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# Lambda

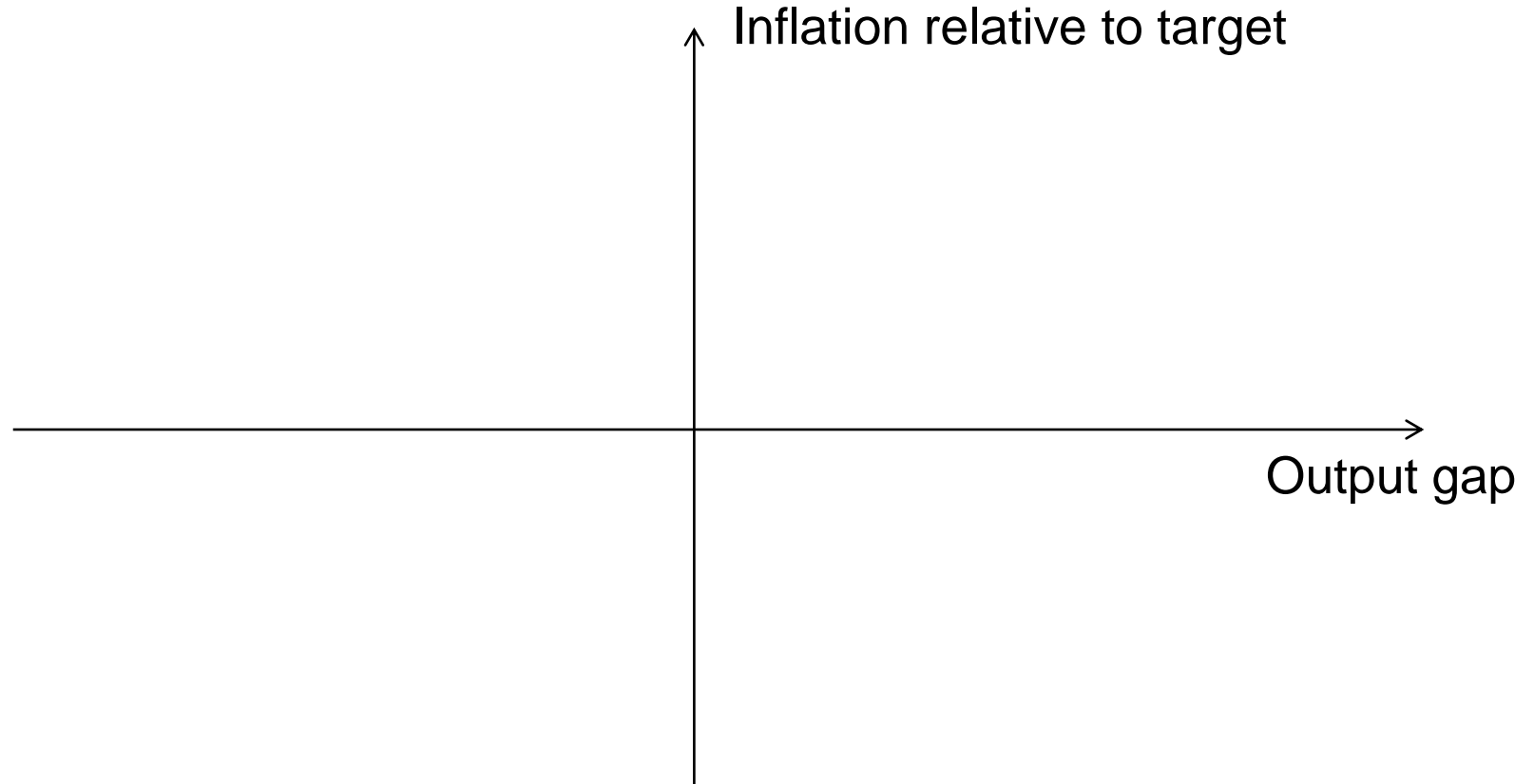
Lecture at the London School of Economics

Mark Carney

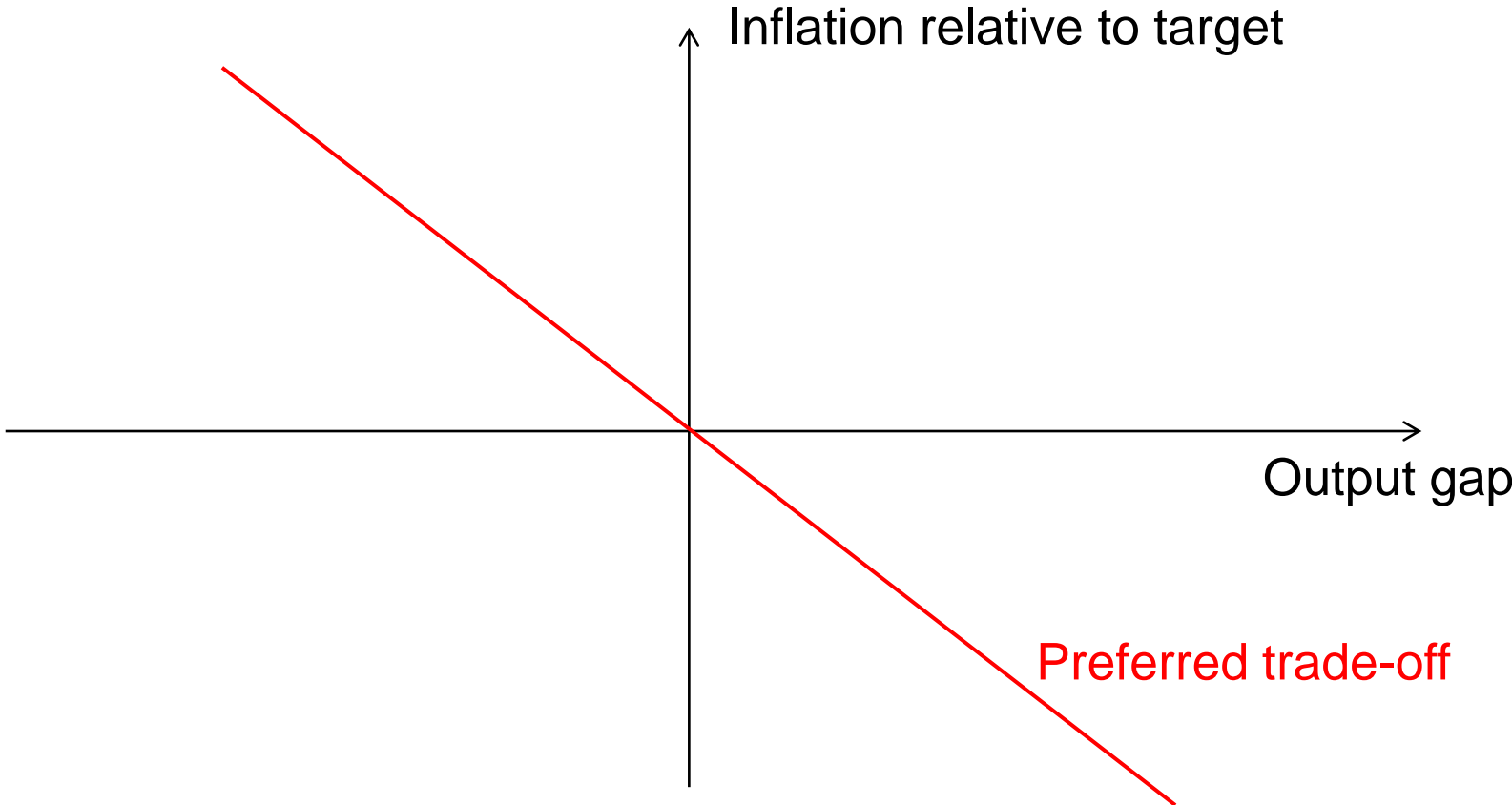
Governor of the Bank of England

16<sup>th</sup> January 2017

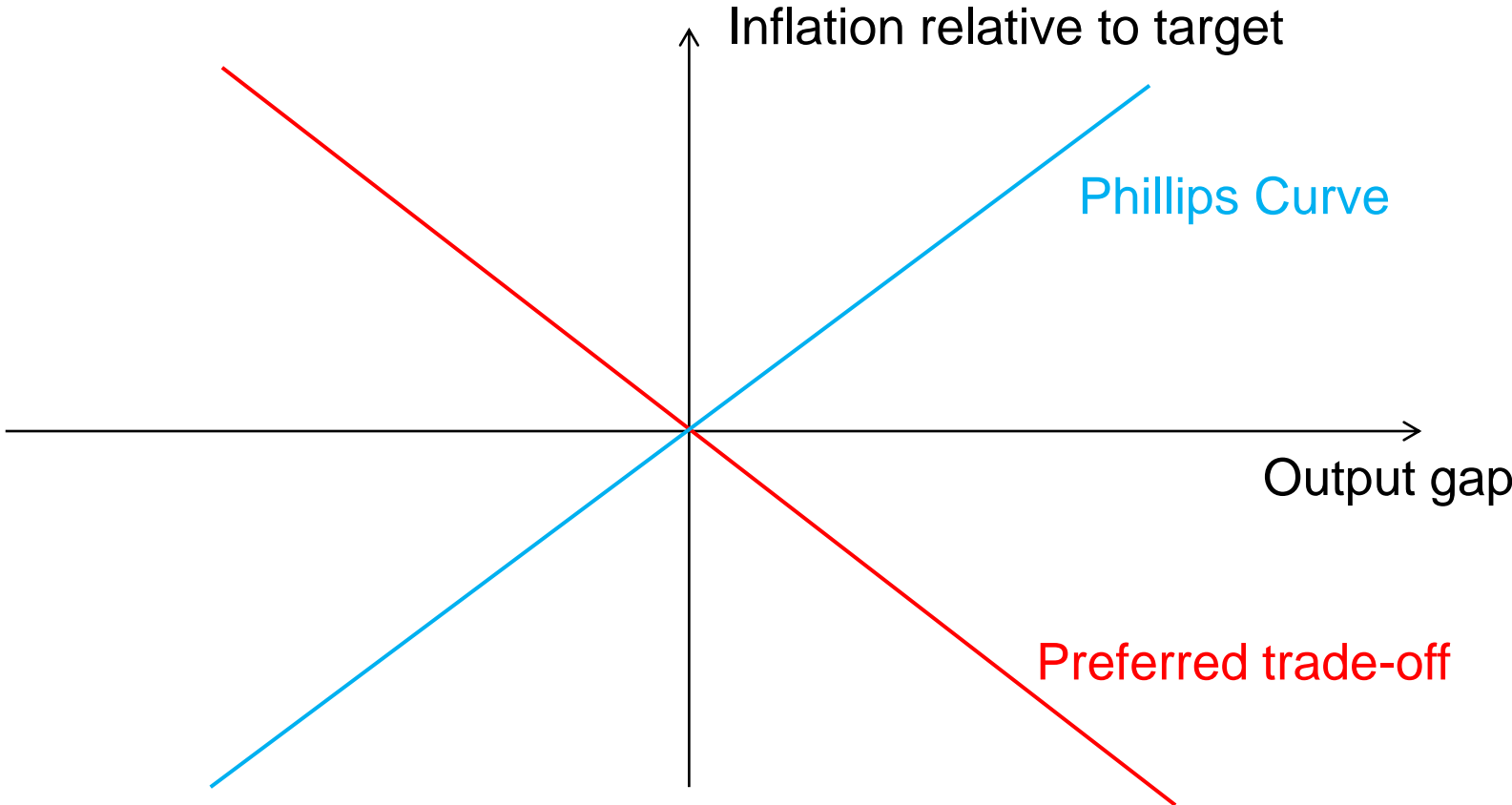
# Monetary policy trade-off



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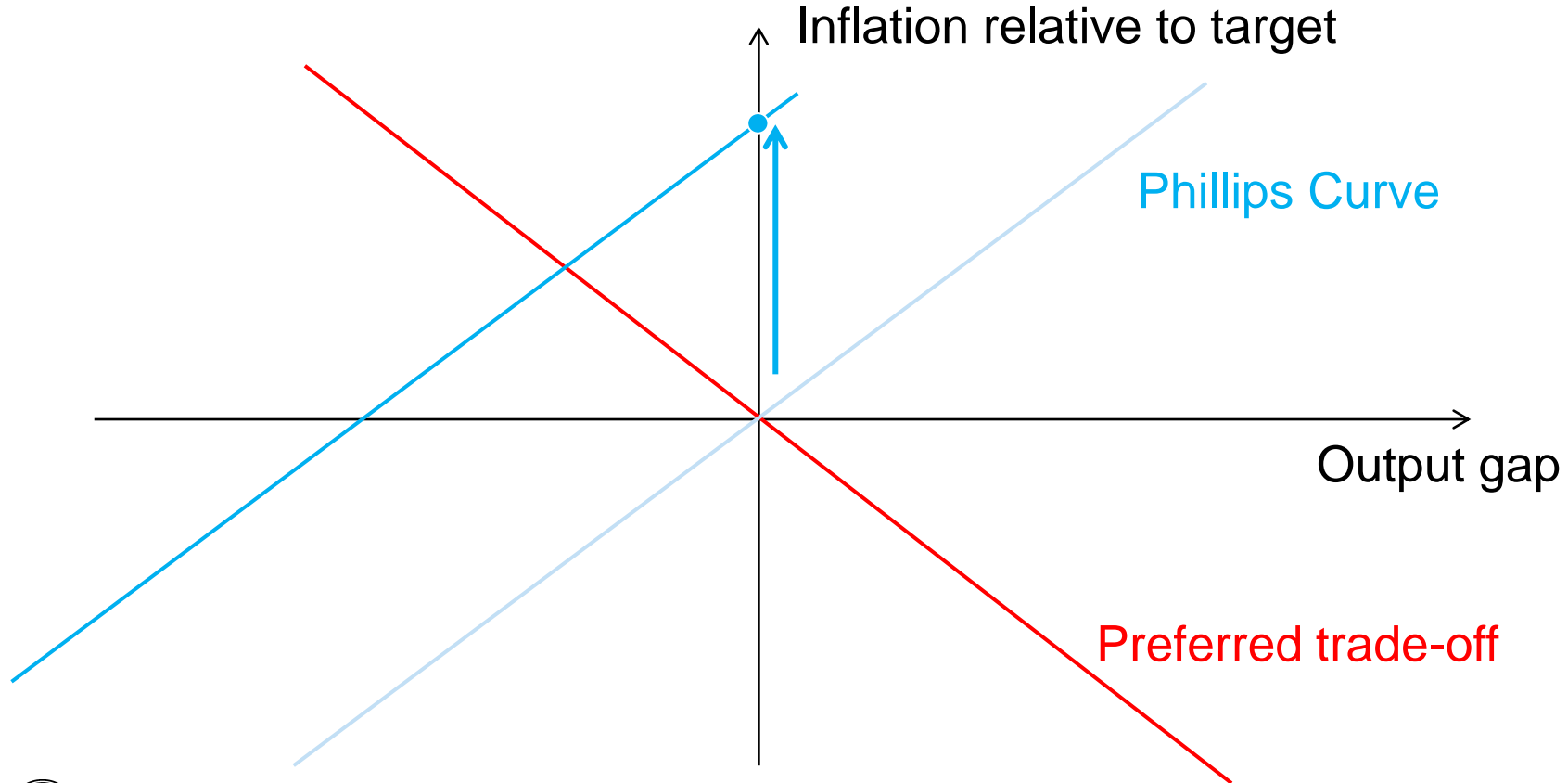


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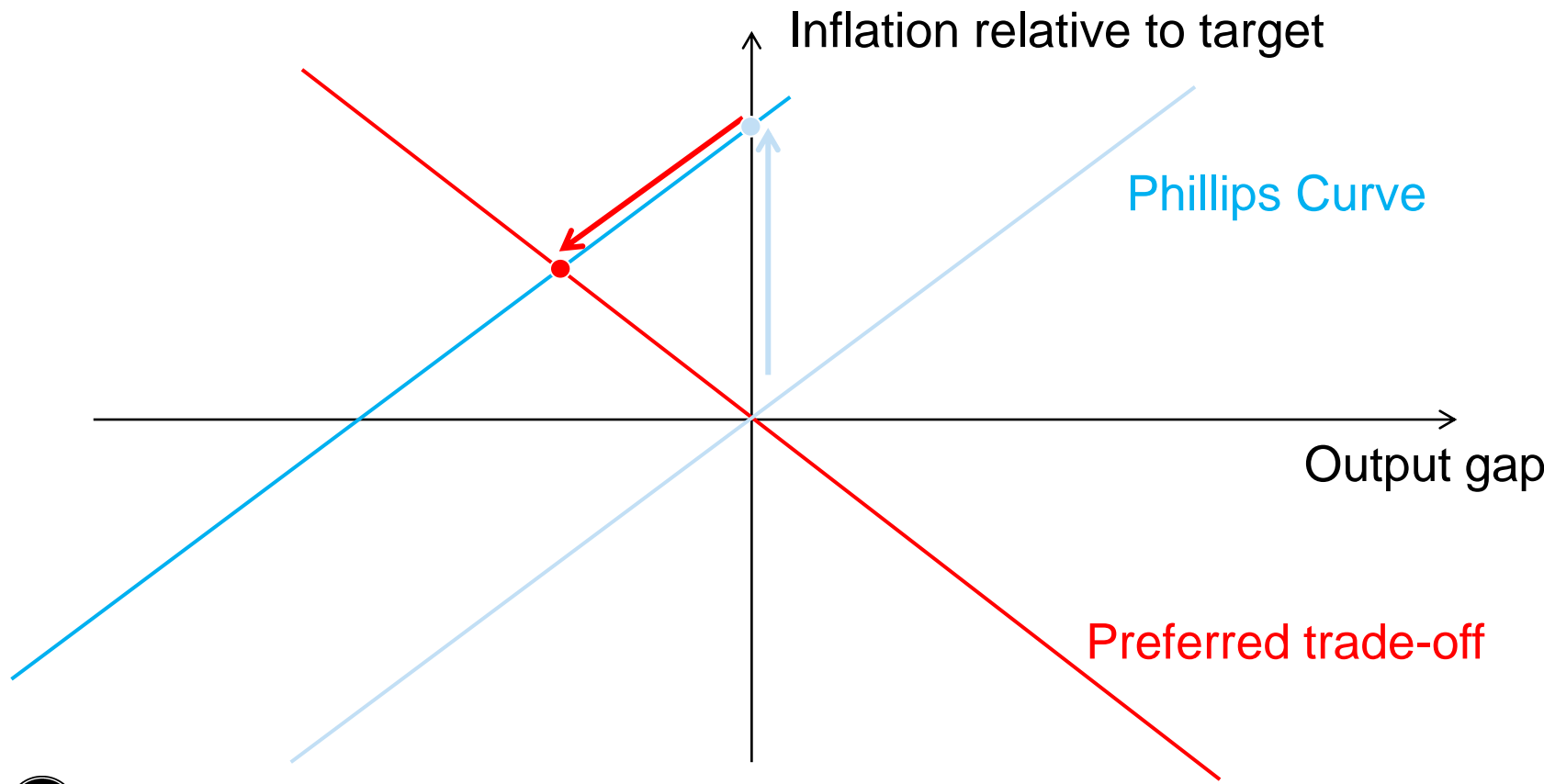


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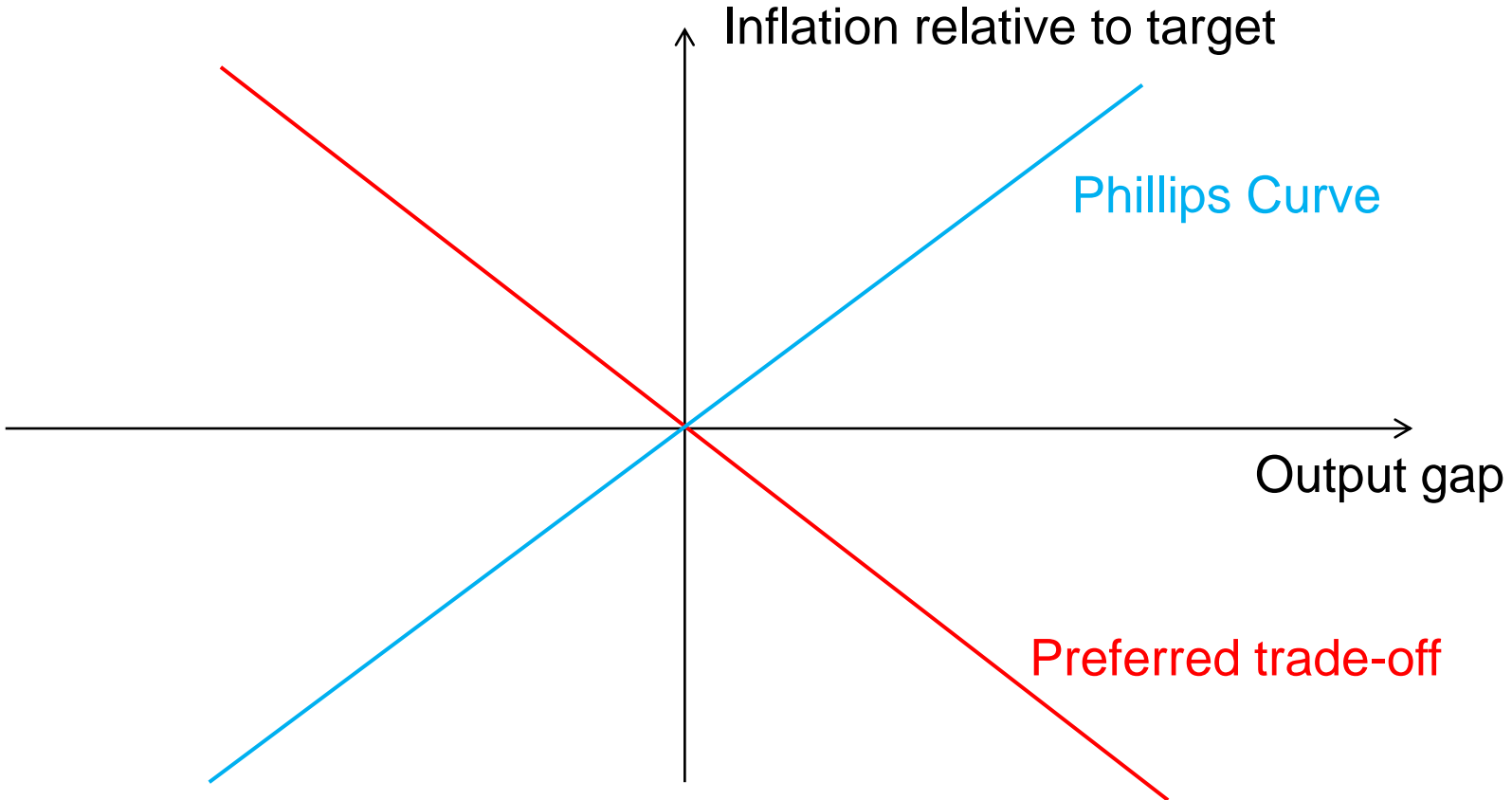
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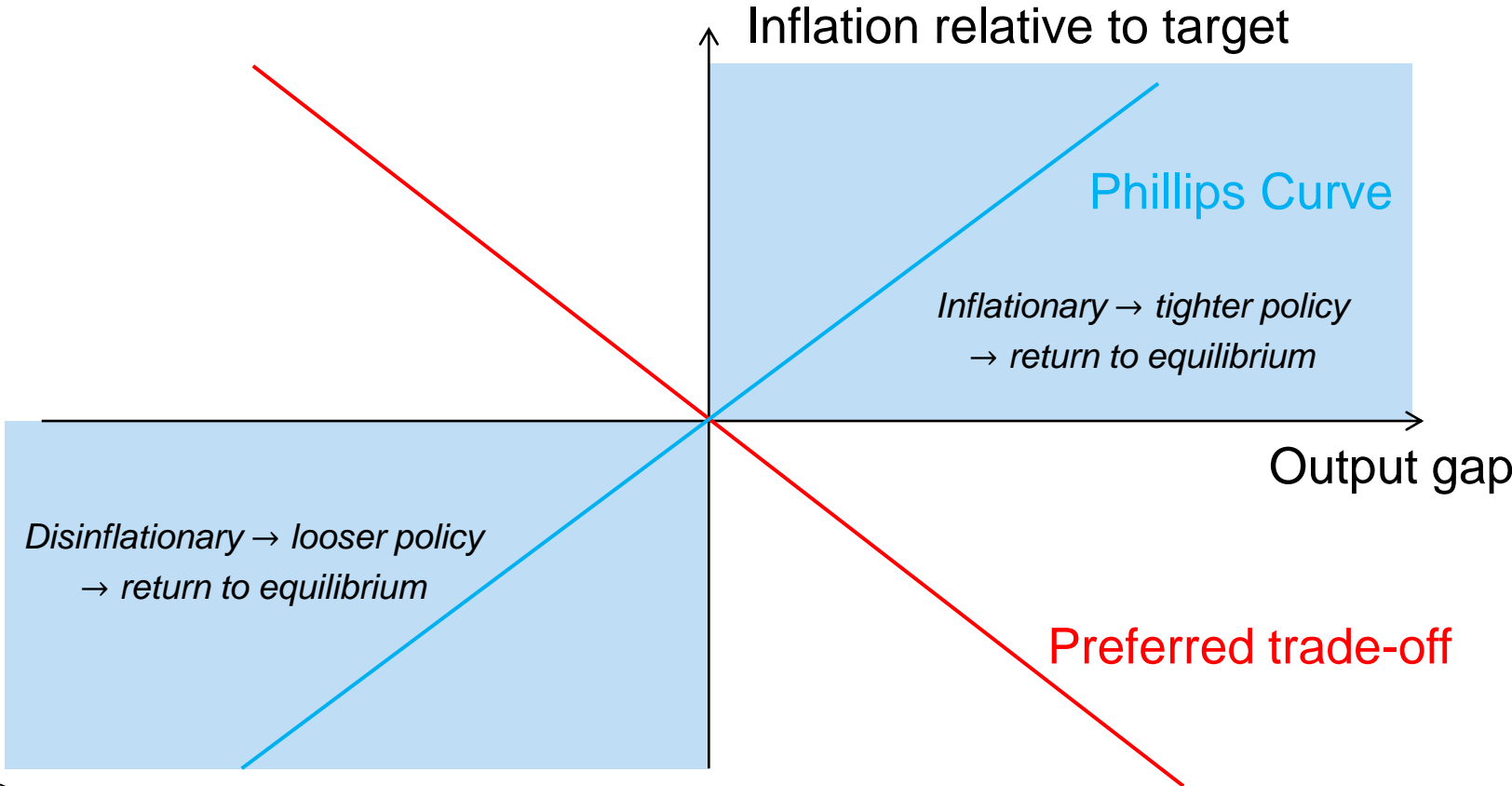


# Demand shocks imply no trade-off

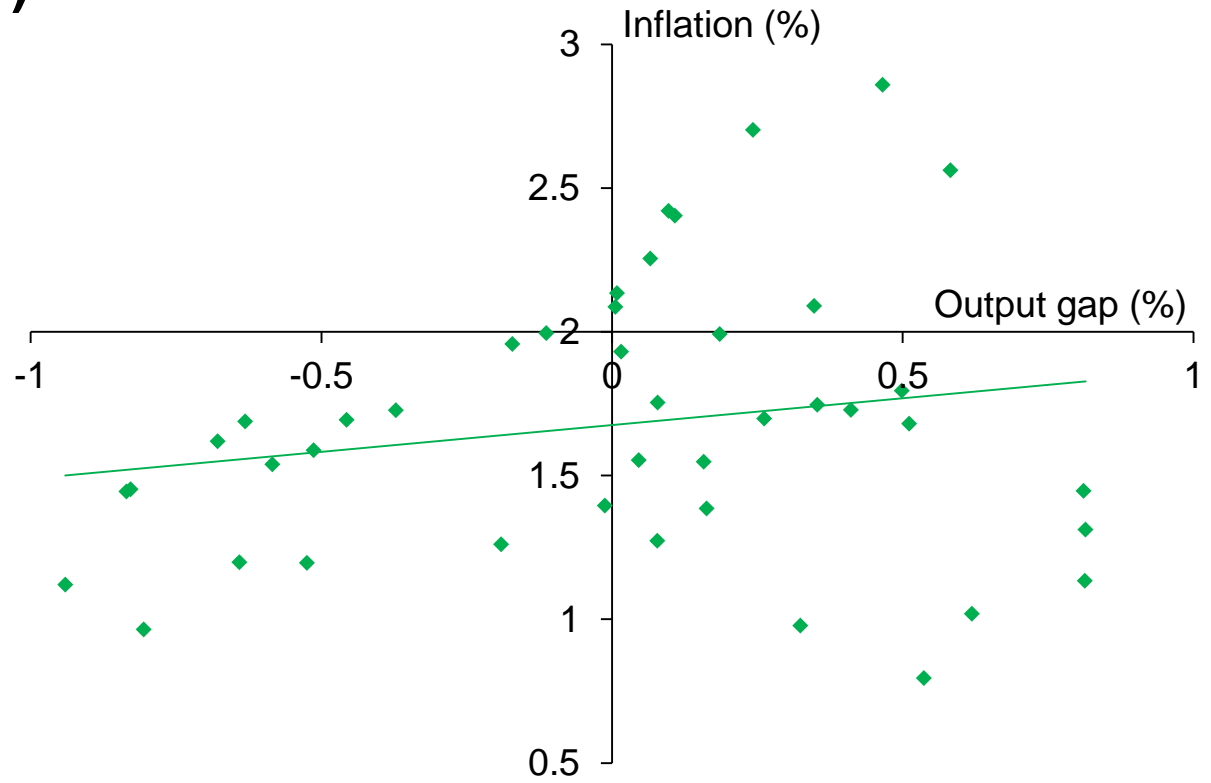




# Demand shocks imply no trade-off



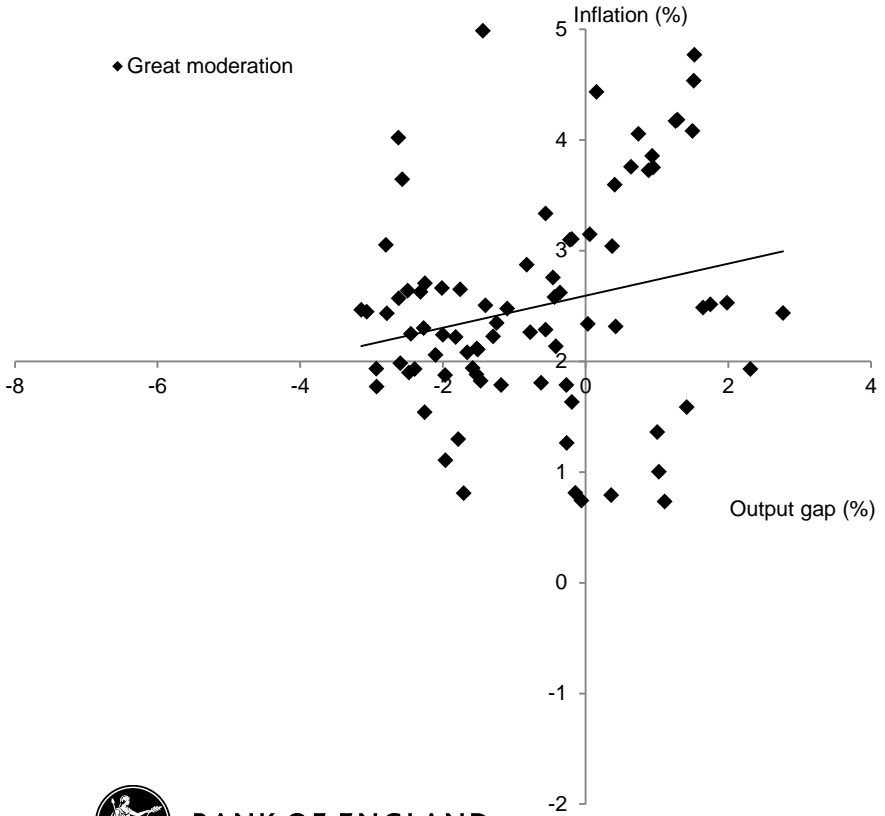
# Demand shocks dominated during the “Great Moderation” (1993- 2007)...





# Demand shocks dominated in US...

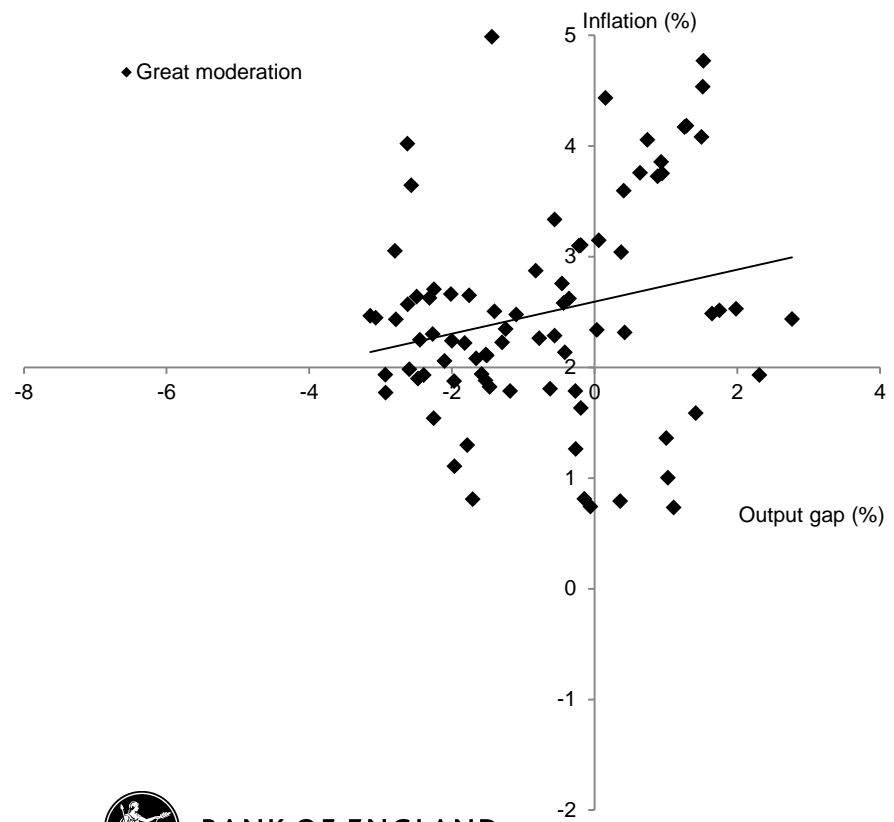
## United States



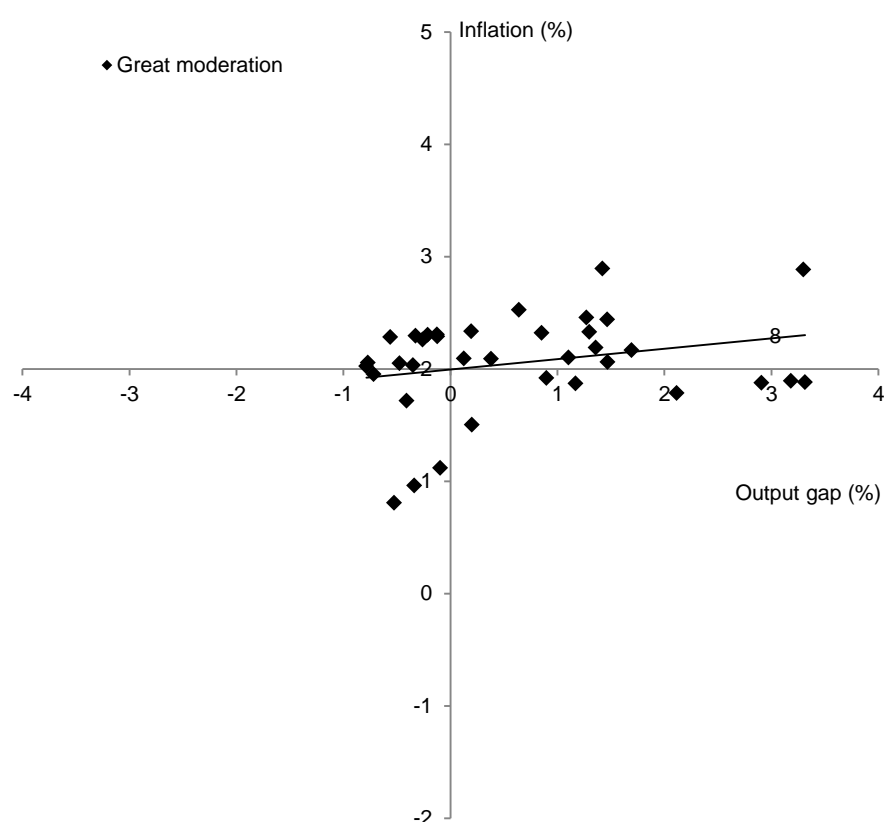
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# Demand shocks dominated in US... and the euro area

## United States



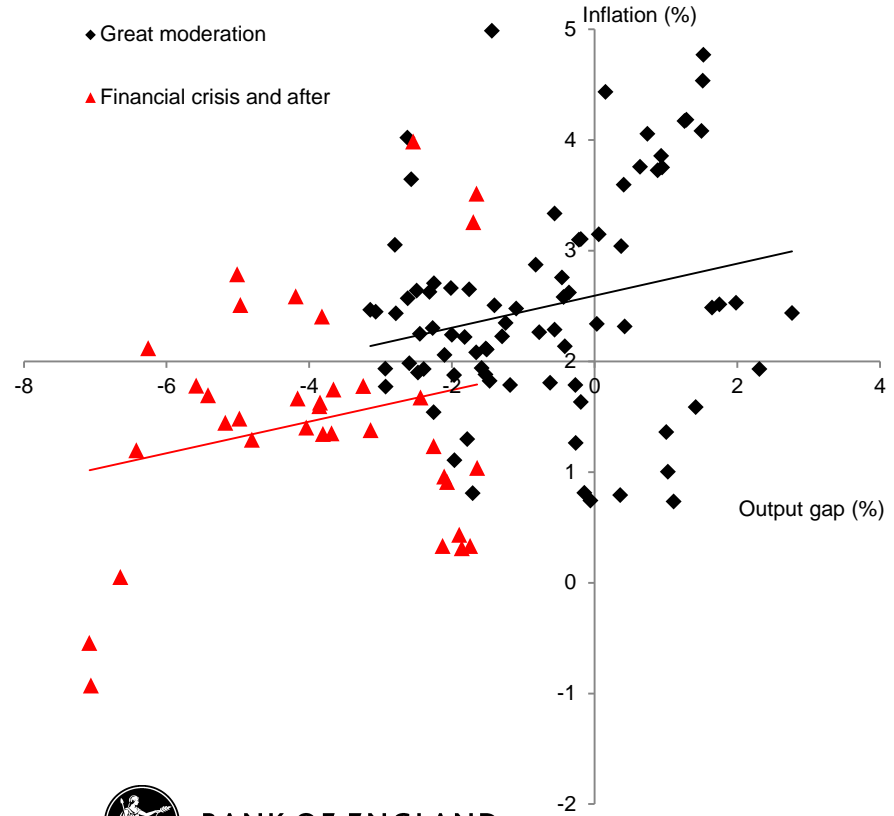
## Euro area



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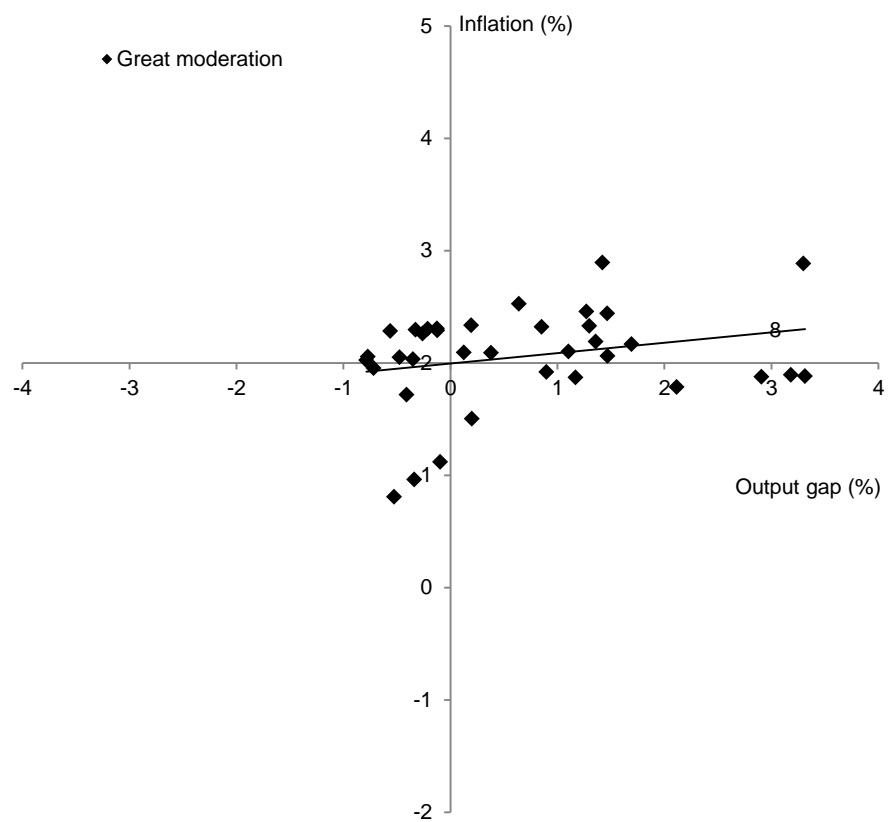
# ... including post crisis

## United States



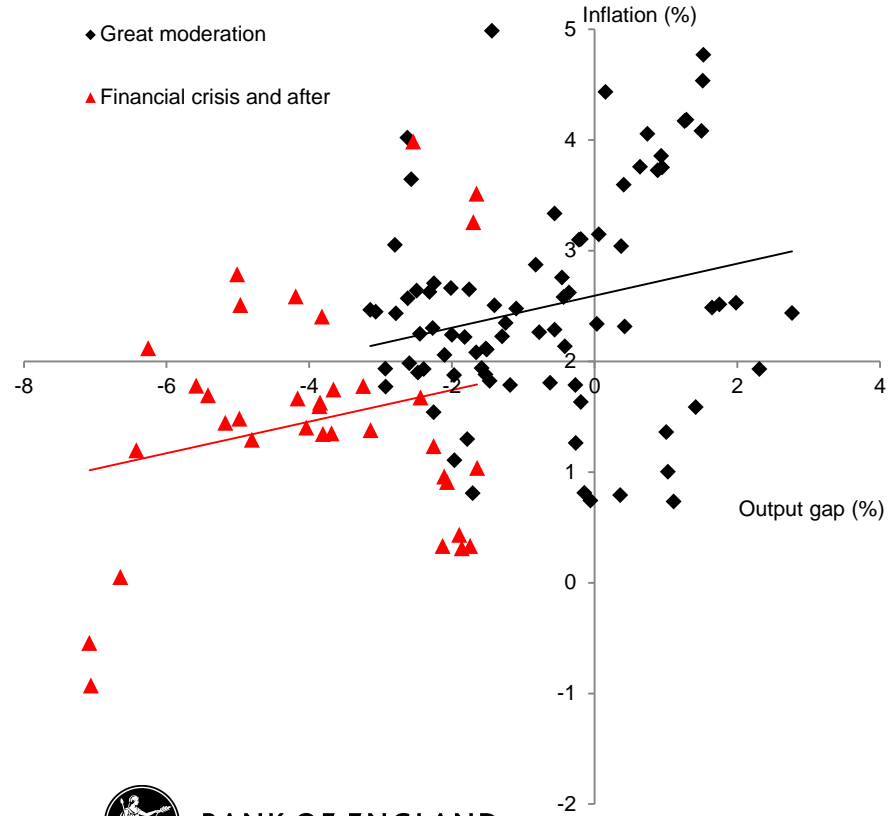
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## Euro area

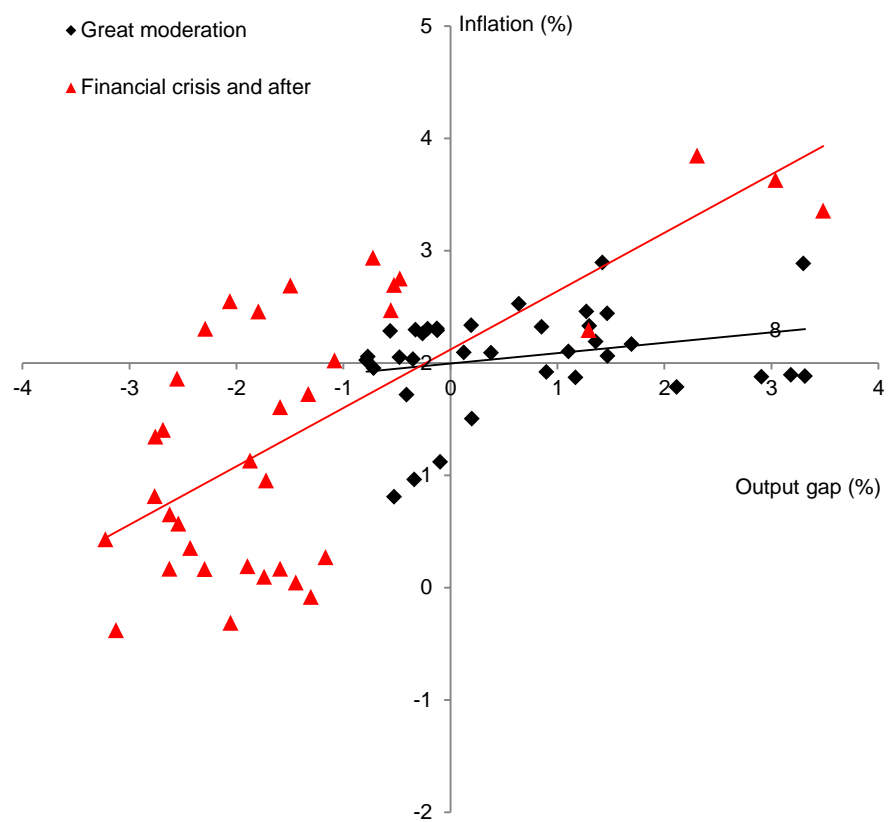


# ... including post crisis

## United States



## Euro area



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# Policy problem

$$Loss_t \equiv (\pi_t - \pi^*)^2 + \lambda(y_t - y_t^*)^2$$



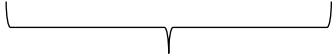
Deviation of  
inflation from target






# Policy problem

$$Loss_t \equiv (\pi_t - \pi^*)^2 + \lambda(y_t - y_t^*)^2$$

  
Deviation of  
inflation from target

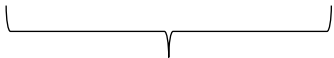
  
Output gap




# Policy problem

Preference for output stabilisation

$$Loss_t \equiv (\pi_t - \pi^*)^2 + \lambda (y_t - y_t^*)^2$$

  
Deviation of  
inflation from target

  
Output gap



# Simple optimal policy

$$\pi_t - \pi^* = -\frac{\lambda}{\kappa} (y_t - y_t^*)$$



# Simple optimal policy

$$\underbrace{\pi_t - \pi^*}_{\text{Deviation of inflation from target}} = -\frac{\lambda}{\kappa} \underbrace{(y_t - y_t^*)}_{\text{Output gap}}$$



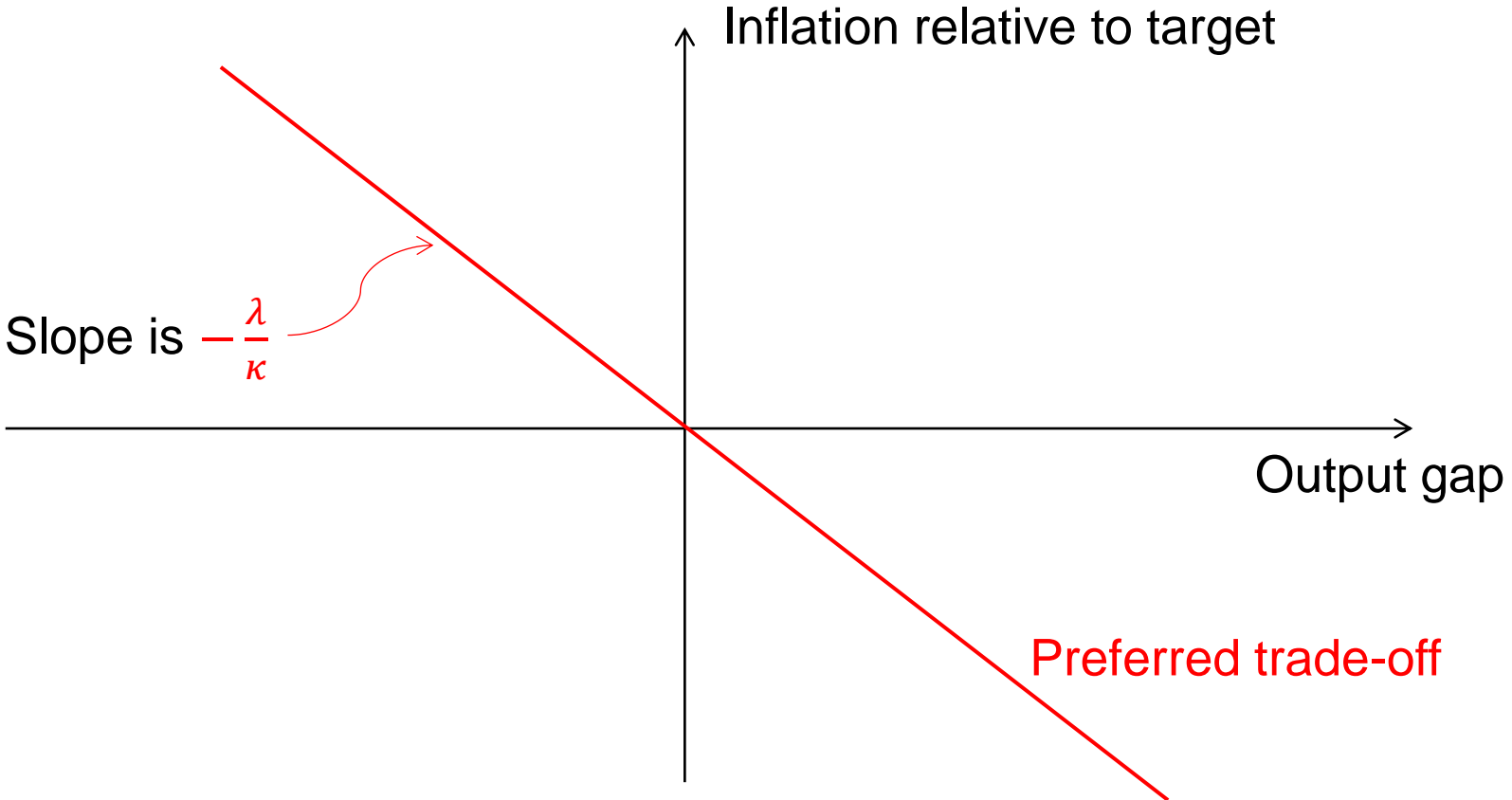
# Simple optimal policy

$$\underbrace{\pi_t - \pi^*}_{\text{Deviation of inflation from target}} = -\frac{\lambda}{\underbrace{\kappa}_{\text{Output gap}}} \underbrace{(y_t - y_t^*)}_{\text{Output gap}}$$

↑  
Slope of the Phillips Curve

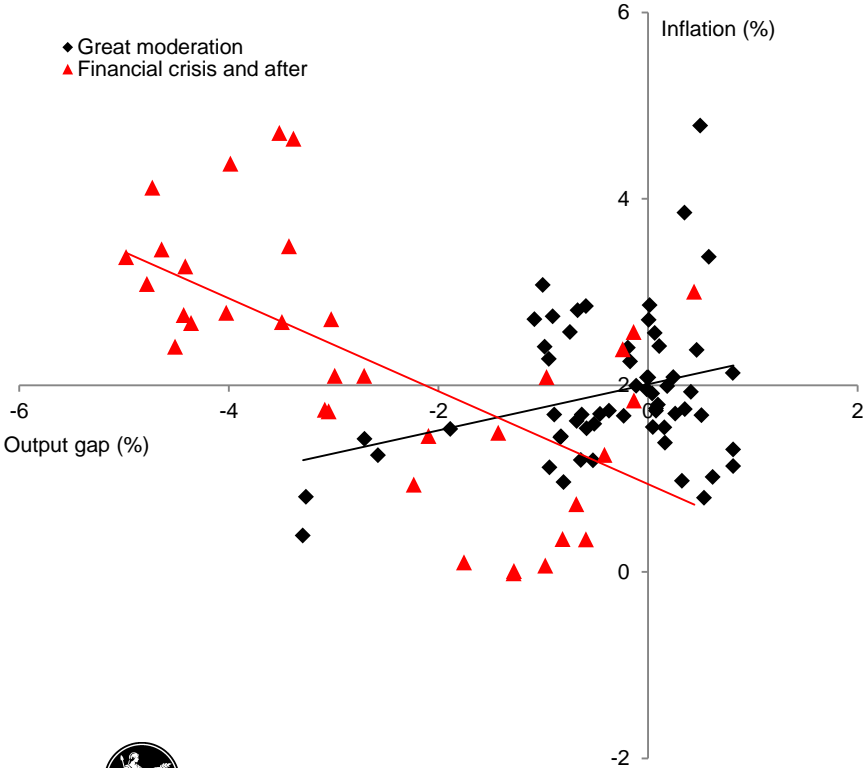


# Simple optimal policy

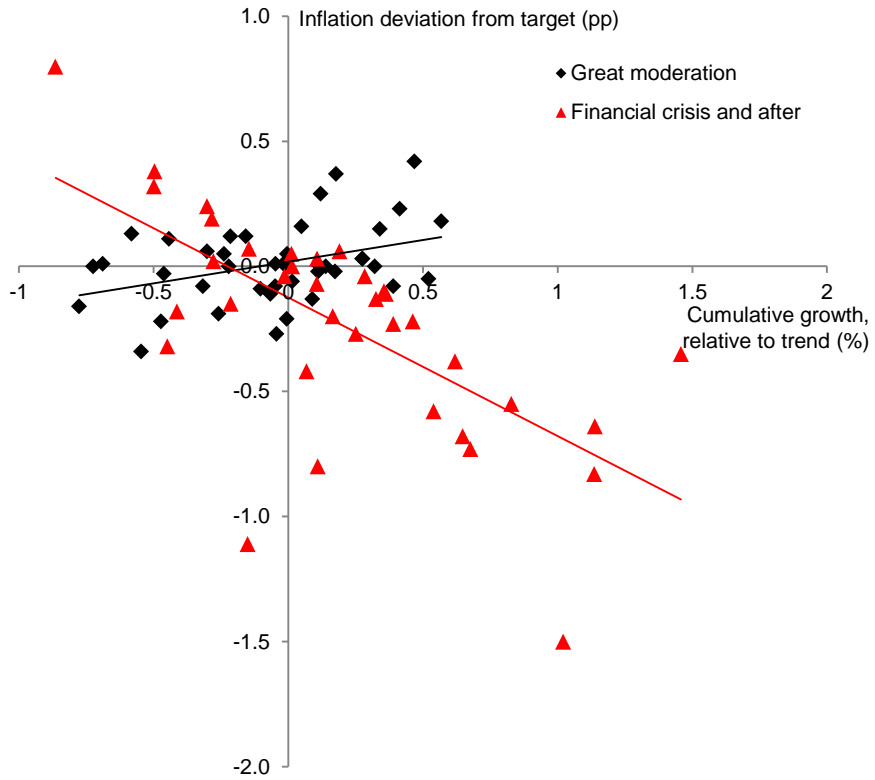


# Slopes imply $\lambda$ around 0.1-0.2 since 1993...

## Data outturns



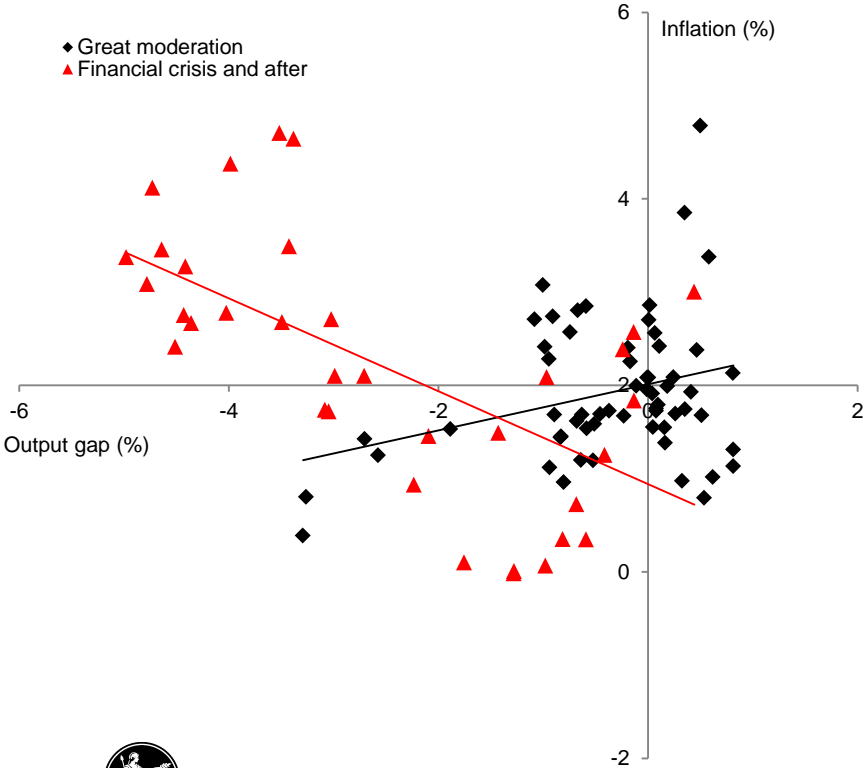
## MPC forecasts



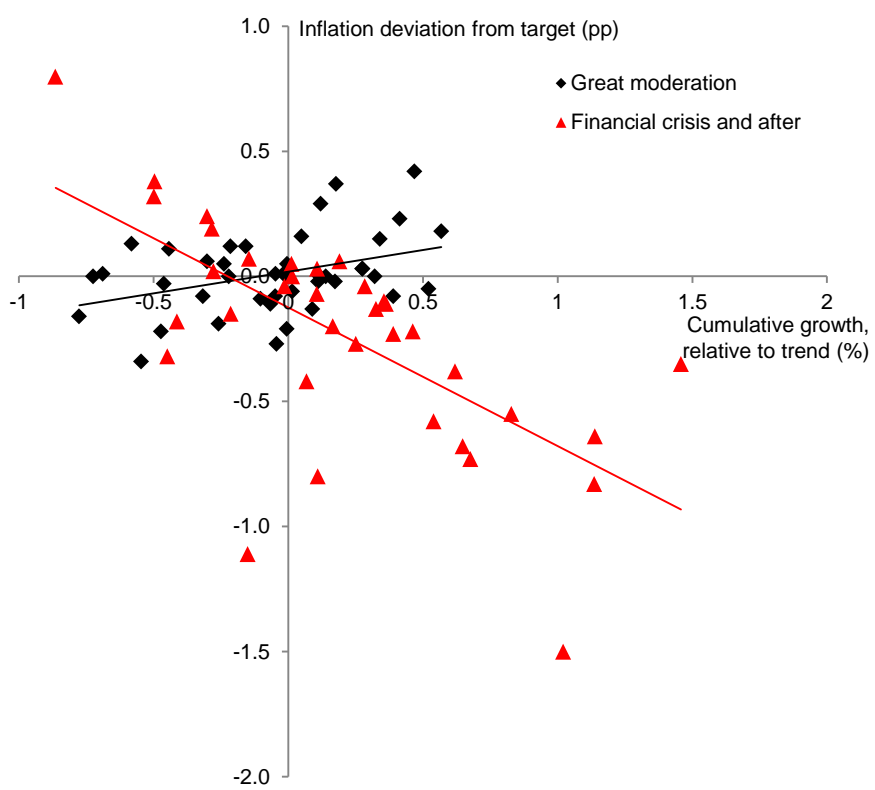
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# Slopes imply $\lambda$ around 0.1-0.2 since 1993...and around $\frac{1}{4}$ since 2008

## Data outturns



## MPC forecasts

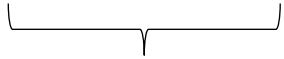



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# Loss function with financial stability

$$Loss_t \equiv (\pi_t - \pi^*)^2 + \lambda(y_t - y_t^*)^2 + \mathbf{1}_{FPC}\beta(\mathbf{s}_t - \mathbf{s}_t^*)^2$$

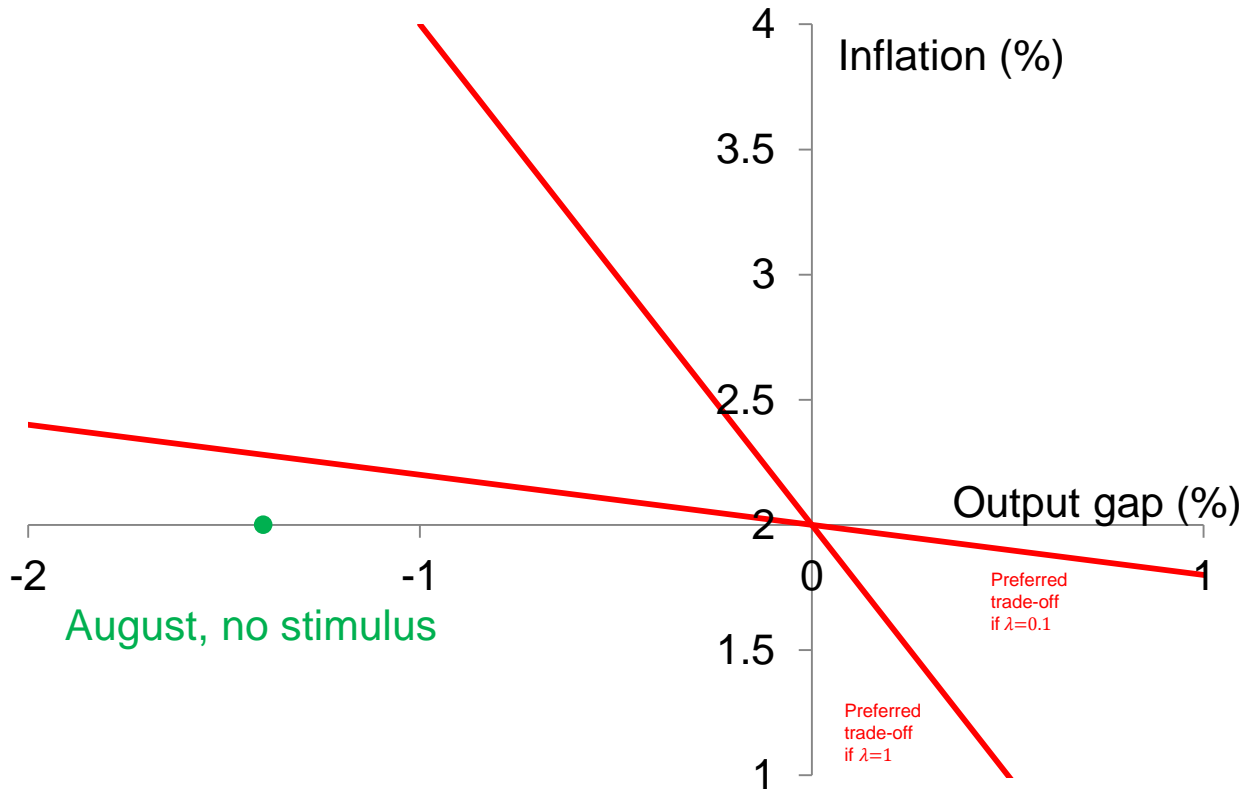
  
Deviation of  
inflation from target

  
Output gap

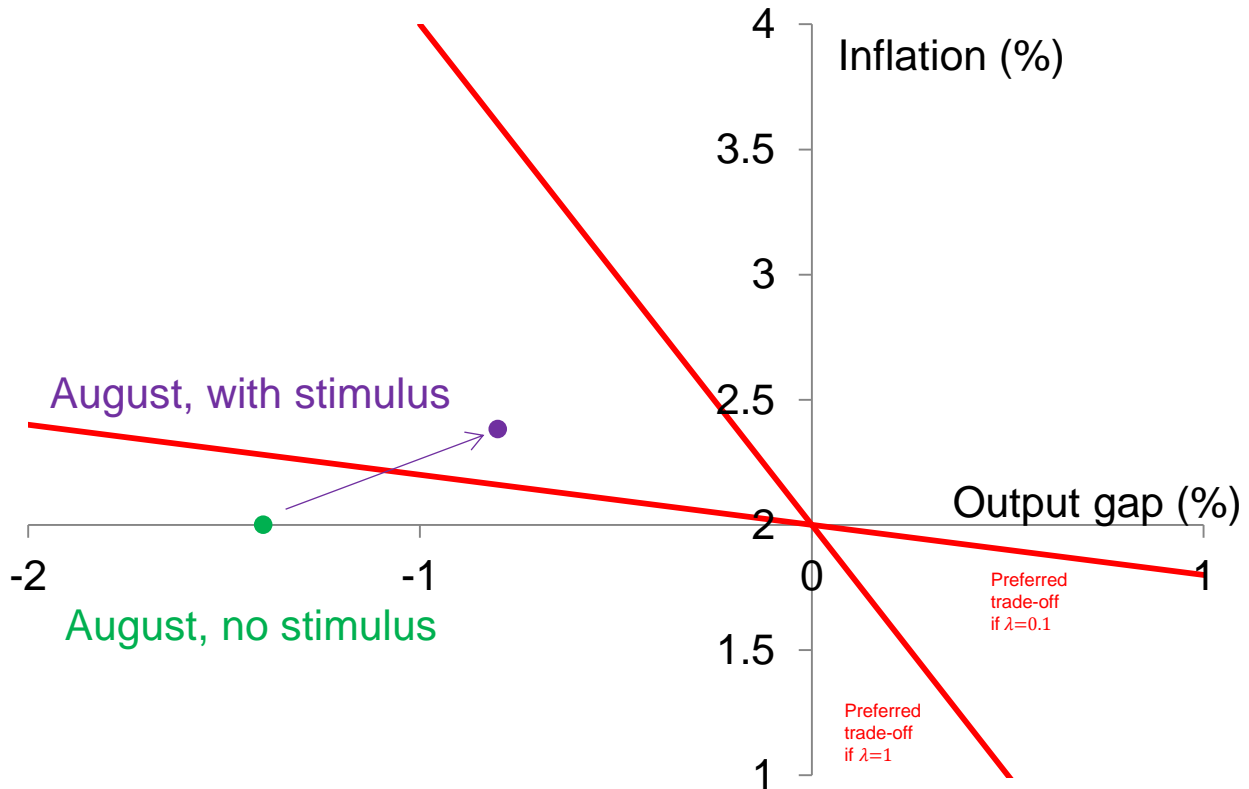
  
Financial  
Stability  
Indicators



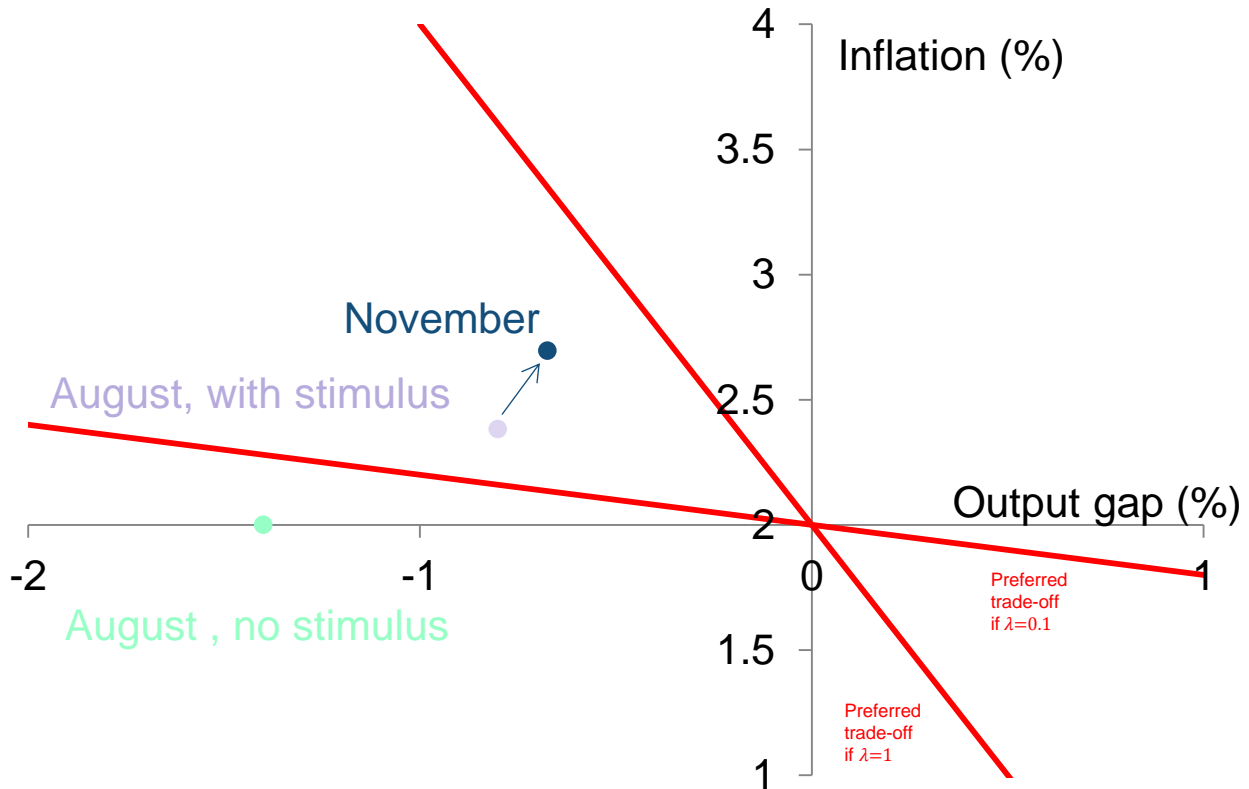
# No stimulus in August would have meant no weight on output



# August stimulus traded off some inflation for more output and lower unemployment



# Trade-off more challenging in November





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# UK inflation high and volatile during the 1970s and 1980s

