

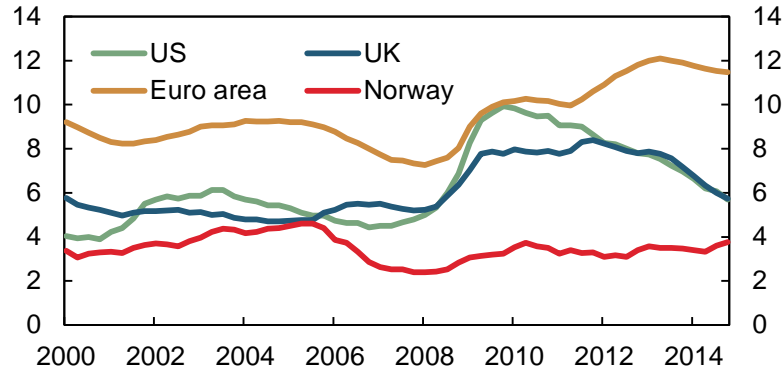


# INTEGRATING FINANCIAL STABILITY AND MONETARY POLICY ANALYSIS

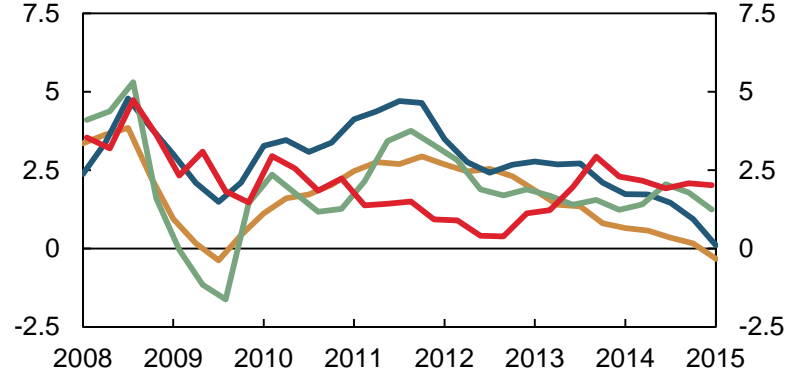
GOVERNOR ØYSTEIN OLSEN

27 APRIL 2015

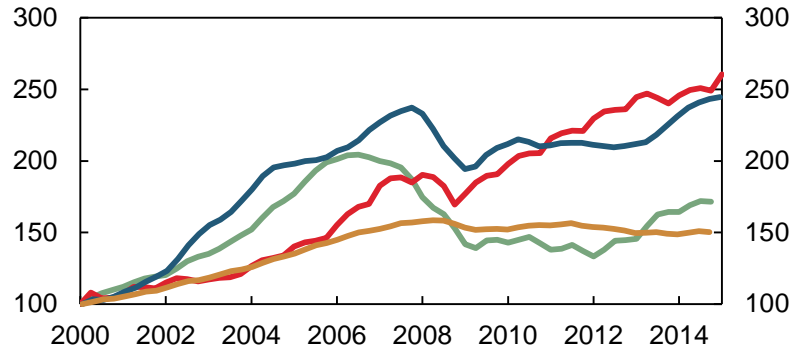
## Unemployment



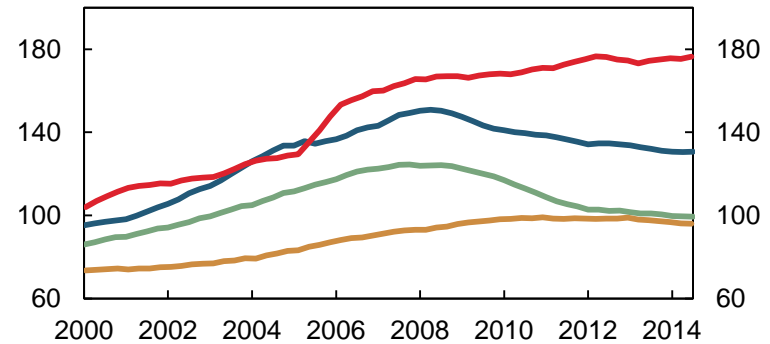
## Inflation



## House prices

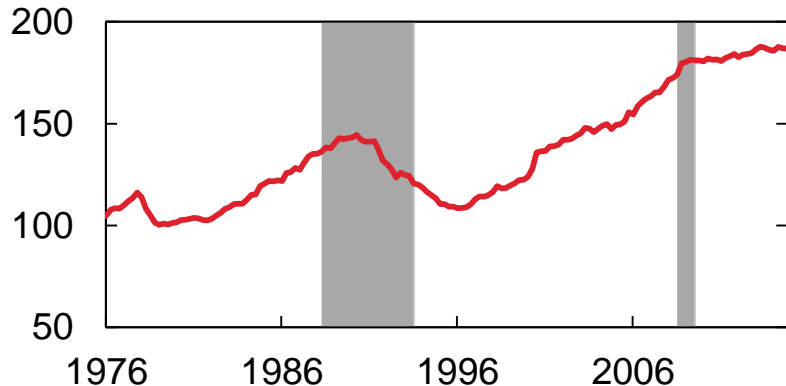


## Household debt ratio

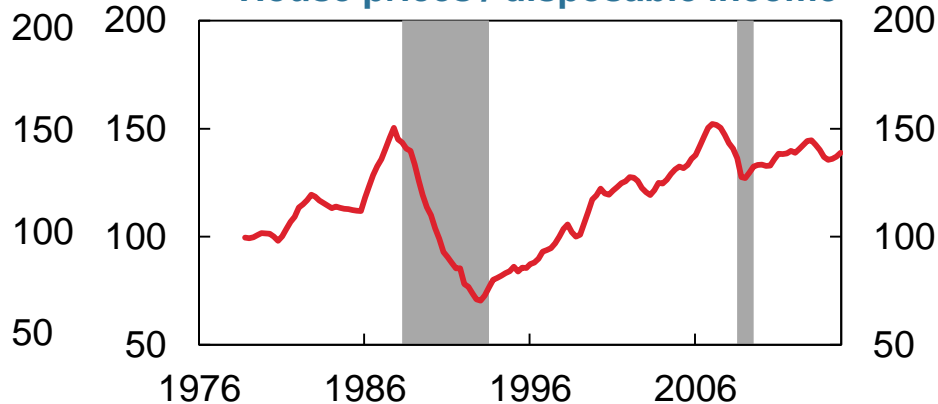


# Basis for advice on CCB: key indicators

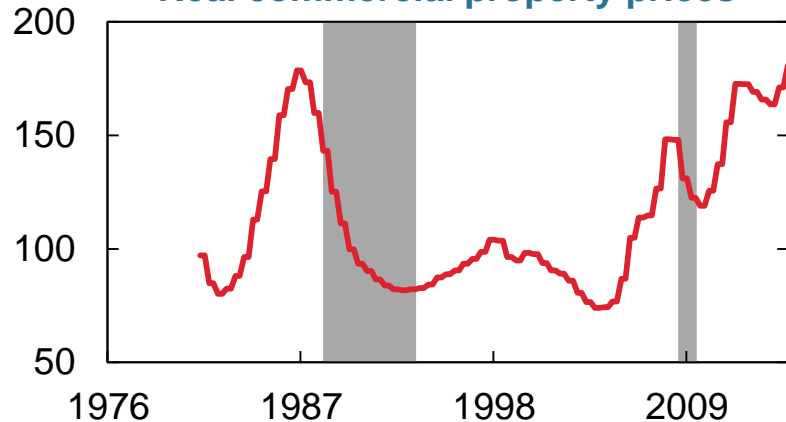
## Credit / GDP



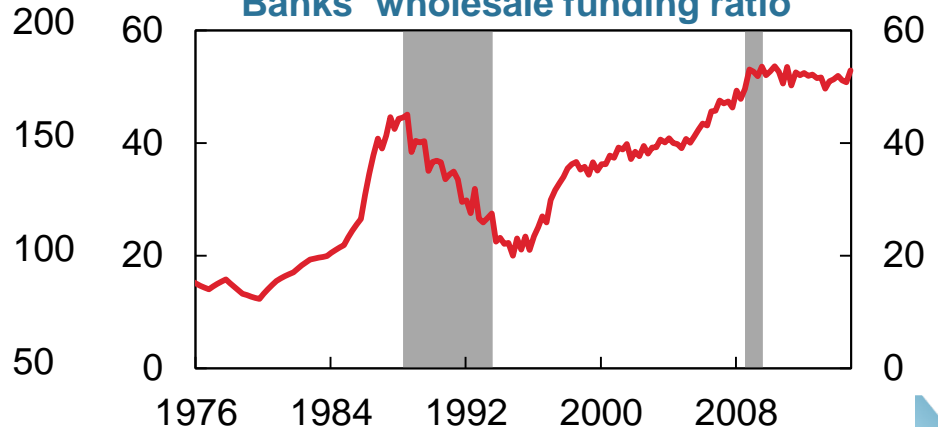
## House prices / disposable income



## Real commercial property prices



## Banks' wholesale funding ratio

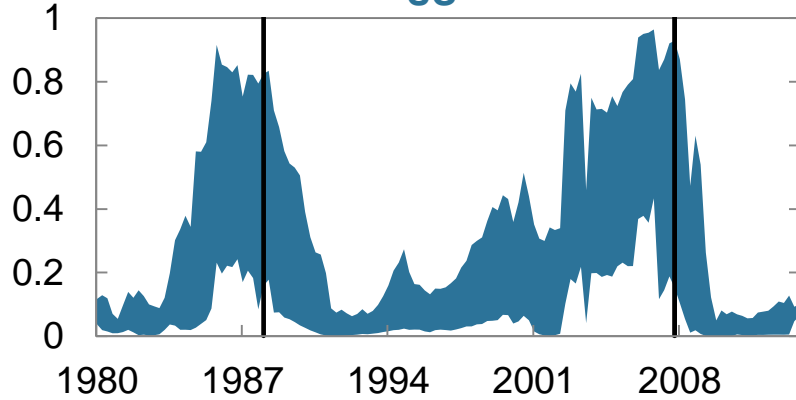


Source: Norges Bank

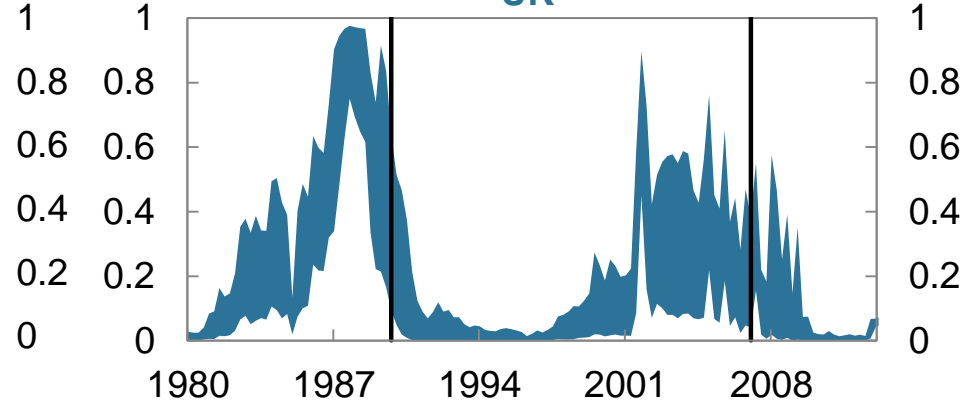


# Early warning models for financial crises

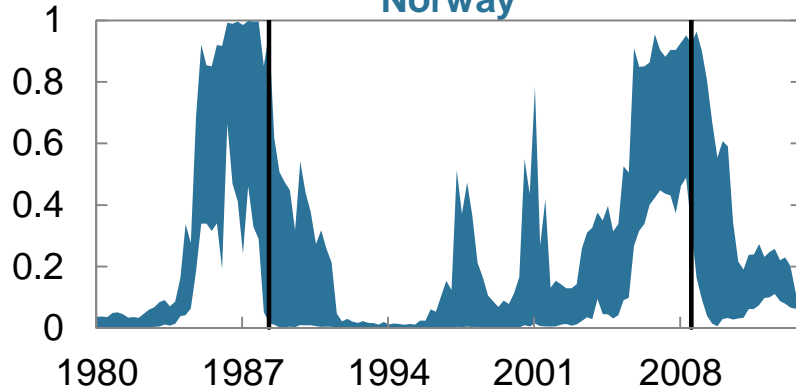
US



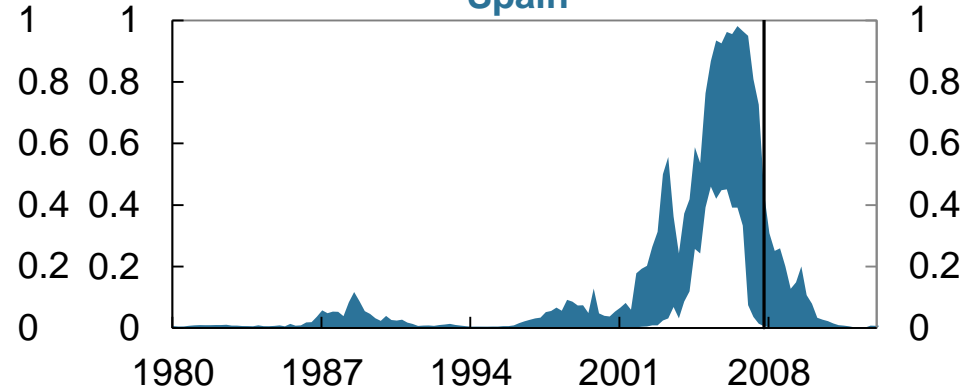
UK



Norway

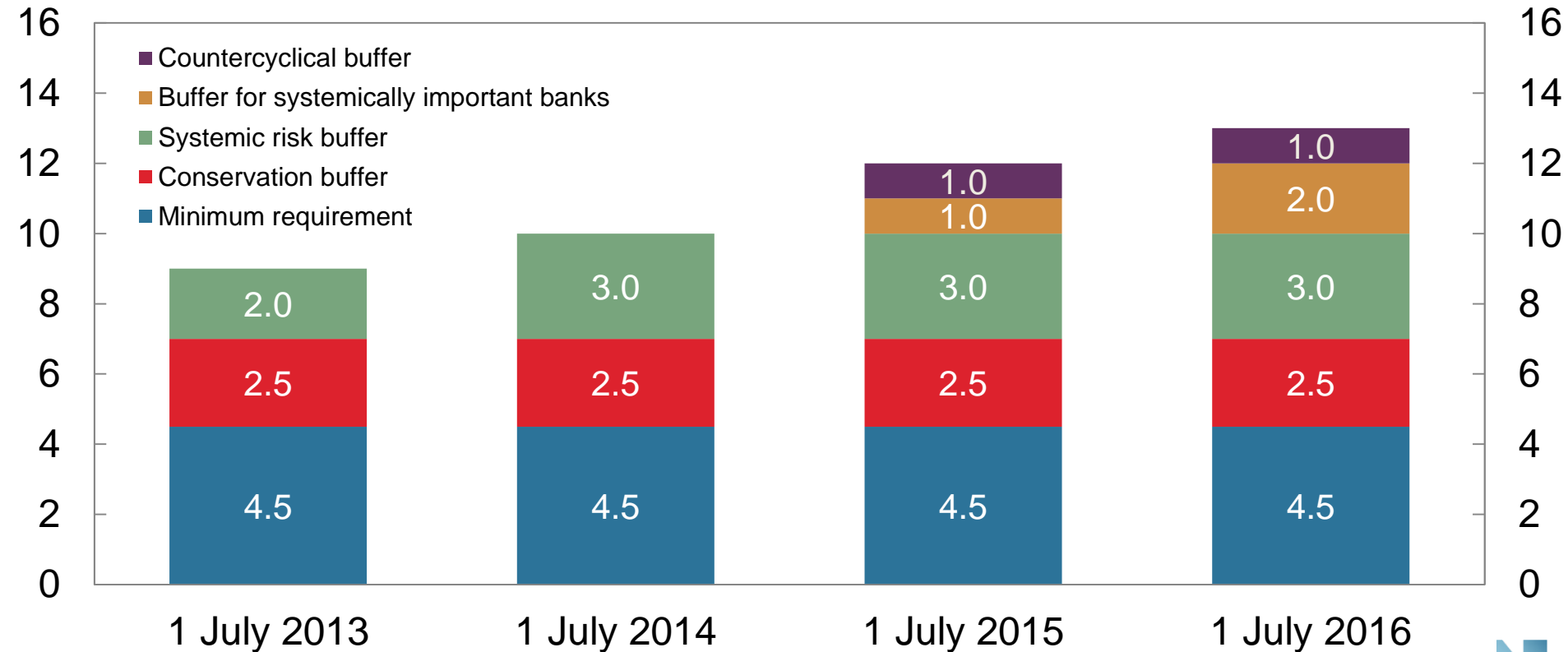


Spain



# Increased capital requirements in Norway

CET1 capital. Percent. 1 July 2013 – 1 July 2016



# Framework

Loss function, L:

$$L_0 = E_0 \sum_{t=0}^{\infty} \delta^t (\pi_t^2 + \lambda y_t^2)$$

where

$\pi_t$  = inflation deviation from inflation target  
 $y_t$  = output gap

Demand,  $y_t$ :

$$y_t = f(r_t, \dots) - z_t$$

Impulse from financial instability,  $z_t$ :  $z_t = \beta \cdot z_{t-1} + \alpha \cdot FI_t$

$$\alpha = \begin{cases} 0 & \text{if financial instability does not arise} \\ 1 & \text{if financial instability arises} \end{cases}$$

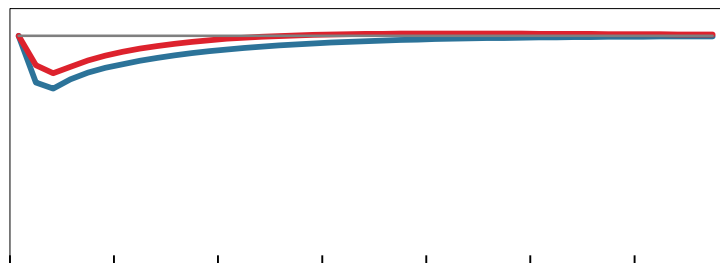
Level of financial imbalances,  $FI_t$ :

$$FI_t = g(r_t, \dots)$$



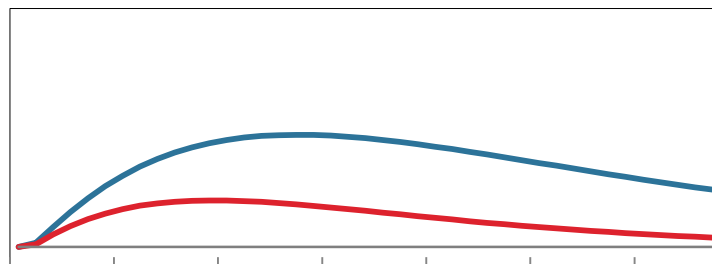
# Financial stress does not arise

## Real interest rates



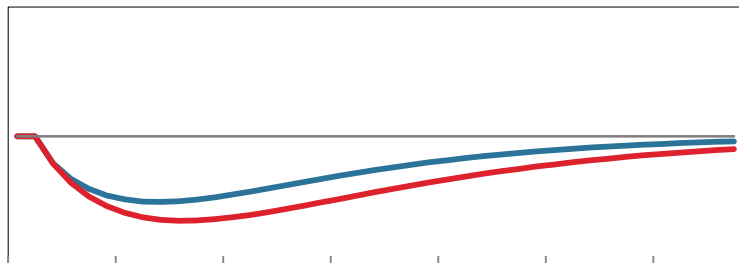
0 6 12 18 24 30 36

## Financial imbalances



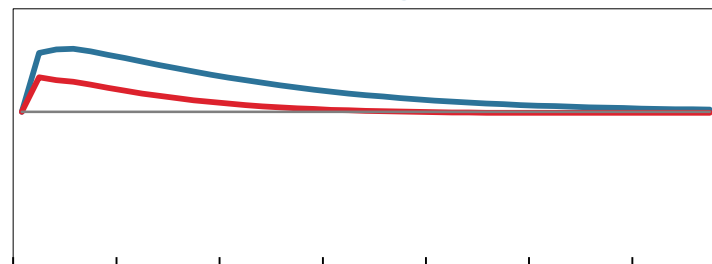
0 6 12 18 24 30 36

## Inflation



0 6 12 18 24 30 36

## Output gap



0 6 12 18 24 30 36

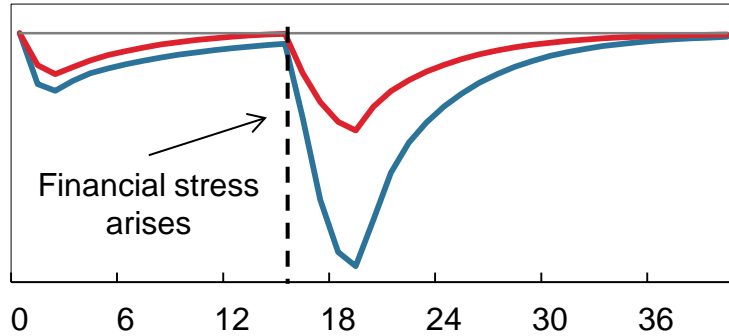
— Does not take risk into account

— Takes risk into account

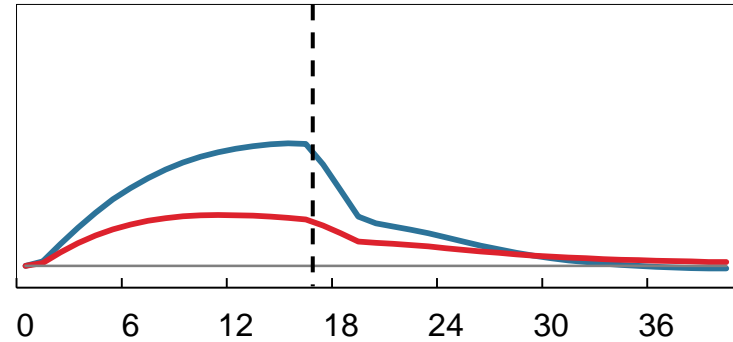


# Financial stress arises

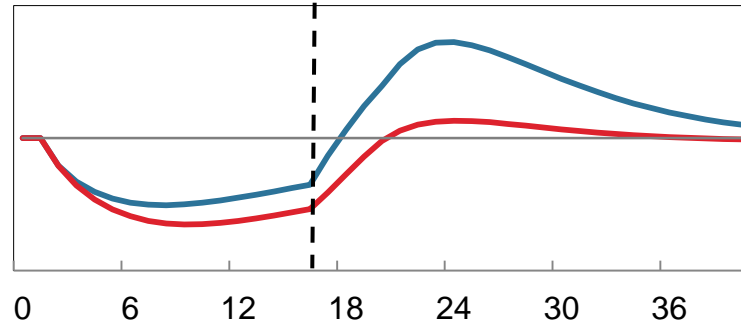
## Real interest rates



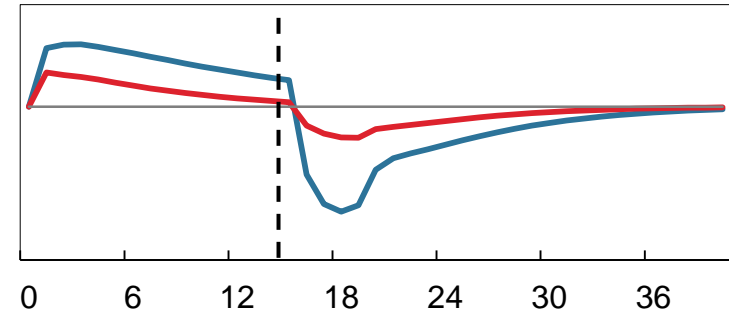
## Financial imbalances



## Inflation



## Output gap



— Does not take risk into account

— Takes risk into account







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