by Laubach (2008)
  2.6. US SW07: US optimization-based model by Smets & Wouters (2007)
  2.7. US ACEL05: Small US model by Altig, Christiano, Eichenbaum & Linde (2004)
  2.8. US ACEL05_2: without variable ordering
  2.9. US ACEL05_3: without variable ordering & without wage bill in advance financi
3. Estimated Euro Area Models
  3.1. EA CW05ta: Small Euro area model/Taylor-contracts by Coenen & Wieland (2005)
  3.2. EA CW05fm: Small Euro area model/Fuhrer-Moore contr. by Coenen & Wieland (20
  3.3. EA ECBAWM: ECB Area Wide model linearized as in Kuester & Wieland (2005)
  3.4. EA SW03: Euro area optimization-based model by Smets and Wouters (2003)
4. Estimated/calibrated Multi-Country Models
  4.1. G7 TAY93 : model of the G7 economies by Taylor (1993)
  4.2. G3 CW03: model of the G3 economies by Coenen and Wieland (2002)
  4.3. NK GEM03: Small open economy model by Laxton & Pesenti (2003)
  4.4. NK Sigma07: SIGMA: Two-country Model by Erceg, Guerrieri, Gust (2007)

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Small, calibrated models

US: FRBUS, ACEL, SW, ...

EUR: AW-ECB, CW, SW ...

Multi-Country: Taylor, CV
GEM-IMF, SIGMA-Fed

Solving 4 US Models

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Currently Solving: US ACEL05
No Fiscal Policy Shock is available for Model: US ACEL05
Elapsed time is 3.266117 seconds.
Elapsed cputime is 1.7725 seconds.

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Currently Solving: US SW07
Elapsed time is 2.428042 seconds.
Elapsed cputime is 2.0329 seconds.

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Currently Solving: G7 TAY93
Elapsed time is 22.986525 seconds.
Elapsed cputime is 22.4122 seconds.

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Currently Solving: US FRB03
Elapsed time is 72.421689 seconds.
Elapsed cputime is 71.2725 seconds.

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Total elapsed cputime: 105.5718 seconds.

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2. Effects of Monetary and Fiscal Policies

- January 2008, Policy Brief: Monetary vs Fiscal Stimulus in the United States.
- Shocks:
 - Surprise interest rate easing, government spending package, tax refunds.
- Rules:
 - Effect of shocks depend on the systematic component of monetary and fiscal policies that continues to be followed subsequently.
 - Interesting unexplored questions concerning fiscal rules.

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January 2008

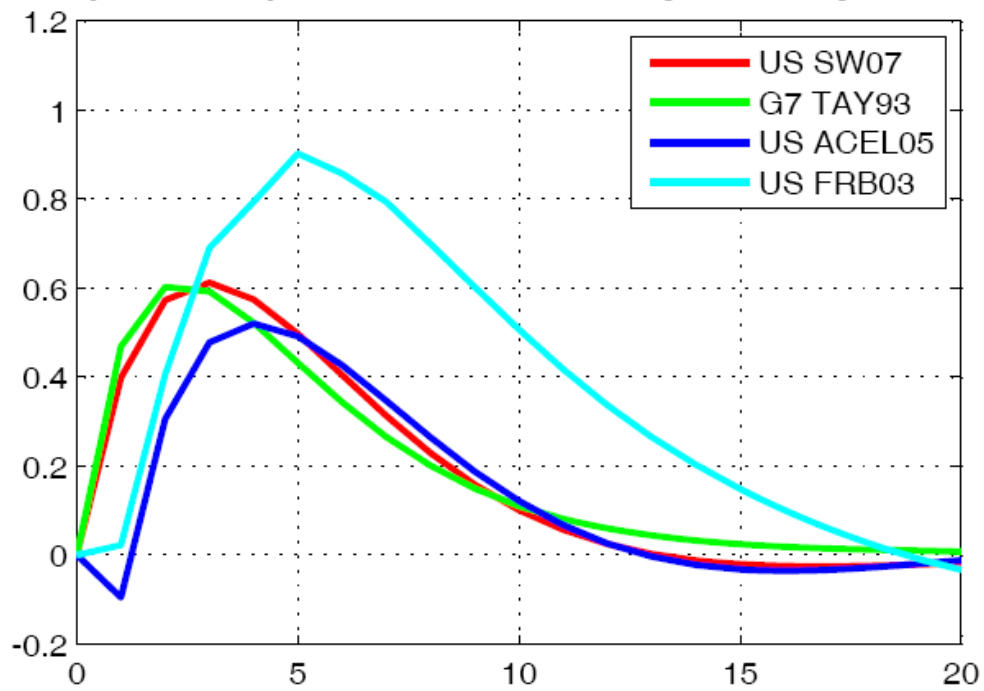
In one recently released paper, The Case for Fiscal Stimulus to Forestall Economic Slowdown (January 18, 2008), the Council of Economic Advisers in the Executive Office of the President writes:

Effectively timed and temporary fiscal policy measures could help reduce the risk of a broader economic downturn ... fiscal action could boost near-term economic growth,

... research indicates that monetary policy affects the economy over time rather than immediately, with the greatest impact in the year following rate cuts, not in the year in which the cuts are made.

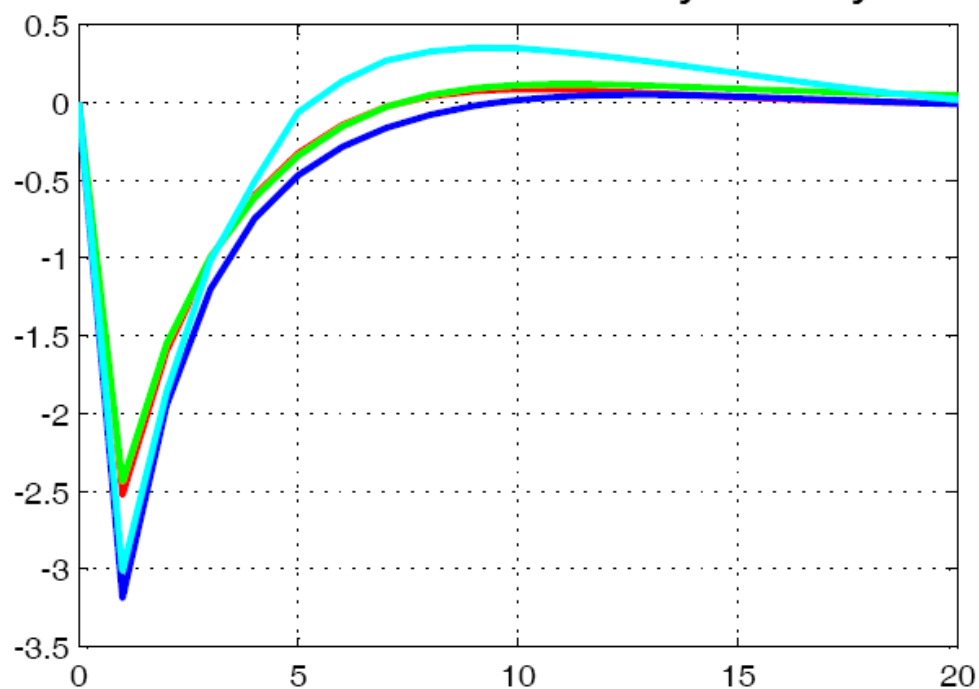
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Output Gap IRF -Monetary Policy Shock

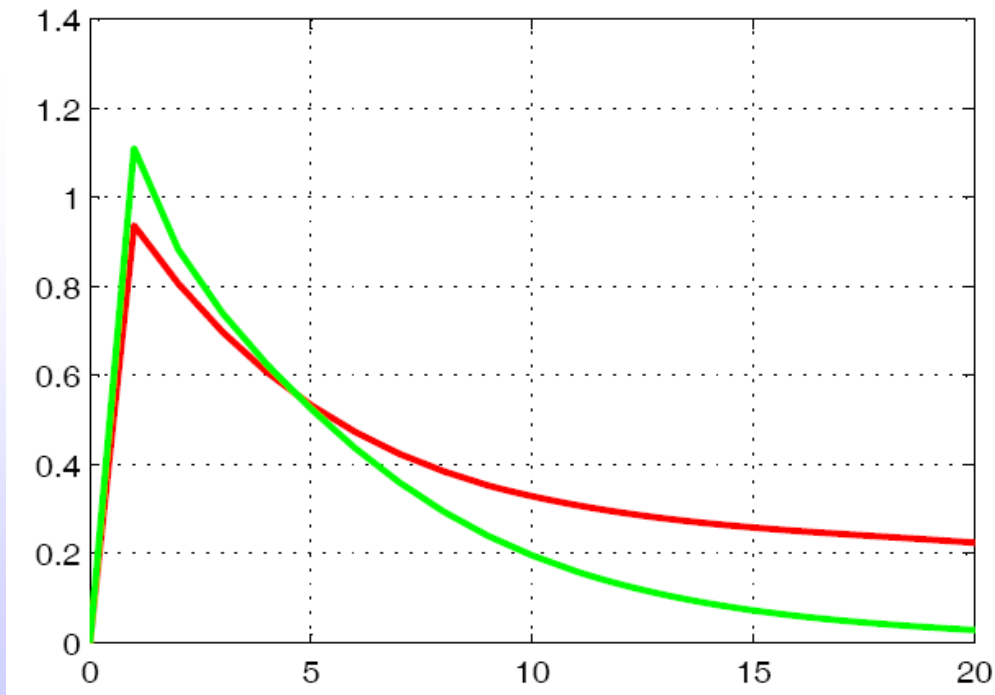


Reduction of federal funds rate by 3 percentage points.⁹

Interest Rate IRF -Monetary Policy Shock



Output IRF - Fiscal Policy Shock



Increase in government spending by 1 percent of GDP₁

Table 2: GDP Increase due to Fiscal Stimulus as Estimated by Elmendorf and Furman (2008)

Fiscal Stimulus (1 Percent of GDP)	Percent Increase in GDP		
	2nd Qtr. 2008	3rd Qtr. 2008	1st Qtr. 2009
Sustained Increase in Federal Purchases	1.0	1.0	0.7
One-Off Tax Rebate (20% spent)	0.30	0.0	0.0
One-Off Tax Rebate (50% spent)	1.0	1.2	-0.2

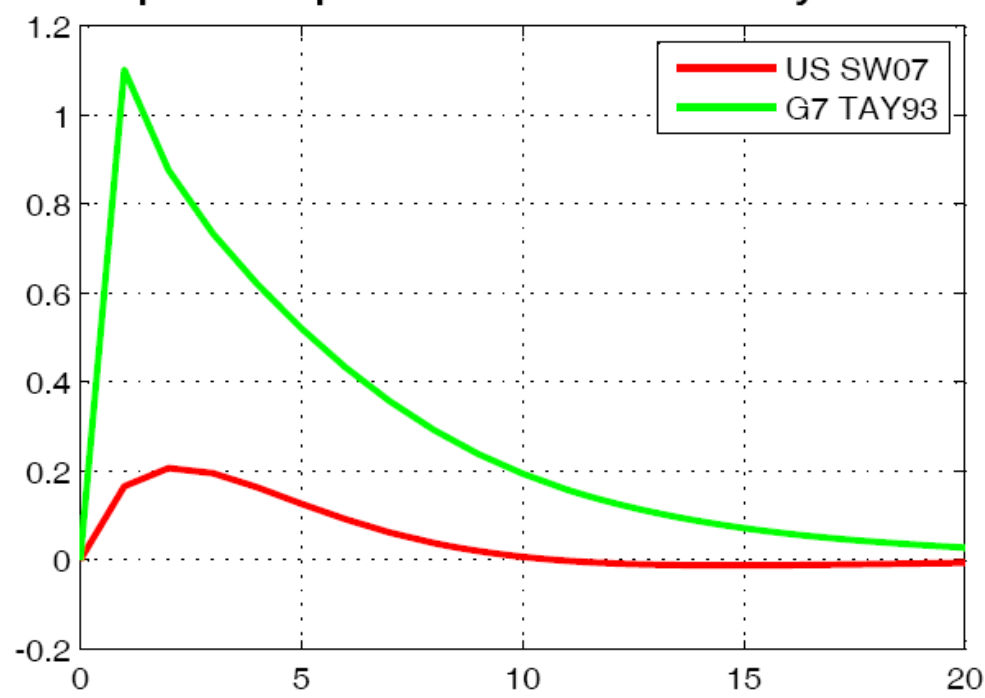
Source: The calculations by Elmendorf and Furman (2008) are based on the Federal Reserve's Model.

Table 3: GDP Increase Achieved by Fiscal Stimulus in Other Models

Fiscal Stimulus (1 Percent of GDP)	Percent Increase in GDP		
	2nd Qtr. 2008	3rd Qtr. 2008	1st Qtr. 2009
Sustained Increase in Federal Purchases			
Taylor's Model	1.1	0.9	0.6
Small ECB Model	0.8	0.7	0.5
One-Off Increase in Federal Purchases			
Taylor's Model	1.0	-0.1	0.0
Small ECB Model	0.9	-0.1	0.0
One-Off Tax Rebate			
Taylor's Model	0.15	0.08	0.03
Small ECB Model	0.0	0.0	0.0

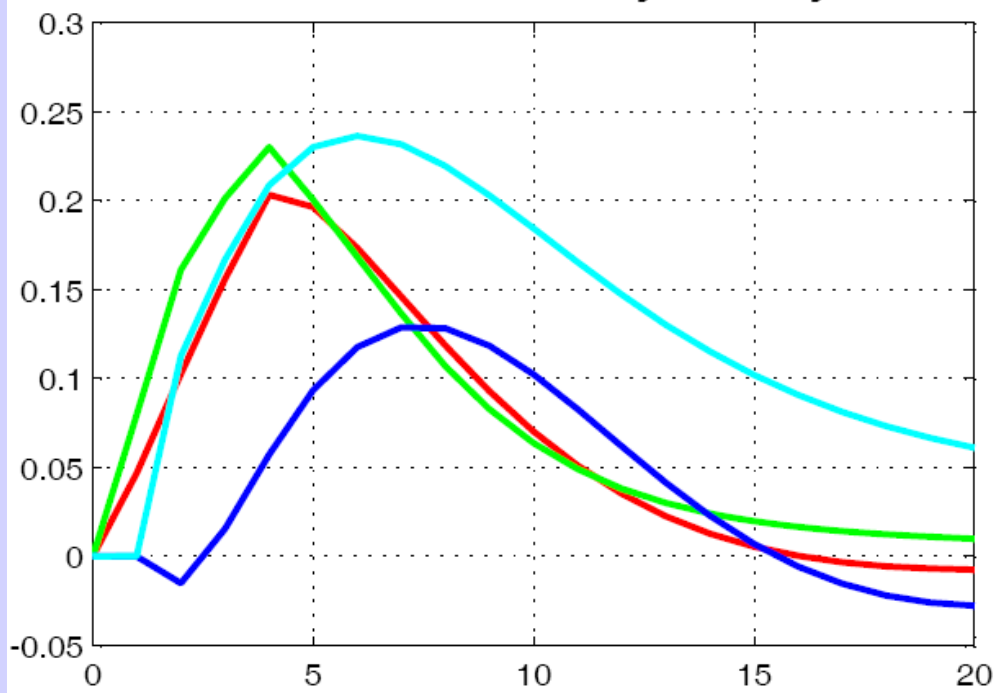
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Output Gap IRF -Fiscal Policy Shock



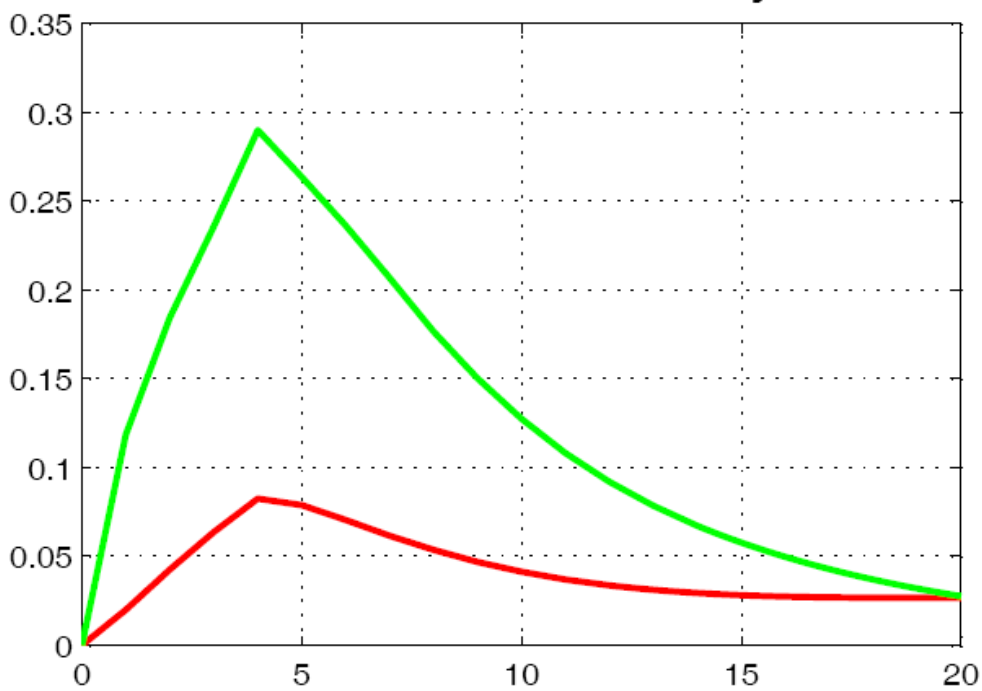
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Inflation IRF - Monetary Policy Shock



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Inflation IRF - Fiscal Policy Shock



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Fiscal vs Monetary Stimulus?

January:

- FOMC actions will boost growth depending on systematic policy response (also exchange rate depreciation.)
- Fiscal stimulus takes more time and tax rebates may well not boost spending as much as expected.

Afterwards

- In my view Fed easings and the US\$ depreciation were the main factors keeping up economic activity in the US more than most expected up to the summer.

Going forward

- government resources are better spent on the financial system rescue package than on stimulus packages.
- better think about the formulation or revision of fiscal rules than management by shocks.

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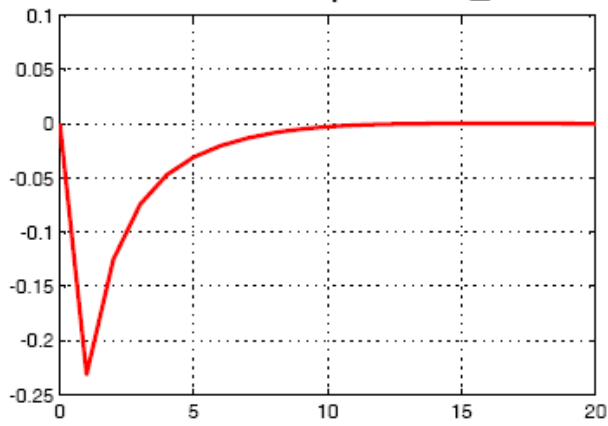
3. Issues Regarding the Outlook

- Until summer
 - US Housing correction
 - Long rise in energy prices
 - Euro appreciation
 - Credit shock (financial shock)
- More recently
 - Serious threat of dramatic financial meltdown with severe consequences for real economy.

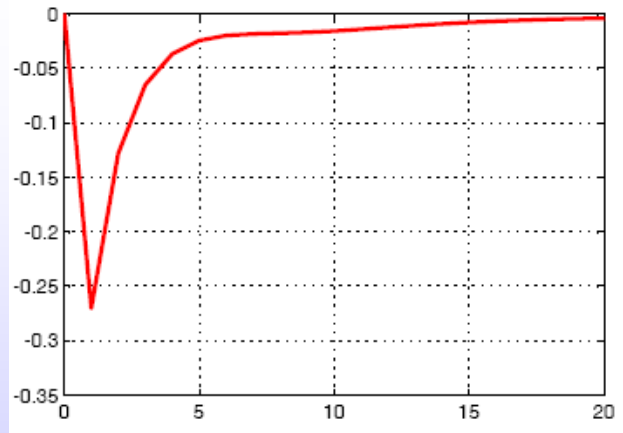
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Taylor model: Risk Premium Shock

IRF of Output to r_{l0}



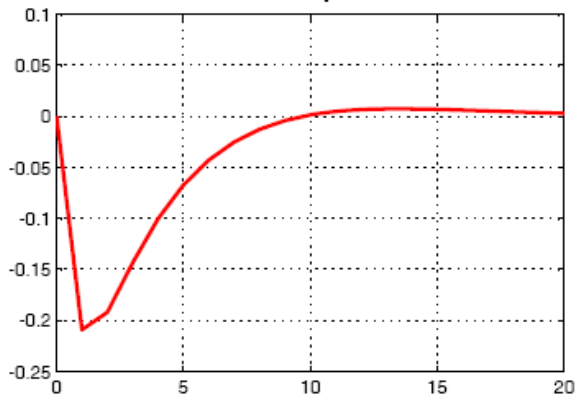
IRF of Interest Rate to r_{l0}



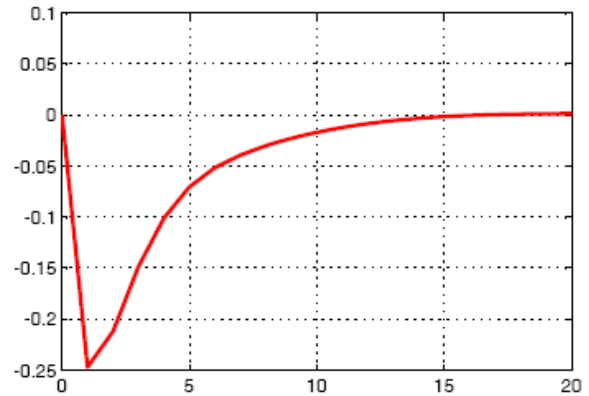
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SW Model: Risk Premium Shock

IRF of Output to eb

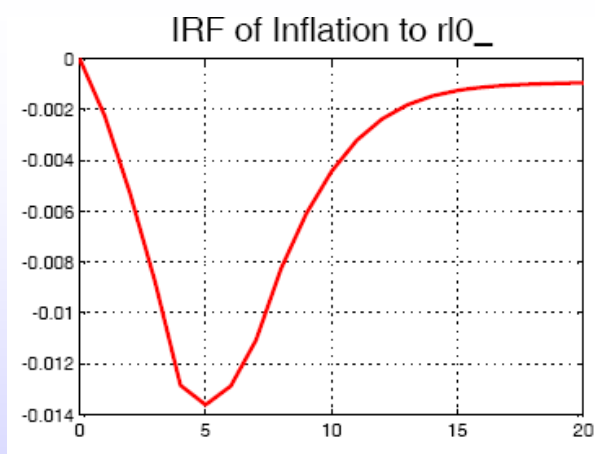


IRF of Interest Rate to eb



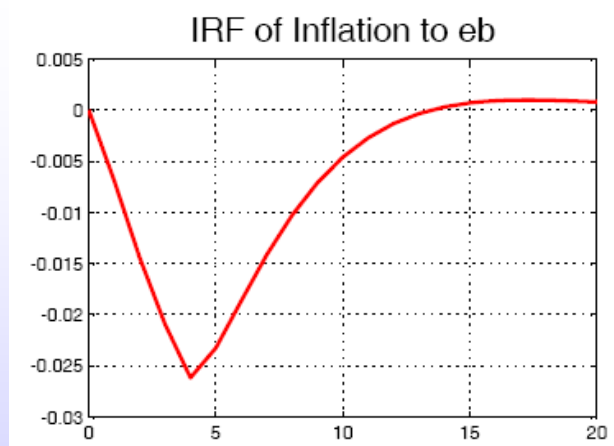
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Taylor model: Risk Premium Shock



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SW Model: Risk Premium Shock



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Issues for the Outlook

- ❑ More recently
 - ➔ Credit market shutdown. Serious threat of global financial meltdown with severe consequences for real economy.
 - ➔ Global rescue package: market guarantees, asset purchases, banking sector recapitalization/ deleveraging/scaling down, lower interest rates, fiscal stimulus.
- ❑ Long-run consequences
 - ➔ Government debt, deflation scare, Re-Inflation?

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Issues for the Outlook

- ❑ Government debt:
 - ➔ great time for (solvent) governments to borrow. Possible long-run consequences for tax payers. Depends on how well the bailout is designed (Sweden).
- ❑ Deflation scare:
 - ➔ Falling commodity prices, severe recession expectation, lead to lower inflation and possibly deflation. C.w.: Lower interest rates aggressively to avoid liquidity trap (!?).
- ❑ Inflation:
 - ➔ Excessive debt may lead to pressure for monetization and higher inflation rates down the road.
 - ➔ Also, low interest rates with the objective of avoiding deflation played an important role in the buildup of the bubble.

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