

Fiscal Backing for Monetary Policy: What If It Ain't There?

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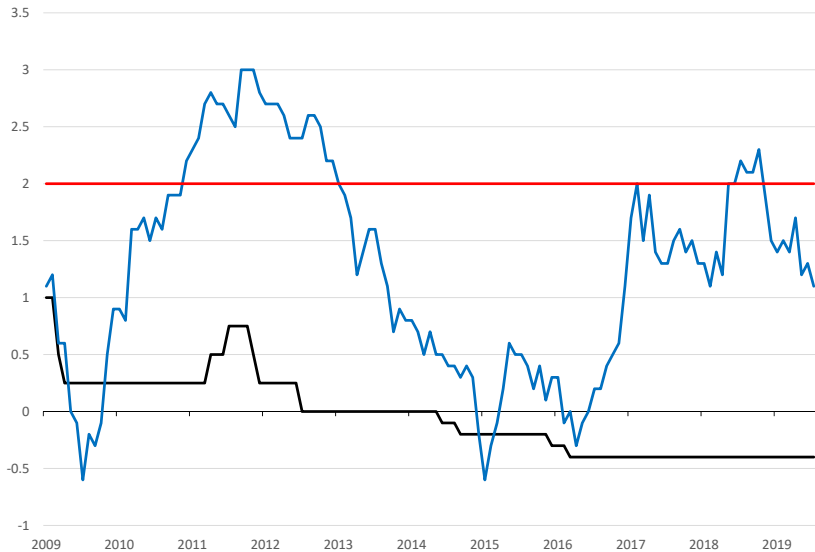
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Monetary Policy: Bridging Science and
Practice, ECB

October 2019

What's Wrong with These Pictures?

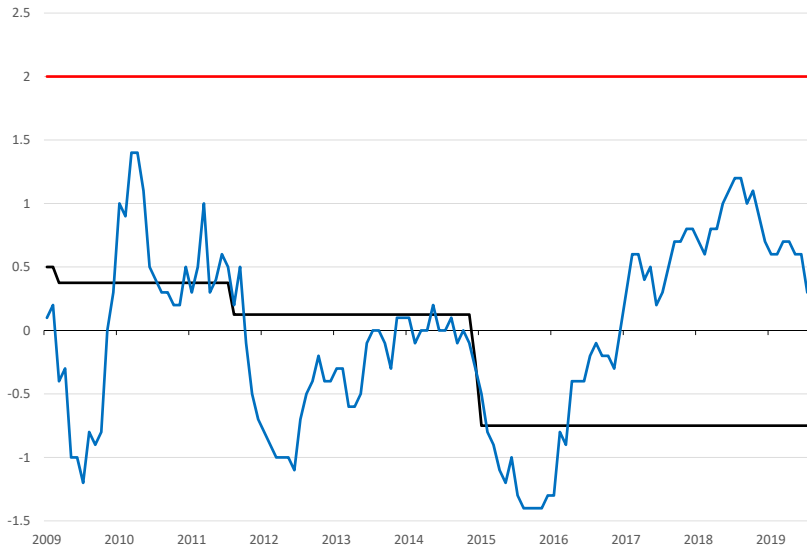
Euro Area Monetary Policy & Inflation



Policy rate, inflation rate & target inflation rate

What's Wrong with These Pictures?

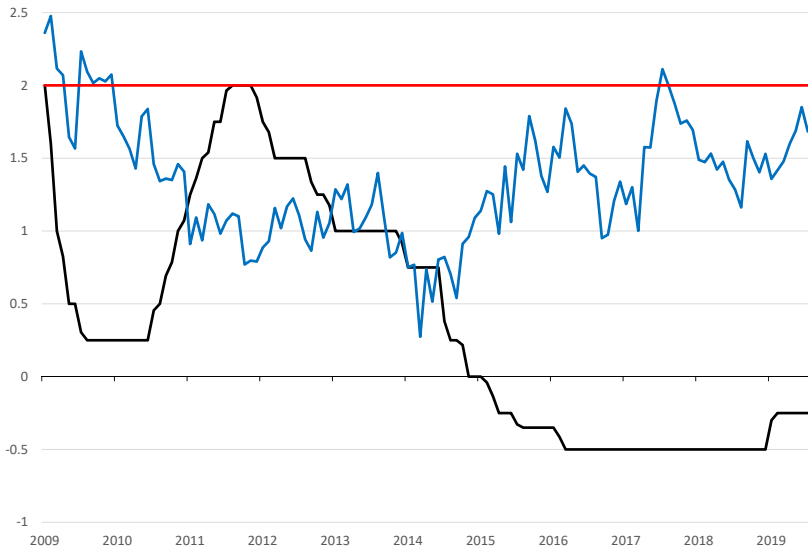
Swiss Monetary Policy & Inflation



Policy rate, inflation rate & target inflation rate

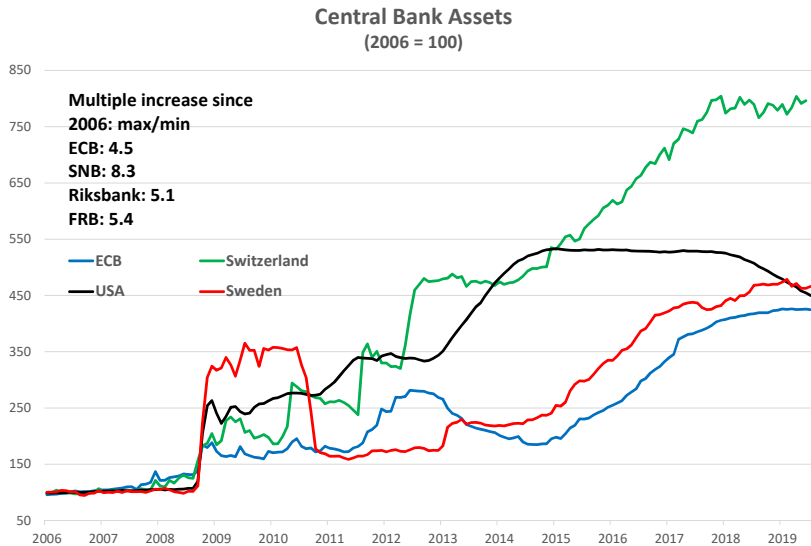
What's Wrong with These Pictures?

Swedish Monetary Policy & Inflation



Policy rate, inflation rate & target inflation rate

What's Wrong with These Pictures?



Many fold increases in central bank balance sheets

What's Wrong with Inflation?

- ▶ Does fiscal practice undermine monetary science?
- ▶ How do the fiscal rules being adopted in Europe interact with monetary policy?
- ▶ Message from the science:

For monetary policy to successfully target inflation, fiscal policy must provide “appropriate backing”

- ▶ Do existing fiscal rules deliver perverse backing?

Intuition

- ▶ In formal models, macro policy has two prime objectives
 1. uniquely determine inflation
 2. stabilize government debt
- ▶ Inflation-targeting regimes clearly assign tasks
 1. monetary policy determines inflation
 2. fiscal policy stabilizes debt
- ▶ These assignments hide a dirty little secret:

While stabilizing debt, fiscal policy must also back monetary policy

Institutional Designs Deny the Secret



Monetary
Policy

Fiscal
Policy

Illustrative Model

- ▶ Representative household lives forever
 - ▶ receives constant endowment of goods, y , each period
 - ▶ chooses consumption & bonds to maximize $\mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t u(c_t)$
 - ▶ bonds sell at P_t^b & pay geometrically decaying coupons of ρ^{j-1} , for a j -period bond
- ▶ Two equilibrium conditions

Fisher Equation $\frac{1}{R_t} = \beta \mathbb{E}_t \frac{1}{\pi_{t+1}}$

Term Structure $P_t^b = \mathbb{E}_t R_t^{-1} (1 + \rho P_{t+1}^b)$

Illustrative Model

- ▶ Model designed to examine how fiscal policy reacts to monetary policy actions
- ▶ Monetary policy: sets short-term interest rate, R_t

Monetary Policy
$$\frac{1}{R_t} = \frac{1}{R^*} + \alpha \left(\frac{1}{\pi_t} - \frac{1}{\pi^*} \right) + \varepsilon_t$$

- ▶ ε_t : temporary deviation from pure inflation targeting, $\mathbb{E}_t \varepsilon_{t+j} = 0, j > 0$
- ▶ positive ε_t is expansionary monetary policy
- ▶ when $\alpha > 0$, above-target inflation brings higher R_t
- ▶ $\alpha > 1$: the Taylor principle

Illustrative Model

- ▶ Fiscal policy: sets primary surplus, s_t

Fiscal Policy
$$s_t = s^* + \gamma \left(\frac{P_{t-1}^b B_{t-1}}{P_{t-1}} - b^* \right)$$

- ▶ when $\gamma > 0$, above-target debt bring higher s_t
 - ▶ to return debt to target, surplus must respond enough to cover interest payments & retire some debt
 - ▶ this requires $\gamma > r$, r is the real interest rate
-
- ▶ But notice: fiscal rule entails direct response to price level when $\gamma > 0$
 - ▶ higher P_t leads to lower s_{t+1}

Required Policy Coordination

- ▶ Choices of policy parameters, (α, γ) , determine **joint monetary-fiscal regime**
- ▶ Two distinct policy mixes achieve prime objectives
 1. uniquely determine inflation
 2. stabilize government debt
- ▶ I focus only on the conventional inflation-targeting regime
 - ▶ monetary policy satisfies Taylor principle, $\alpha > 1$
 - ▶ fiscal policy returns debt to target, $\gamma > r$
- ▶ **Even in this IT regime, fiscal policy must support monetary policy**

Equilibrium Inflation

- ▶ In this monetary-fiscal regime

Equilibrium Inflation $\frac{1}{\pi_t} = \frac{1}{\pi^*} - \frac{1}{\alpha} \varepsilon_t$

- ▶ If no shocks, inflation always on target
- ▶ Positive shock—expansion—raises inflation
- ▶ Tempting to infer. . .
 - ▶ only monetary policy choices— π^* , α , ε_t —matter for inflation
 - ▶ fiscal policy irrelevant for inflation

Do not submit to temptation

What Is Fiscal Policy Doing?

- ▶ Full equilibrium requires stable debt
- ▶ Transitory shock, so bond prices do not change
- ▶ Debt evolution comes from government's budget

$$\frac{P^b B_t}{P_t} + s^* - \gamma b^* = \left[R^b \left(\frac{1}{\pi^*} - \frac{1}{\alpha} \varepsilon_t \right) - \gamma \right] \frac{P^b_{t-1} B_{t-1}}{P_{t-1}}$$

- ▶ Monetary expansion, $\varepsilon_t > 0$, raises inflation
 - ▶ reduces real debt service, R^b / π_t
 - ▶ reduces real value of debt held by the public, $P^b B_t / P_t$
- ▶ Fiscal rule: lower real debt service produces lower future primary surpluses

What Is Fiscal Policy Doing?

A monetary expansion that raises inflation is backed by a fiscal expansion that returns debt to target

- ▶ This fiscal rule achieves two distinct things
 1. it stabilizes debt
 2. it backs monetary expansion with fiscal expansion
- ▶ But don't have to think in terms of "backing"
- ▶ Instead ask: **What ensures the bond market clears?**
- ▶ (We usually apply Walras' law uncritically)

A Different Perspective

- ▶ In this model, demand for nominal bonds is simple
 - ▶ demand is homogeneous of degree 1 in P_t
 - ▶ demand is decreasing in bond price, P_t^b
 - ▶ bonds derive value from discounted stream of cash flows—primary surpluses
 - ▶ nominal demand for the government bond portfolio, B_t^d

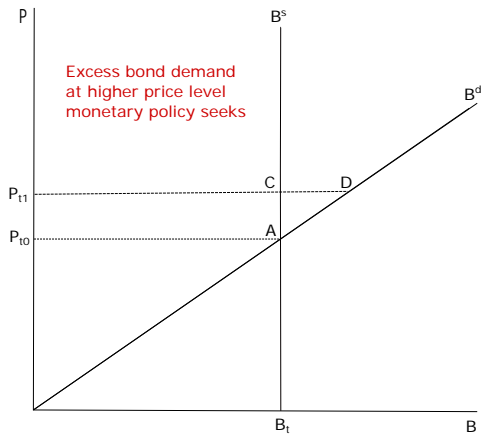
$$B_t^d = \frac{1}{P_t^b} P_t \mathbb{E}_t \sum_{j=1}^{\infty} \beta^j s_{t+j}$$

$$= \frac{1}{P_t^b} P_t \mathbb{E}_t PV(S_{t+1})$$

Bond Market Equilibrium

- ▶ Economy initially in equilibrium at price level P_{t0}
- ▶ Monetary expansion raises inflation for a single period
- ▶ Price level is at the permanently higher level P_{1t}

Bond Market Equilibrium



At new price level, CD is excess demand for bonds
 B^s can rise, fall, stay unchanged, depending on s_t
Figure drawn for $s_t = 0$

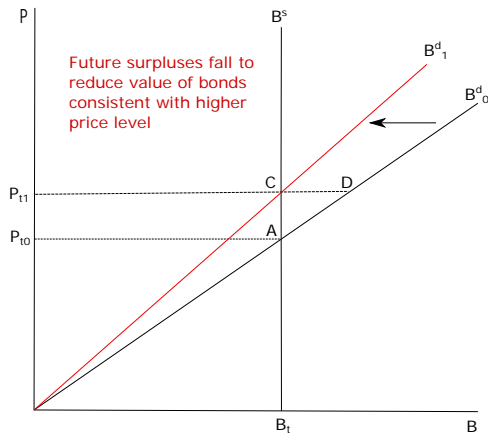
Discussion

- ▶ Excess demand for bonds arises for clear reasons
- ▶ Monetary expansion reduces the real value of bonds
- ▶ If the expected cash flows—surpluses—do not fall. . .
 - ▶ the goods cost of a bond has fallen
 - ▶ but the goods payoff—surpluses—is unchanged
 - ▶ makes bonds attractive
 - ▶ individuals substitute out of goods and into bonds
 - ▶ reduces aggregate demand for goods
- ▶ Bond market behavior counteracts monetary policy's aim to raise aggregate demand

Bond Market Equilibrium

- ▶ Models resolve this conflict with a convenient, **completely untested** assumption
- ▶ Models typically assume $\gamma > r$, so ...
- ▶ Lower real value of debt brings forth lower $\mathbb{E}_t PV(S_{t+1})$
- ▶ To reduce bond demand **exactly enough** to clear the bond market at the new higher price level
- ▶ This is the magic of Ricardian equivalence

Bond Market Equilibrium



$\mathbb{E}_t PV(S_{t+1})$ falls by exactly enough to eliminate excess demand

B^s can rise, fall, stay unchanged, depending on s_t

Figure drawn for $s_t = 0$

How Have Fiscal Policies Responded to Monetary Ease?

- ▶ European fiscal consolidations began as early as 2010 and really kicked in after sovereign debt troubles
- ▶ Governments have adopted aggressive rules that...
 - ▶ aim primarily at reducing government debt & running primary surpluses
 - ▶ with some provisions for countercyclical actions
- ▶ Rules designed primarily to solve **political problems**
 - ▶ certainly a legitimate concern
- ▶ But may inadvertently create economic problems

European Fiscal Rules

- ▶ It is perfectly possible for fiscal policy to stabilize debt, but not back monetary policy
- ▶ Set $\gamma = 0$ in fiscal rule, so $s_t = s^*$
- ▶ This will stabilize debt at

$$\frac{P_t^b B_t}{P_t} = \frac{s^*}{r}$$

Nail target b^* by setting target s^* appropriately

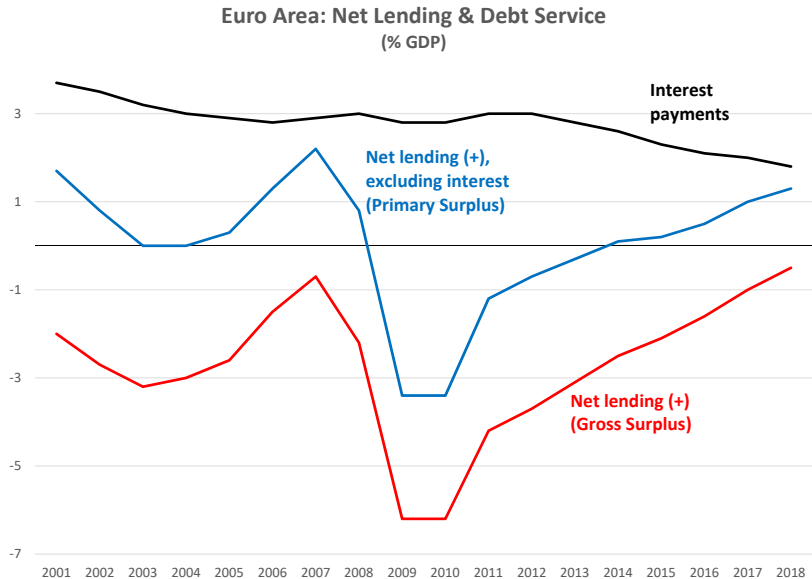
- ▶ Only one problem: P_t^b/P_t is fiscally determined

Monetary policy can choose **timing** of inflation but not entire inflation path

Problematic Fiscal Rules

- ▶ The essence of fiscal support for monetary policy is that surpluses must respond to the price level
 - ▶ a *nominal* impact induces a *real* response
- ▶ Fiscal rules that react only to real variables will fail to back monetary policy appropriately
- ▶ We see this in the euro area, Sweden, & Switzerland

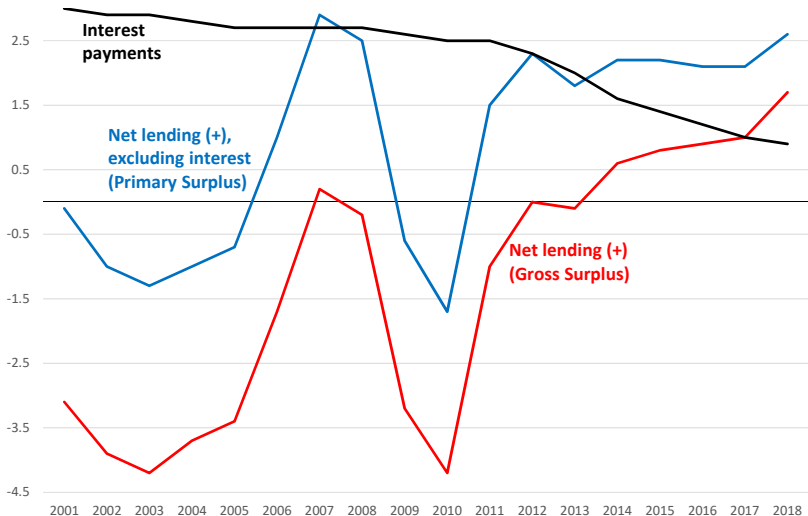
Euro Area Budget Surpluses



Declining debt service & rising surpluses

Euro Area Budget Surpluses

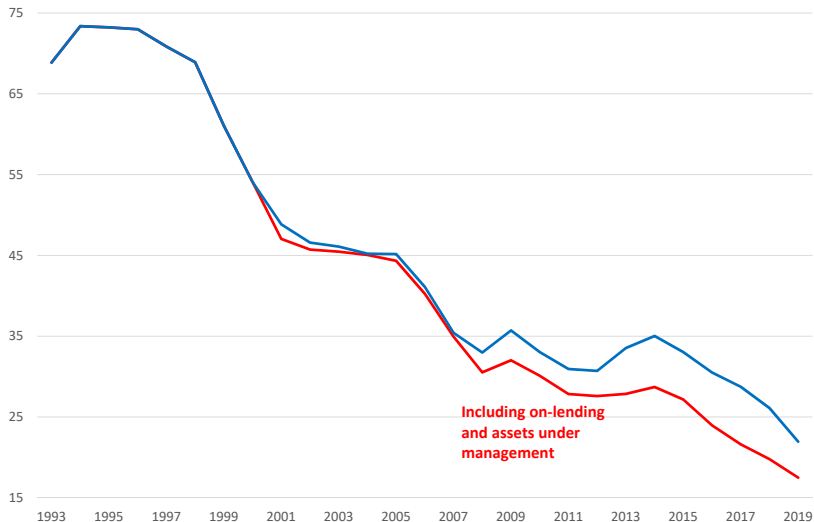
Germany: Net Lending & Debt Service
(% GDP)



Rapidly declining debt service & rapidly rising surpluses

Swedish Government Debt

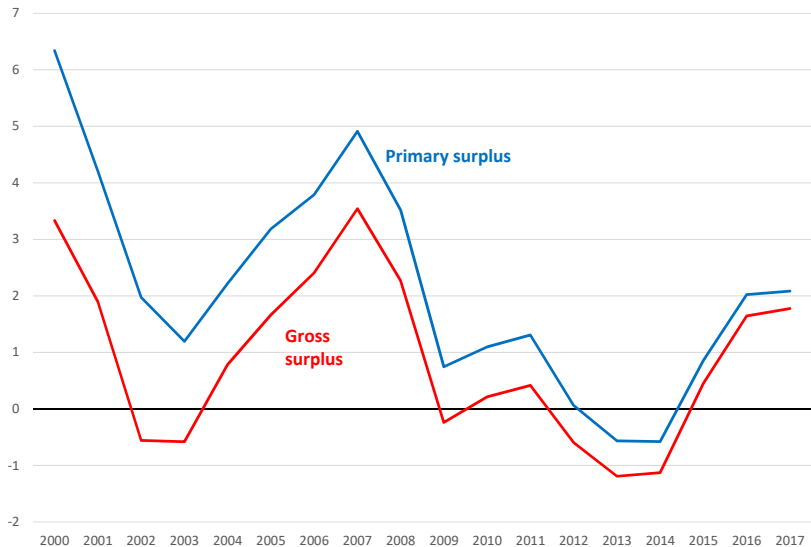
Swedish Central Government Debt
(% GDP)



Now well below the 35% debt anchor

Swedish Budget Surpluses

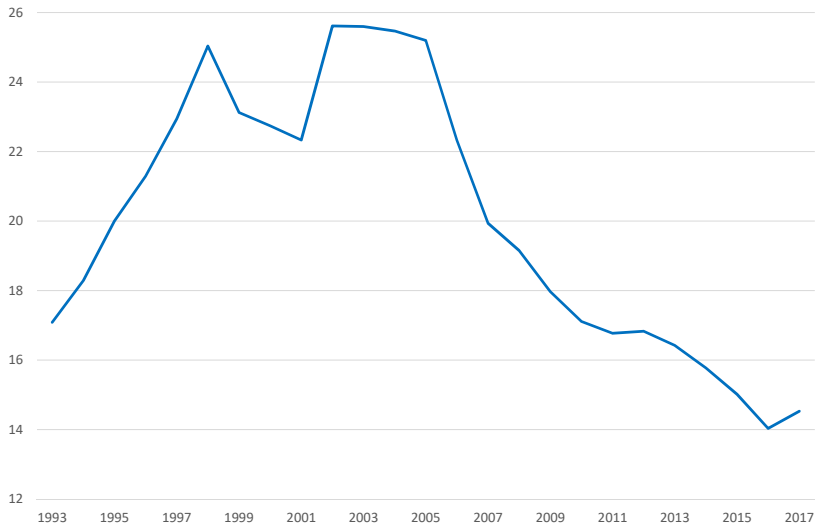
Swedish Budget Surpluses



Now well above the 0.33% net lending target

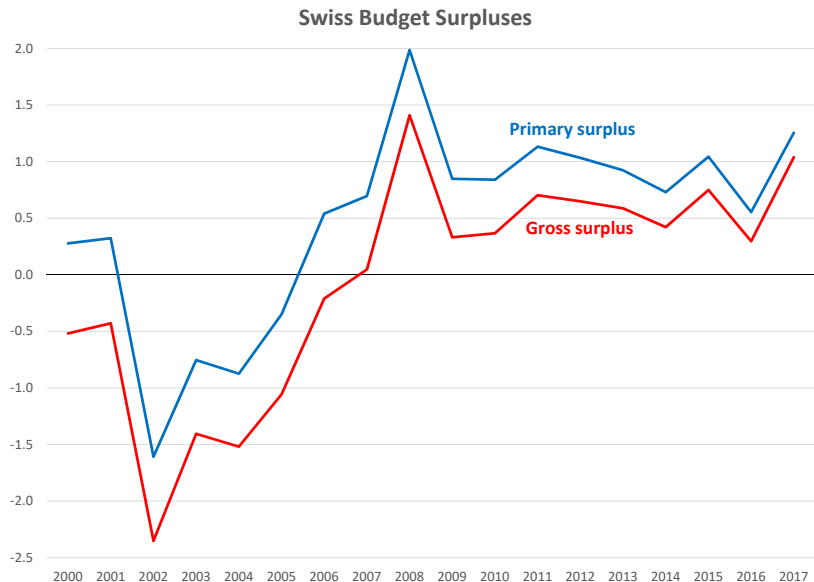
Swiss Government Debt

Swiss Central Government Debt
(% GDP)



Surpluses since before the global financial crisis

Swiss Budget Surpluses



Surpluses since before the global financial crisis

European Fiscal Rules

- ▶ I've read some of the EC's material on rules
- ▶ Fiscal Rule Strength Index...
 - ▶ only one criterion is about macroeconomic considerations
 - ▶ “resilience to shocks outside control of government”
 - ▶ only one of the four components of that criterion might refer to fiscal backing for monetary policy
 - ▶ “Are there exclusions from the rule in the form of items that fall outside authorities' control at least in the short term (e.g. interest payments, unemployment benefits)?”
- ▶ Does this permit routine fiscal support for monetary policy?

Designing Fiscal Rules

- ▶ To answer this question, need richer models
- ▶ What does fiscal backing look like when...
 - ▶ monetary policy reacts to a range of non-policy shocks?
 - ▶ monetary policy is unconventional (e.g., QE)?
 - ▶ monetary policy is at the effective lower bound?
 - ▶ there is a single monetary authority & many fiscal authorities?
 - ▶ the economy is close to its fiscal limit?
- ▶ Need to address these questions before we design fiscal rules
- ▶ Need to quantify fiscal backing

Wrap Up

- ▶ I am not calling to abandon fiscal rules
- ▶ I am calling to design rules with monetary-fiscal interactions in mind
- ▶ There is no conflict between rules that . . .
 - ▶ stabilize debt at sensible levels and
 - ▶ ensure fiscal backing for monetary policy
 - ▶ possible to address political & economic problems simultaneously
- ▶ Key lies in understanding that monetary & fiscal policies **necessarily interact**
- ▶ Denying this fact is religion, not science