

Collateral Framework: Liquidity Premia and Multiple Equilibria

Yvan Lengwiler
Athanasios Orphanides

Capital Markets and the Economy
NBER Summer Institute
July 19, 2022

Two headlines and an ECB press release

Europe does not face fresh sovereign debt crisis, says eurogroup chief

Paschal Donohoe insists bloc's economies are in 'completely different' shape from a decade ago

FT, June 20, 2022

[Press release](#)

Will the ECB unveil its new 'anti-fragmentation' tool?

FT, July 17, 2022

Statement after the ad hoc meeting of the ECB Governing Council

15 June 2022

Today the Governing Council met to exchange views on the current market situation. Since the gradual process of policy normalisation was initiated in December 2021, the Governing Council has pledged to act against resurgent fragmentation risks. The pandemic has left lasting vulnerabilities in the euro area economy which are indeed contributing to the uneven transmission of the normalisation of our monetary policy across jurisdictions.

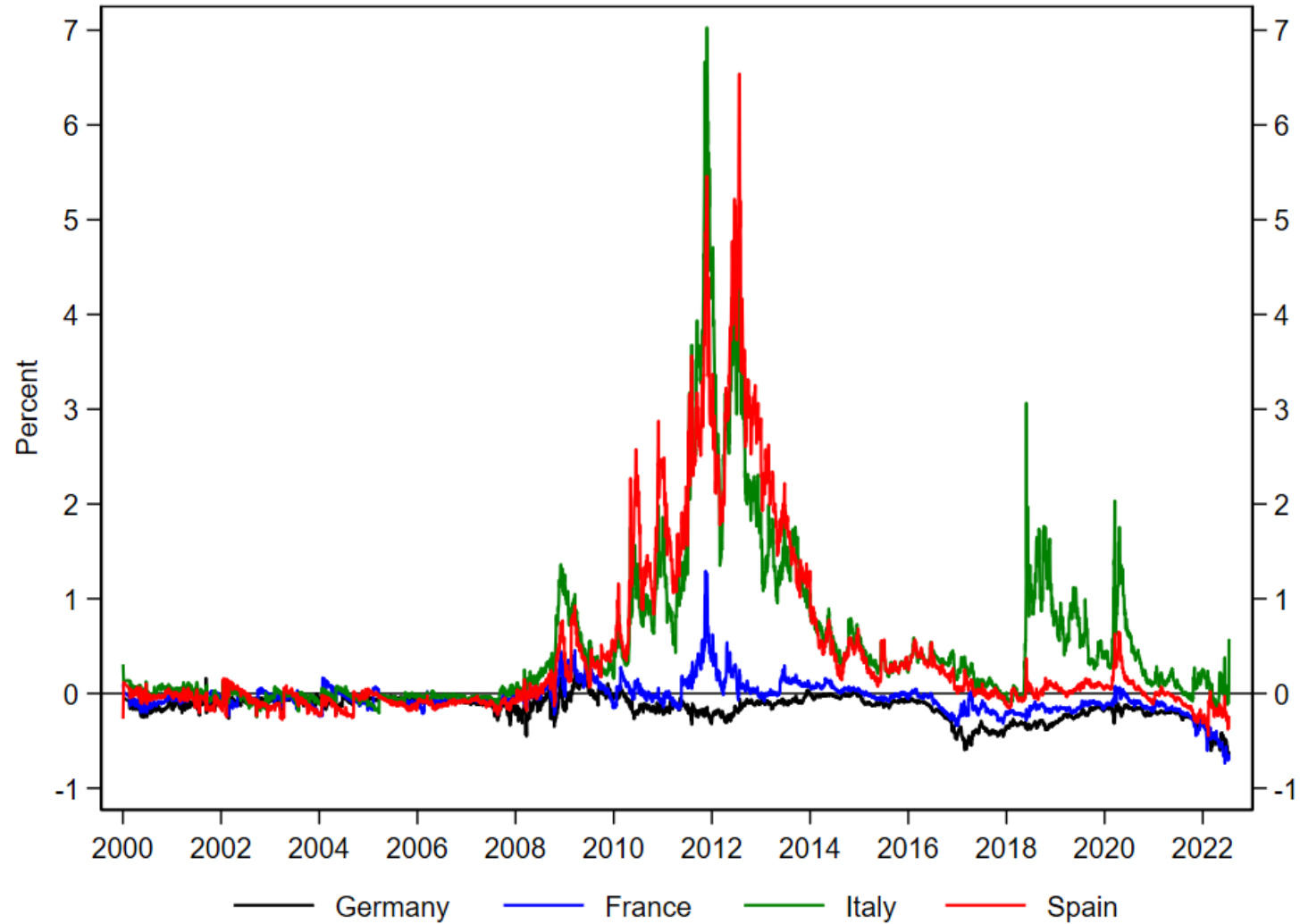


Roadmap

- Introduction: Why is the euro area in perpetual turmoil since the GFC?
- What determines “spreads” in government bond markets?
- How does the “plumbing” of monetary policy matter? What is the role of the ECB collateral framework in sustaining fragility in the euro area?
- How did the ECB avert a disaster in Spring 2020, when faced with the pandemic shock?
- Why did fragility return in Spring 2022? What can the ECB do this Thursday (July 21, 2022) to deal with the current turmoil?



What is the “fundamental spread”?

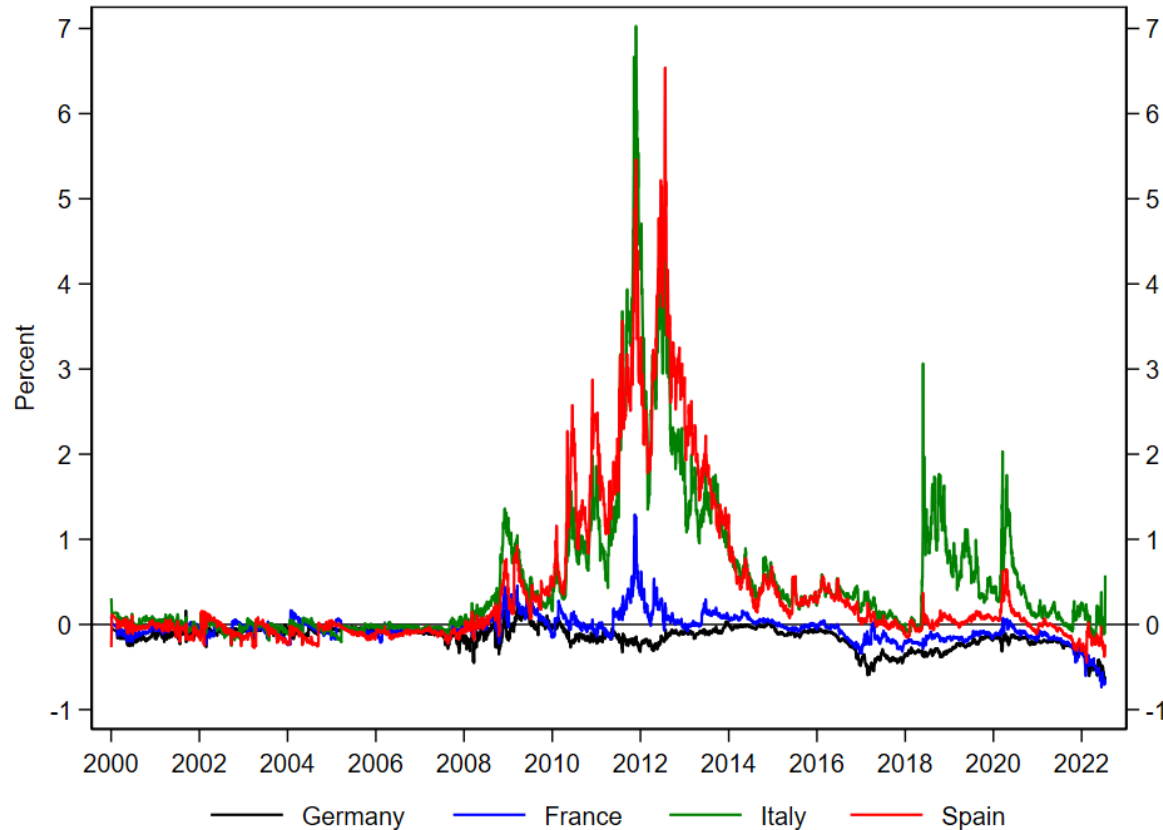


Spread between 2-year government bond yield and OIS rate.

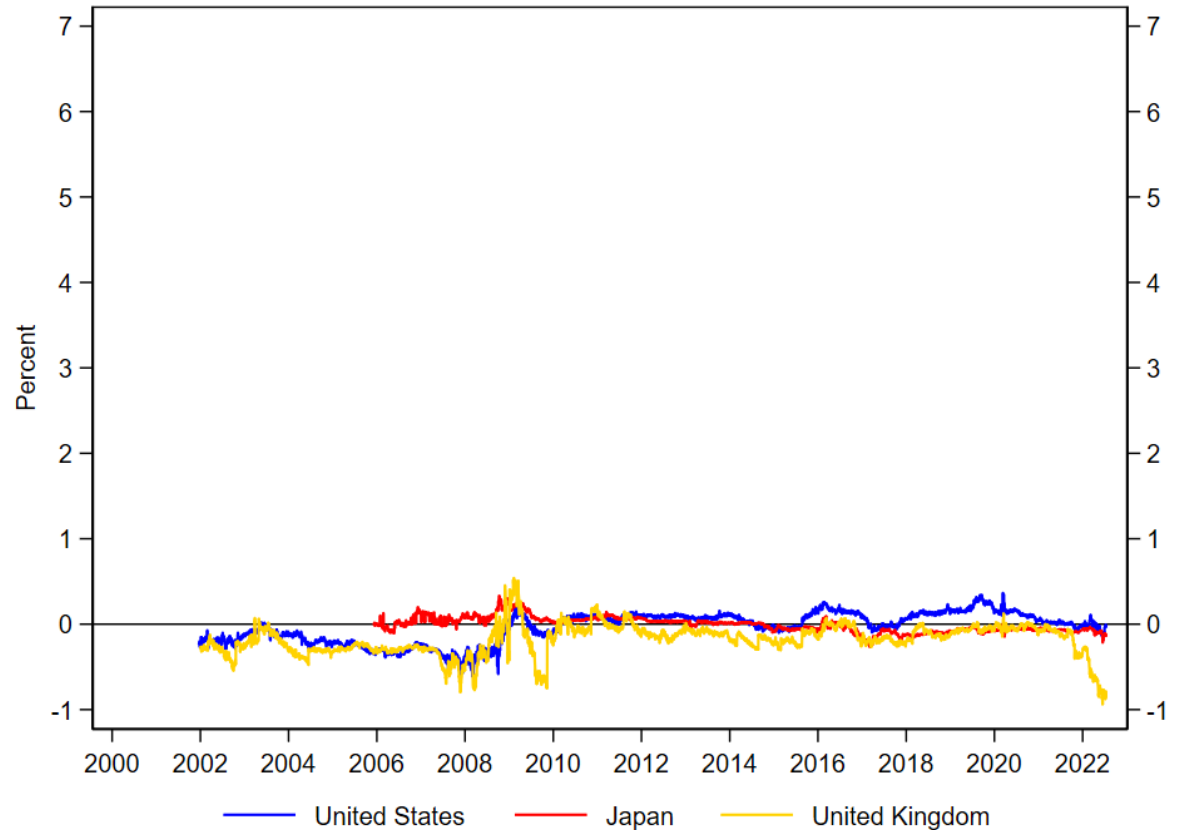


Euro area vs other major advanced economies

ECB



Fed, BOJ, BOE

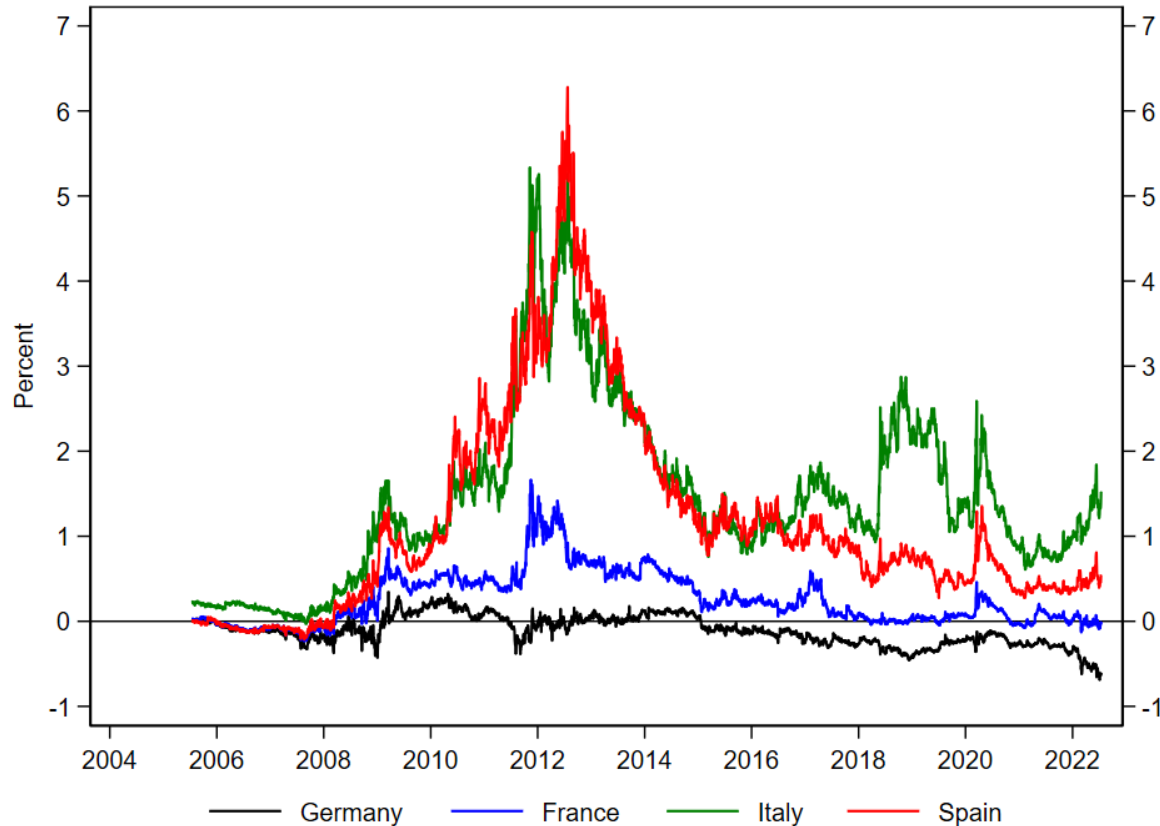


Spread between 2-year government bond yield and OIS rate.

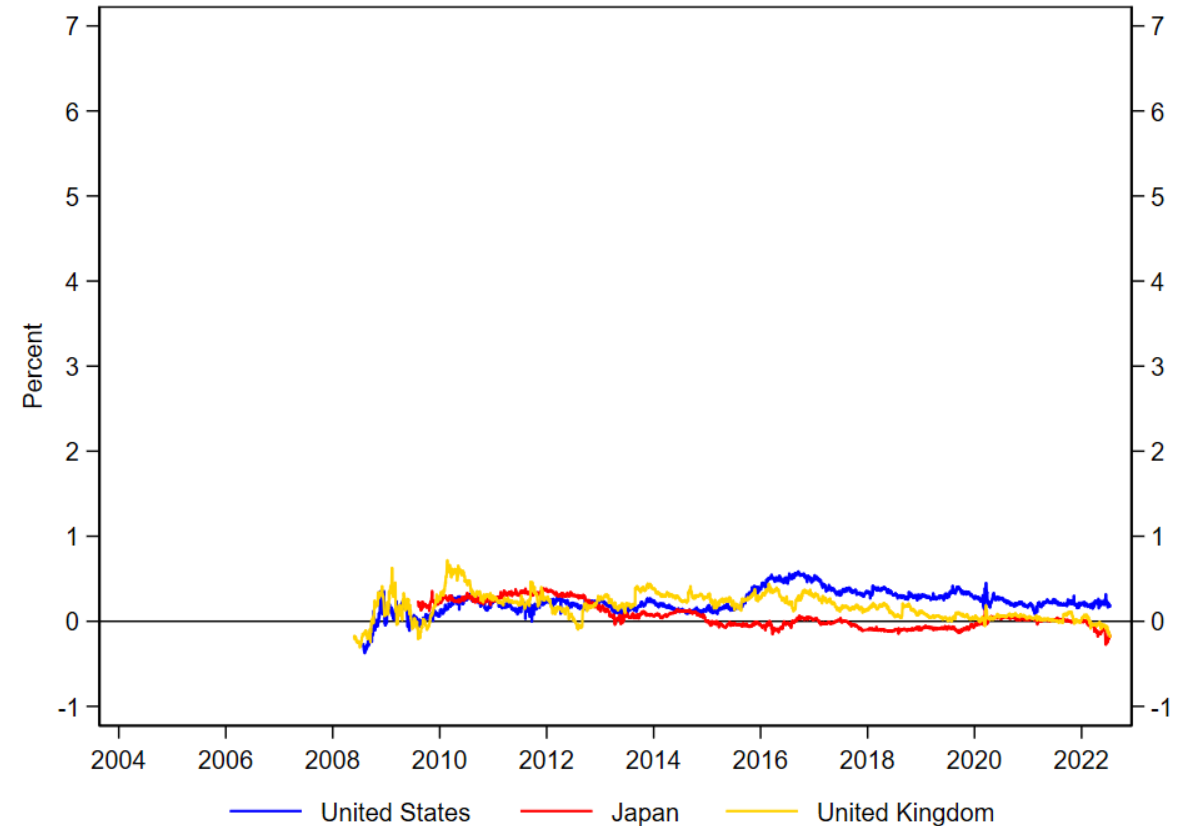


A difference in the cost of public finance

ECB



Fed, BOJ, BOE



Spread between **10-year** government bond yield and OIS rate.

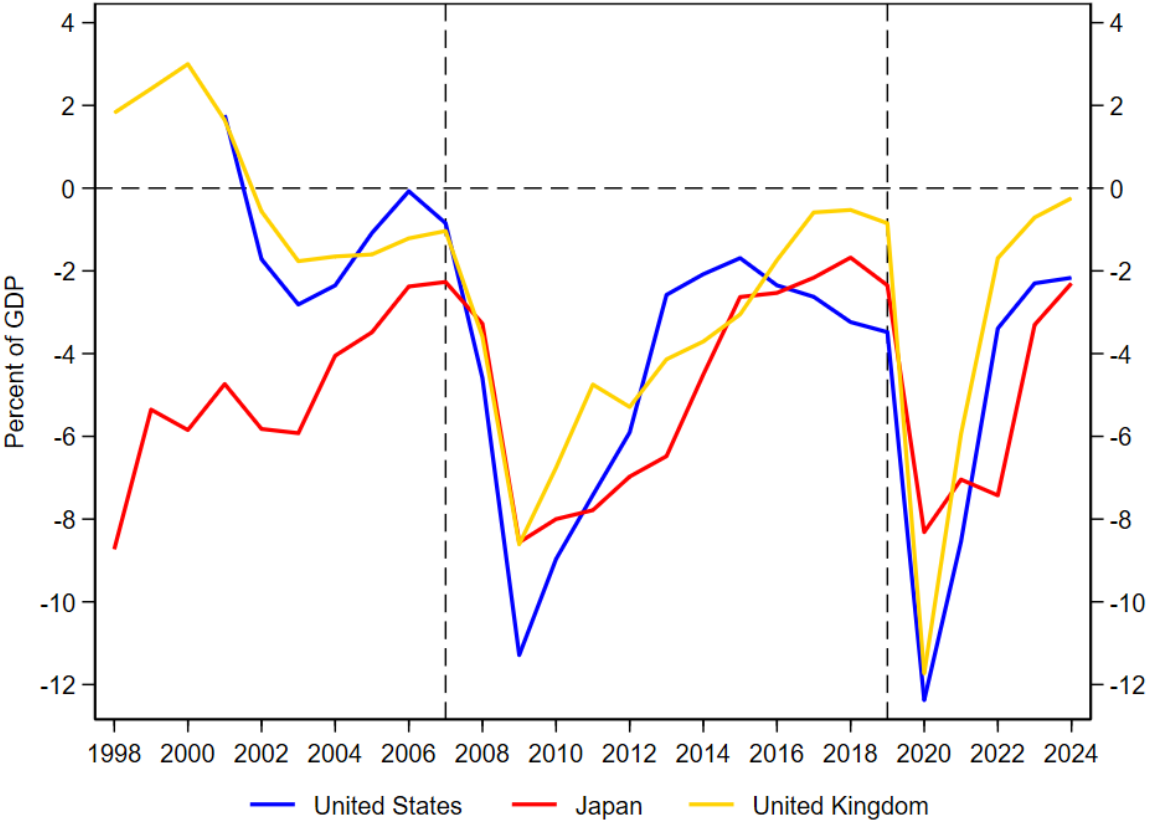


Fundamentals: Primary surplus

Germany, Italy



US, Japan, UK

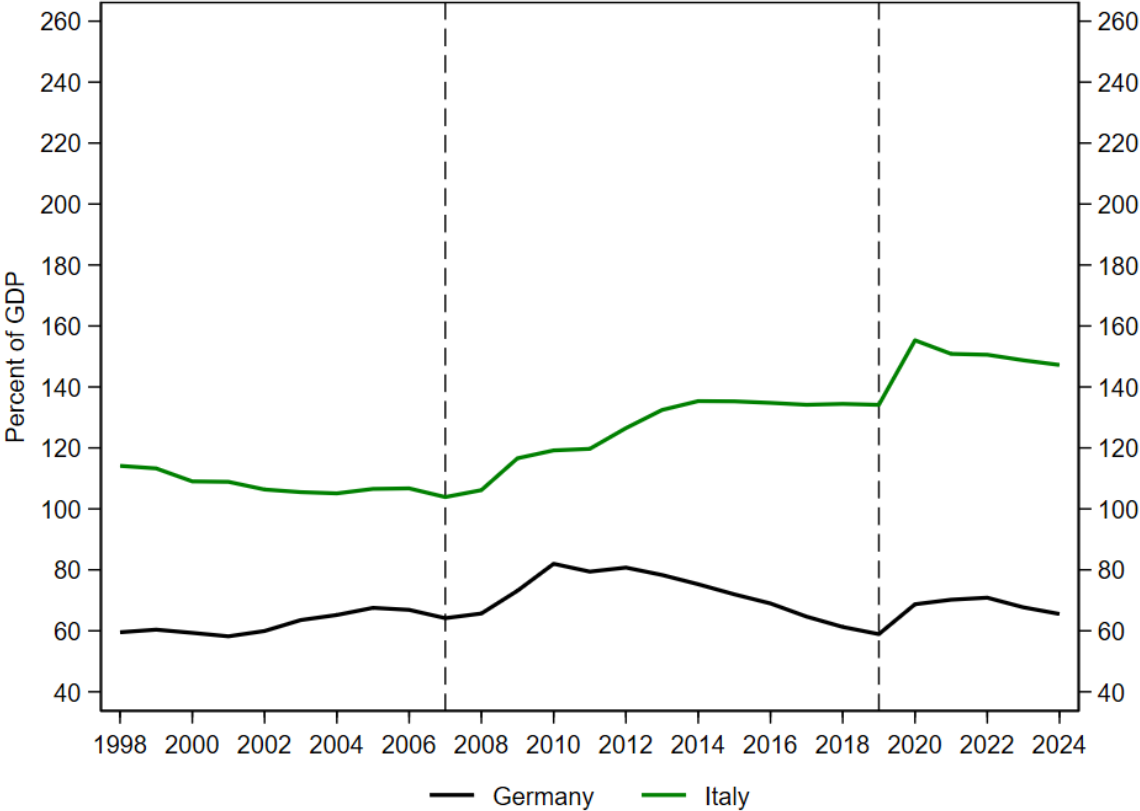


Ratio to GDP. IMF WEO, April 2022 data/projections.

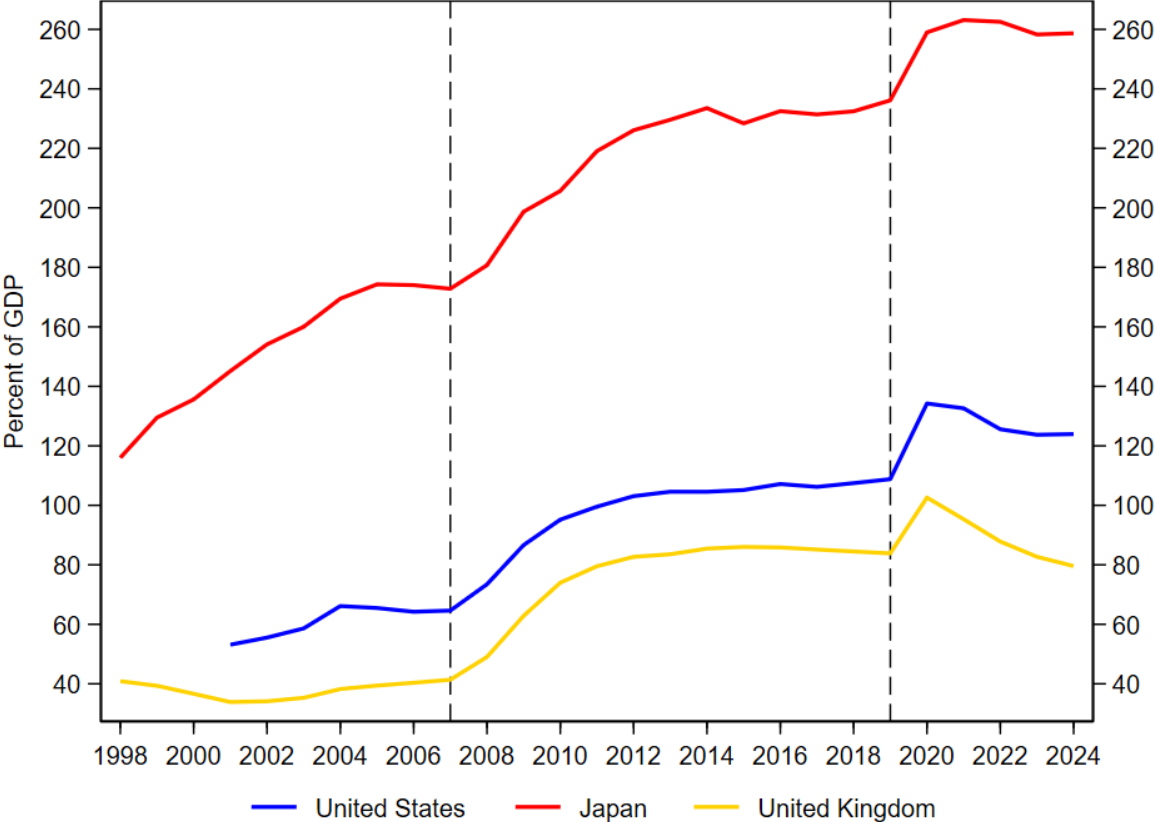


Fundamentals: Government debt

Germany, Italy



US, Japan, UK



Ratio to GDP. IMF WEO, April 2022 data/projections.

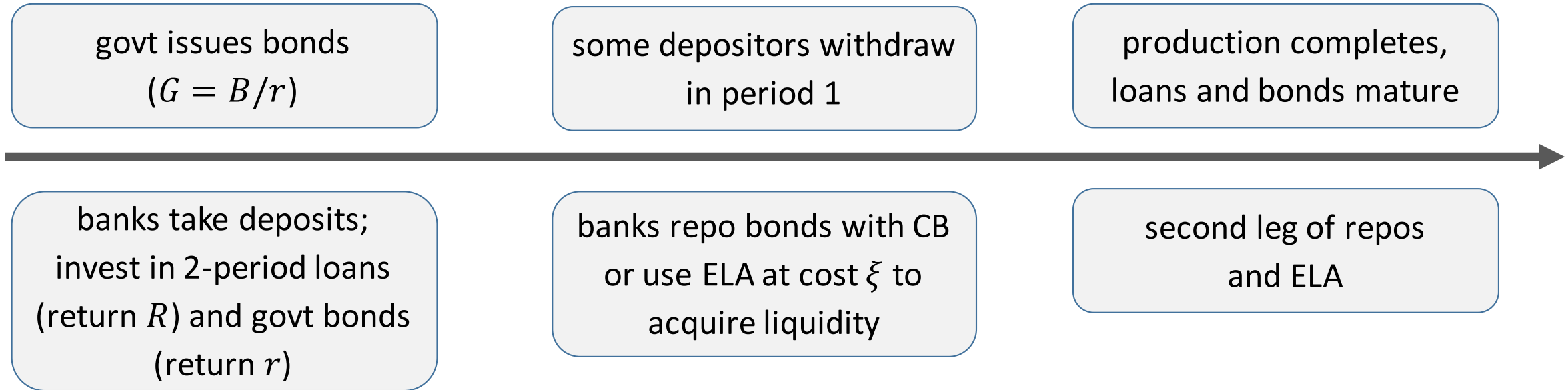


Collateral Framework: Liquidity Premia and Multiple Equilibria

- “Spreads” in markets reflect beliefs about economic fundamentals, market functioning as well as **policy**—including the plumbing of central bank operations.
- **The central bank collateral framework is a key determinant of spreads.**
- Eligibility and haircuts affect liquidity premia and roll-over risk. As a rule, central banks are careful to protect liquidity of government bonds and government debt enjoys a liquidity premium.
- **The ECB is an exception:** It relies on credit ratings to determine eligibility of government debt. Concerns of a downgrade that can result in loss of eligibility depress government bond prices and, by worsening the fiscal burden, can be self-fulfilling.
- The **cliff effect** in the ECB collateral framework introduces a fragility in government bond markets in the euro area that is absent in other economies.



A model of liquidity and collateral framework: Timeline



$$r = R - \xi$$

- Government bonds enjoy a liquidity premium because they can be used as collateral with the central bank—they provide cheap access to central bank liquidity.



Haircuts and collateral eligibility

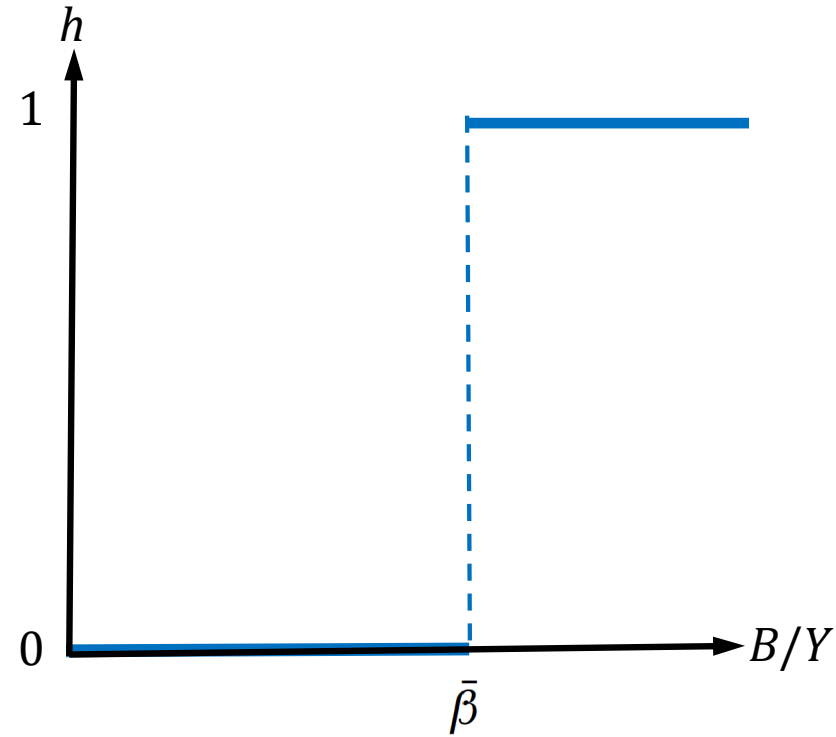
- The ECB imposes a haircut (h) on government bonds in repo transactions.
- Alternatively (and equivalently in the model): ECB rejects bonds altogether with some probability (h).

$$r = R - (1 - h)\xi$$

- Changes in (the perception of) h induce changes in spreads—consistent with what we have been observing in the euro area since the GFC.



Conditional eligibility: The cliff effect

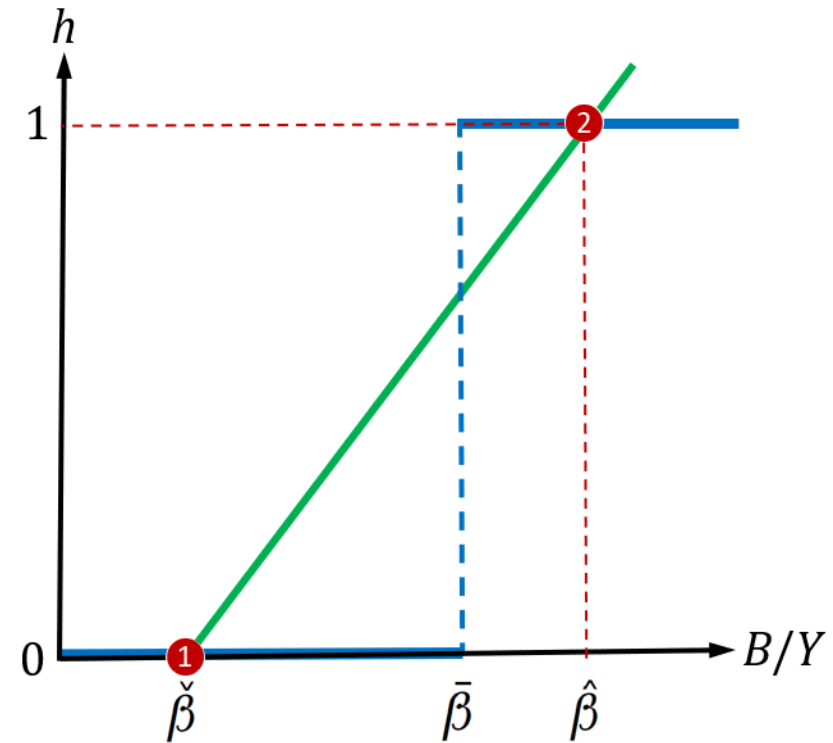


- An example with a **cliff effect**: Suppose a debt ratio limit determines eligibility:
 - If debt ratio is below $\bar{\beta}$ then $h=0$.
 - If debt ratio is above $\bar{\beta}$ then $h=1$ (debt is not eligible collateral).



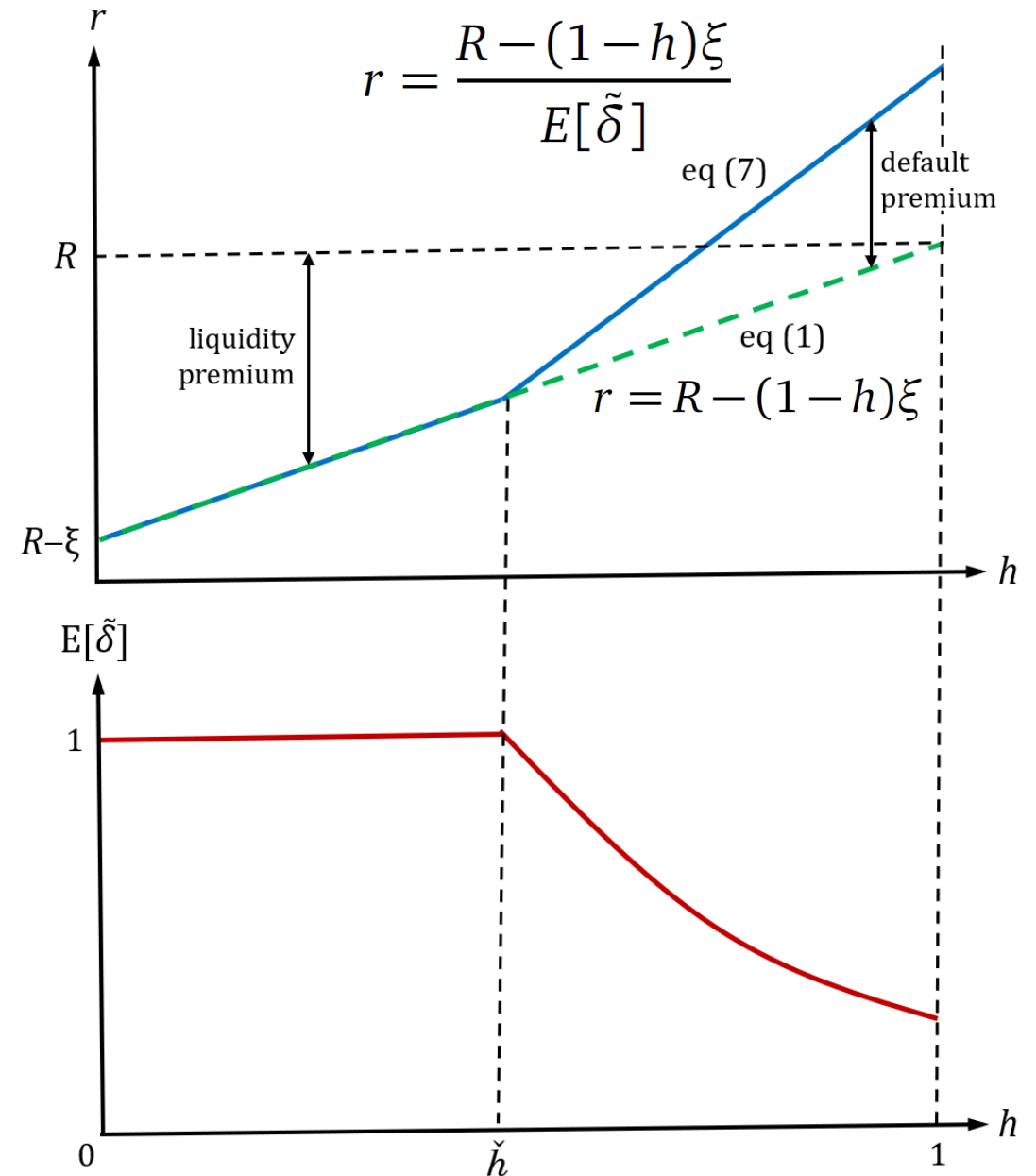
Two equilibria with the same fundamentals

- Equilibrium (1) is the “good” equilibrium with low interest rate and no haircut (government bonds are always accepted as collateral).
- Equilibrium (2) is the bad equilibrium where interest is high, debt to GDP accordingly exceeds the ECB’s acceptable level $\bar{\beta}$ and the haircut is large (100%).



An extension with endogenous stochastic default

- Consider a stochastic shock to productivity and a max tax rate.
- Public finance is fragile if max tax revenue is insufficient to cover bond payment in case of negative shock.
- By raising the cost of public finance, a larger haircut can induce a default that would have been avoided.
- The collateral framework is ultimately the cause of the problem.
- $\tilde{\delta}$: recovery rate of government bond

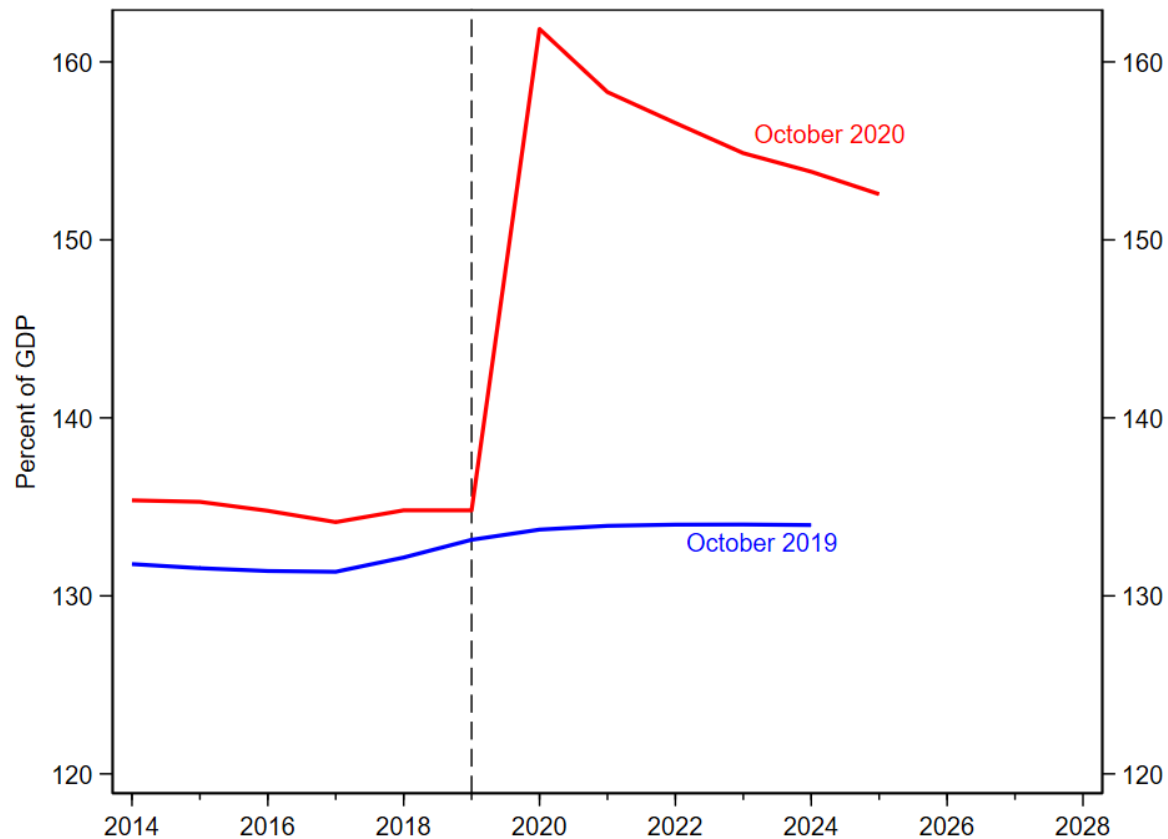


How important is the collateral framework?

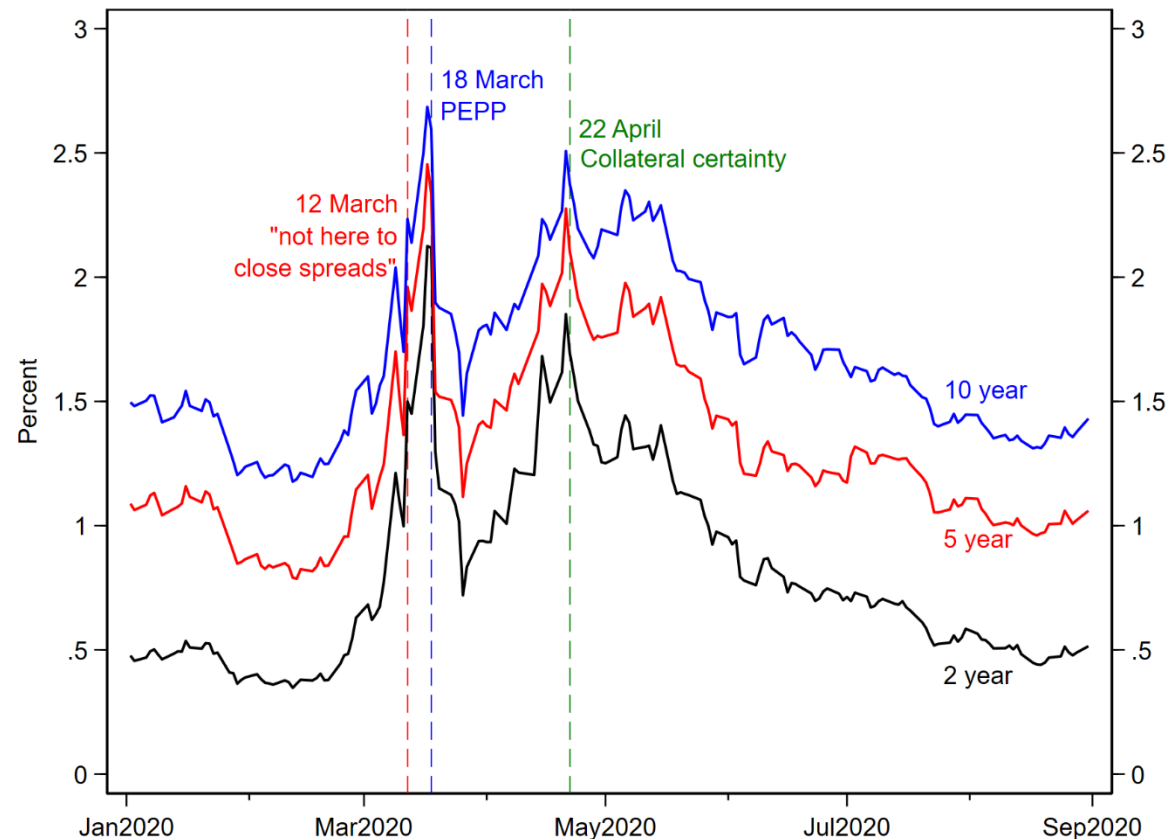
- How did the ECB avert a disaster in Spring 2020, when faced with the pandemic shock?
- Focus on Italy as an example.
- Pandemic shock resulted in a 20 percentage point spike in projected debt ratio.
- Predictably, markets reacted, pricing increased roll-over risk/default on Italian debt.
- ECB averted collapse of the euro by suspending reliance on credit ratings to determine collateral eligibility.



How did the ECB avert a crisis during the pandemic?



Italy: Debt-GDP ratio data/projections.
IMF WEO, dates shown.



Italy: Government bond yields over OIS.



Temporary suspension of source of fragility

ECB takes steps to mitigate impact of possible rating downgrades on collateral availability

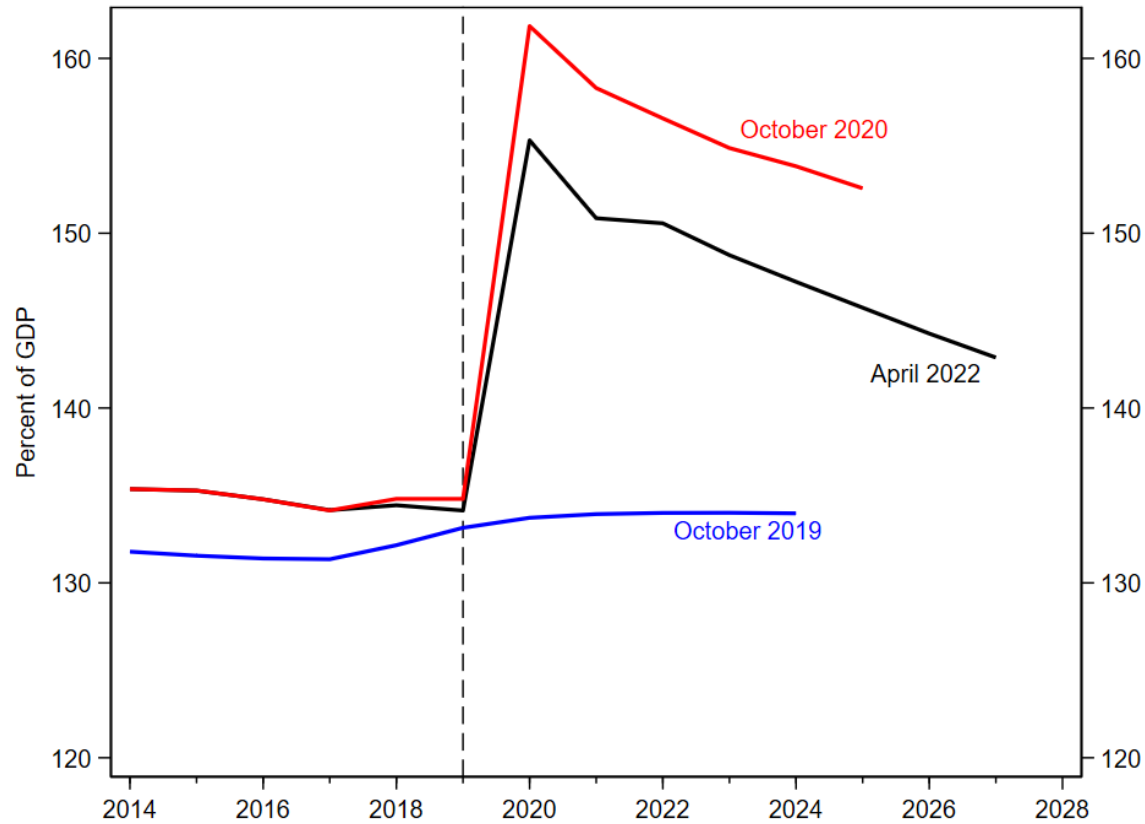


22 April 2020

- › ECB to grandfather **until September 2021** eligibility of marketable assets used as collateral in Eurosystem credit operations falling below current minimum credit quality requirements
- › Appropriate haircuts will apply for assets that fall below the Eurosystem minimum credit quality requirements
- › Decision reinforces broader package of collateral easing measures adopted by the Governing Council on 7 April 2020, which will also remain in place until September 2021
- › ECB may decide further measures, if needed, to continue ensuring the smooth transmission of its monetary policy in all jurisdictions of the euro area



The return to fragility



Italy: Debt-GDP ratio data/projections.
IMF WEO, dates shown.



Italy: Government bond yields over OIS.



The return to fragility

PRESS RELEASE

ECB announces timeline to gradually phase out temporary pandemic collateral easing measures

24 March 2022

- > Pandemic collateral easing measures introduced in April 2020 will be gradually phased out in three steps between July 2022 and March 2024



The current turmoil

- Debt ratio projections have improved since the pandemic shock in 2020.
- However, on March 24, 2022, the ECB decided to “gradually” return to the fragility-inducing collateral framework that was in place before the pandemic.
- The current turmoil is a reflection of the increase in roll-over risk induced by the ECB collateral framework.
- What can the ECB do this Thursday (July 21, 2022) to deal with the current turmoil?
- **Embrace the lessons from its successful policy during the pandemic: Stop using credit ratings to determine the collateral eligibility of government debt.**



Extra slides

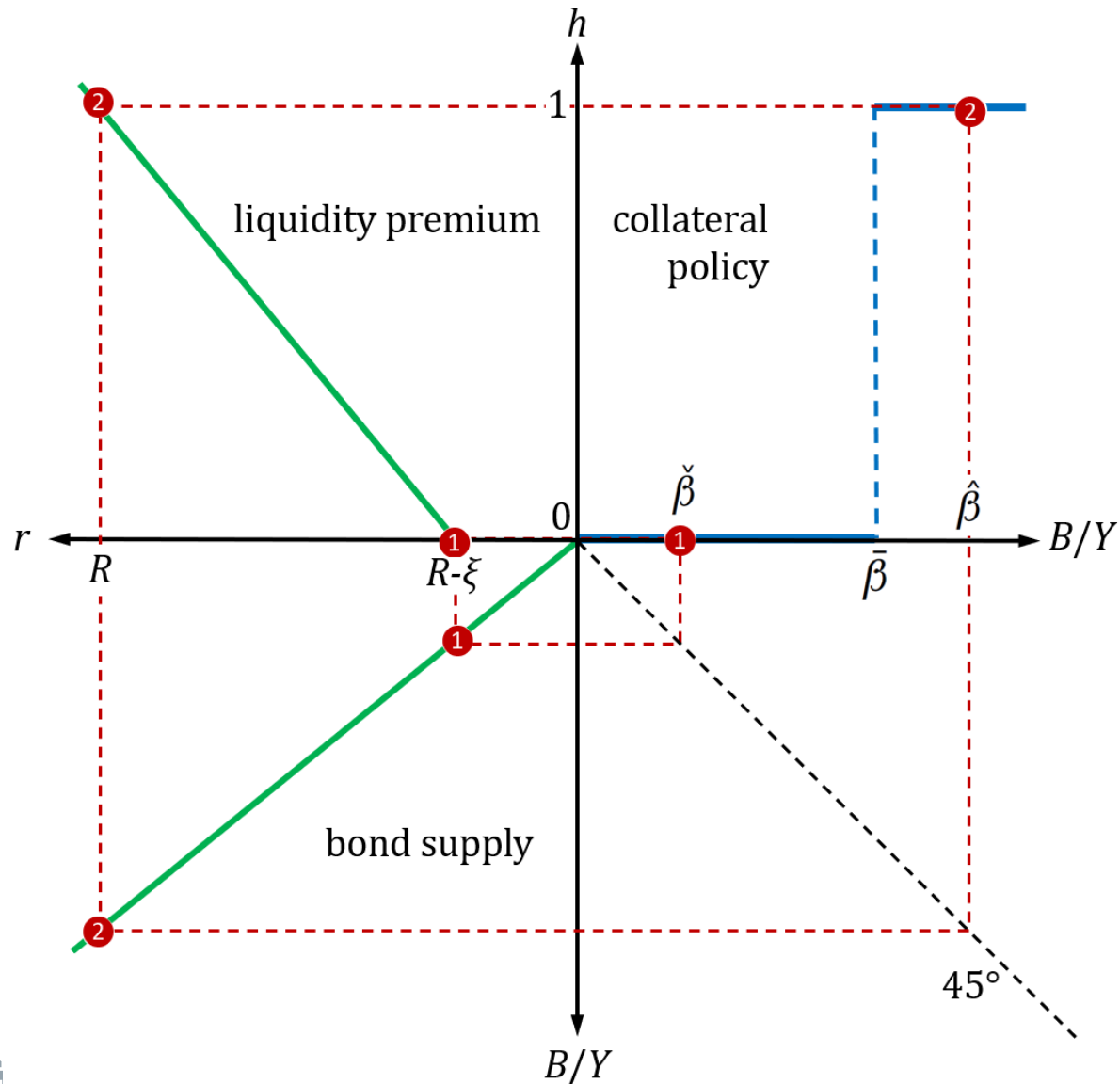


Key elements of the model

1. Banks take deposits and invest in 2-period loans (return R) and govt bonds (return r).
2. Govt issues enough bonds to finance a given public good ($G = B/r$).
3. Some depositors withdraw in period 1.
4. Banks require liquidity to accommodate early withdrawals:
 - Repo bonds with central bank.
 - Use loans as collateral in ELA operation with central bank. Always possible but ELA is more expensive (ξ).
5. Bonds enjoy liquidity premium because they provide cheaper access to central bank liquidity: $r = R - \xi$.
6. The ECB either imposes a haircut (h) on bonds in repo transactions or rejects bonds altogether with some probability (h).
7. This reduces the liquidity premium: $r = R - (1 - h)\xi$.
8. This increases the public finance cost (higher r , hence higher B) and increases the debt-to-GDP ratio B/Y .
9. If the ECB chooses to make h a function of B/Y , multiple equilibria are possible.



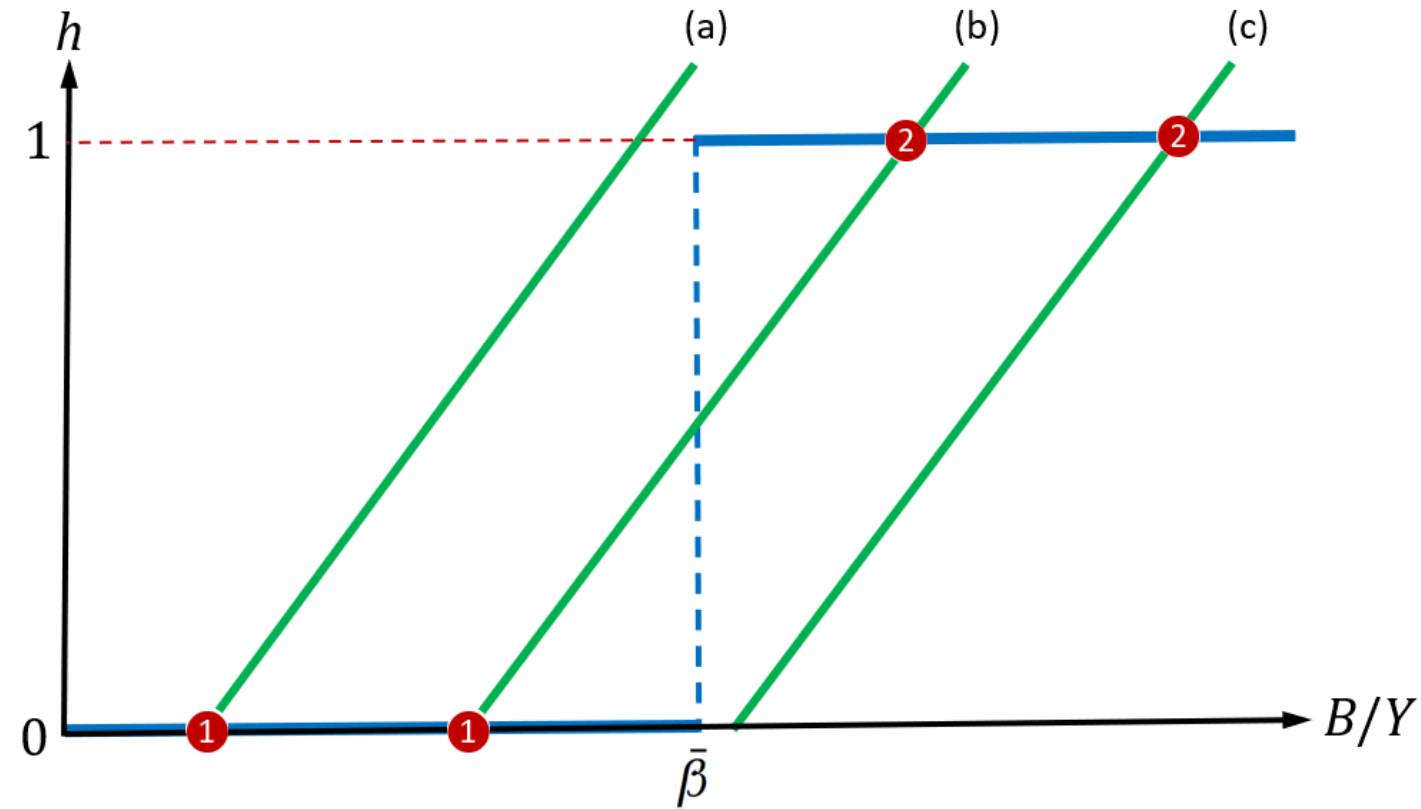
The model in one graph



- Top-right, **blue line is the collateral policy**: accept bonds only up to maximum acceptable B/Y (captures rating constraint).
- Top-left: **liquidity premium depends on haircut**.
- Bottom-left: **Bonds issued depends on price of bonds** (enough to provide public good).
- **Two equilibria are possible** (as well as a mixed one).

Inherited debt

- Inherited debt position affects configuration of equilibria.
 - a) “Bad” equilibrium not supported even with cliff effect in collateral framework
 - b) Both “good” and “bad” equilibria exist.
 - c) Only “bad” equilibrium possible.



Fiscal dominance, fiscal discipline and moral hazard?

- Protecting against fiscal dominance is a challenge for all independent central banks.
- Defending sound fiscal policy is particularly important in a monetary union where the central bank serves multiple governments.
- Some argue that imposing conditions on collateral eligibility for government debt is an effective way to promote fiscal discipline.
- The EU Treaty does not include the enforcement of fiscal discipline in the ECB's mandate.
- Is it an efficient solution? The ECB's experience suggests otherwise.

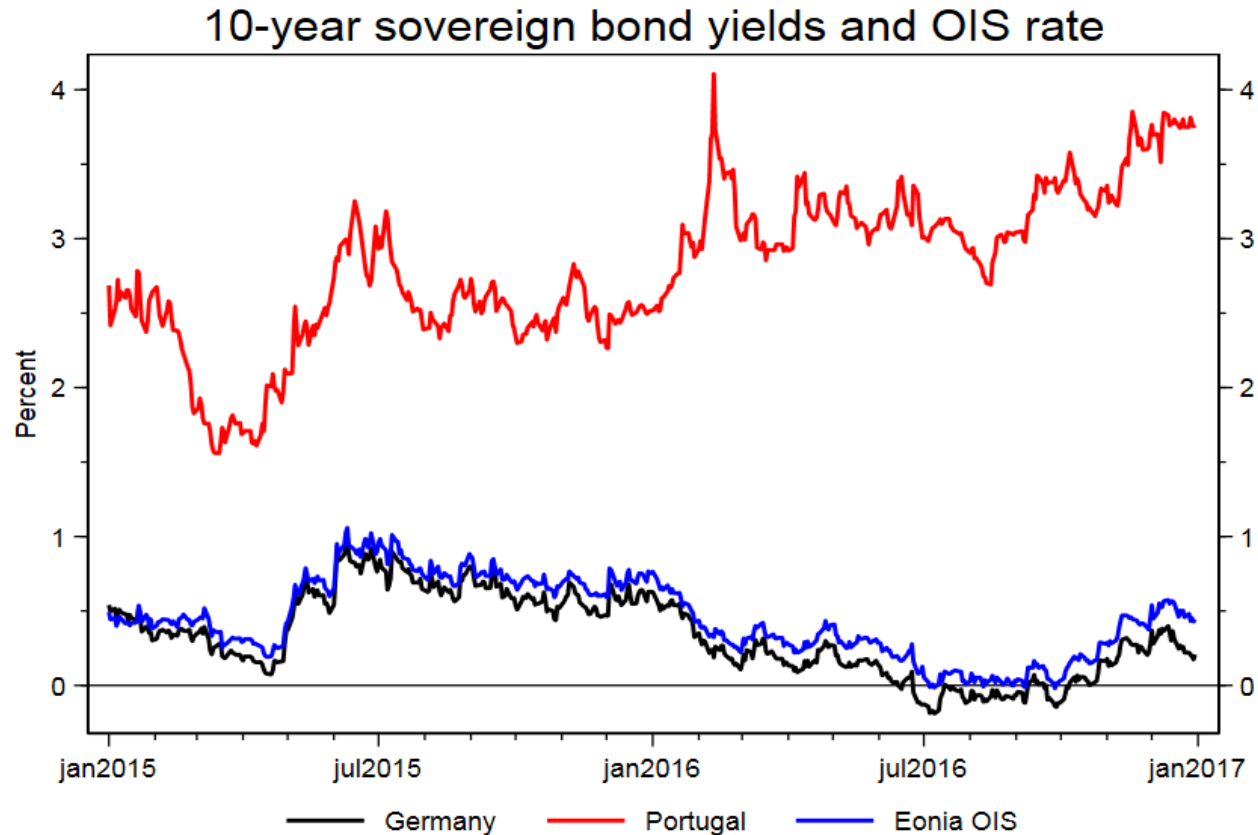


A legitimate use of discretionary authority?

“It has been recently argued that the ECB should use its collateral policy as a sanction to exert fiscal discipline [. . .] Although superficially appealing, this suggestion would be misguided. [. . .] it is clear that the design of the Stability and Growth Pact and its implementation are governmental responsibilities, to be controlled by parliaments. [. . .] it is not and cannot be the ECB’s role to enforce fiscal discipline and to correct shortcomings in the implementation of the Stability and Growth Pact. Attempting to do so would politicise the ECB’s operations and ultimately threaten its independence [. . .]”
(Issing, 2005).



Portugal in 2016 and “a little-known credit agency” in Toronto



- In 2015-2016, Portugal’s recovery was hampered by uncertainty relating to the cliff effect in ECB’s collateral framework.
 - Despite ECB QE, monetary conditions were tightening in Portugal.
 - DBRS was considering downgrading Portugal, which would have made its debt **not** eligible collateral.
 - 21 October 2016: DBRS decided not to downgrade Portugal.
- But the **uncertainty persisted**: “The rating is not forever. In April, DBRS will revisit its rating, so for the next six months, Portugal’s fate will again depend on a little-known credit agency based in Toronto”. (FT, 24 October, 2016).

