

Self-fulfilling debt crisis. A simple model of multiple equilibria

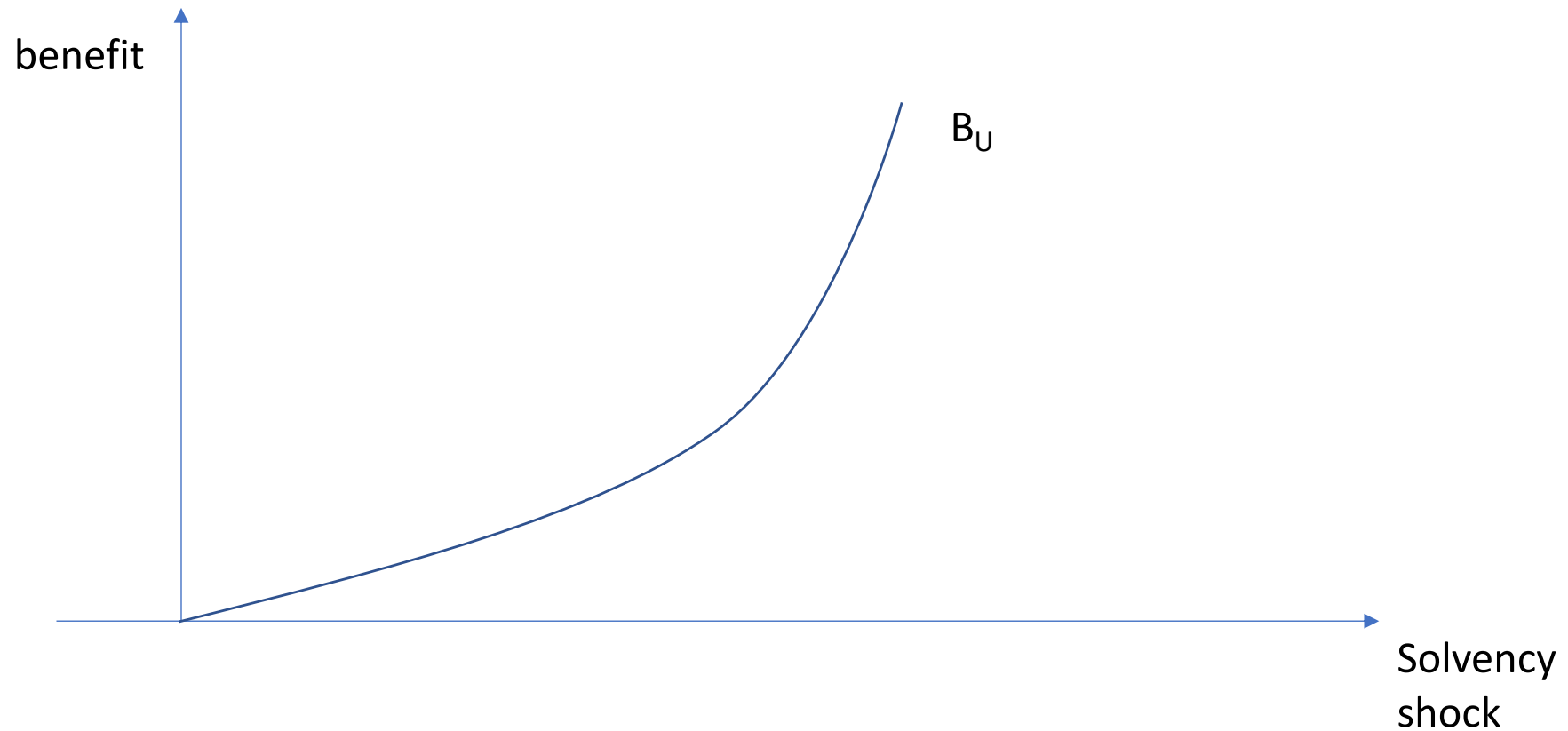
Benefit and cost of default

(De Grauwe and Ji, 2013 and De Grauwe 2018)

- **The temptation to default** or **the benefit of defaulting**: the government can reduce the interest burden on the outstanding debt.
- As a result, if a state defaults it will reduce spending and/or increase taxes by less than without the default. Note that tax increase and expenditure cuts are also politically costly.
- This *benefit* of defaulting increases with the size of shock (e.g. a recession that reduces revenues), ceteris paribus.

Benefit of default

Benefit or temptation of default rises with the magnitude of the solvency shock



The position of B_U

- We distinguish three factors that affect the position and the steepness of the B_U curve:
 - **The initial debt level.** The higher is this level, the higher is the benefit of a default. Thus, with a higher initial debt level the B_U curve will rotate upwards.
 - **The efficiency of the tax system.** In a country with an inefficient tax system, the government cannot easily increase taxation. Thus, in such a country the option of defaulting becomes more attractive. The B_U curve rotates upwards.
 - **The size of the external debt.** When external debt takes a large proportion of total debt there will be less domestic political resistance against default, making the latter more attractive (the B_U curve rotates upwards)

Costs of debt default

(<https://www.imf.org/en/News/Seminars/Conferences/2018/05/24/sovereign-debt-a-guide-for-economists-and-practitioners>) ch 7 IMF OUP

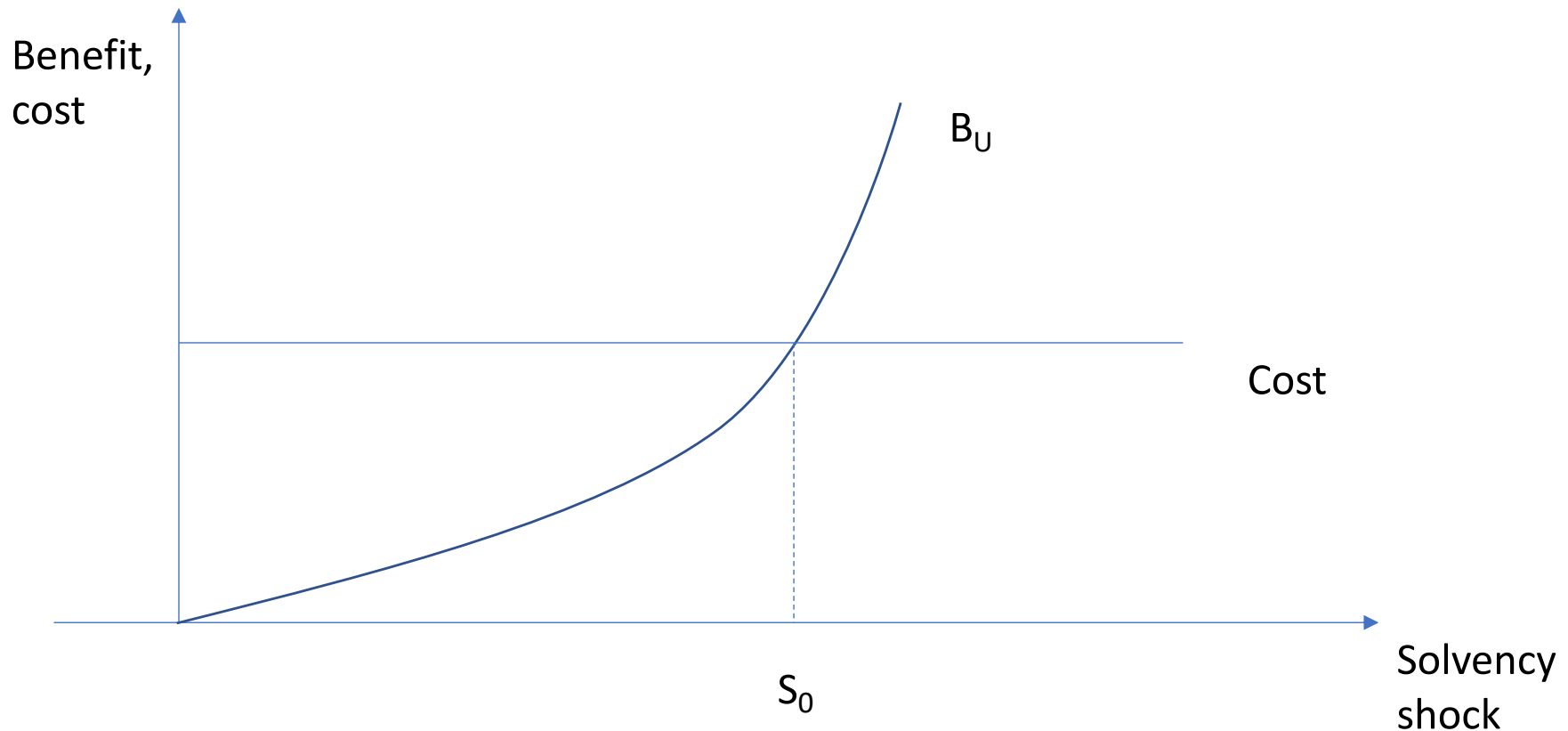
- The exclusion of sovereigns from international capital markets, as well as to an increase in borrowing costs afterwards.
- Consensus that defaults hurt the conditions under which governments can borrow abroad and at home, but there is disagreement around how persistent this effect is.
 - The borrowing costs (risk spreads) increase markedly, but only in the first two years post-default but most defaulters regain access to international markets within just one or two years after a crisis.
 - Other studies find that depending on the size of haircuts, the exclusion period from international markets is longer

Additional costs: Collateral damage for the economy

- Sovereign debt crises are accompanied by a significant drop in economic growth
- Negative correlation between default and (i) trade, (ii) foreign direct investment and (iii) domestic firms in the defaulting country
- A sovereign default significantly reduces the value of domestic firms on the stock market, especially for exporters and foreign-owned companies
- The fall in output is particularly large when defaults are accompanied by banking crises

Cost of default

The model considers a given cost, independent of the magnitude of the initial solvency shock



For shocks larger (smaller) than S_0 the benefit of default is greater (lower) than the cost → default will (not) take place

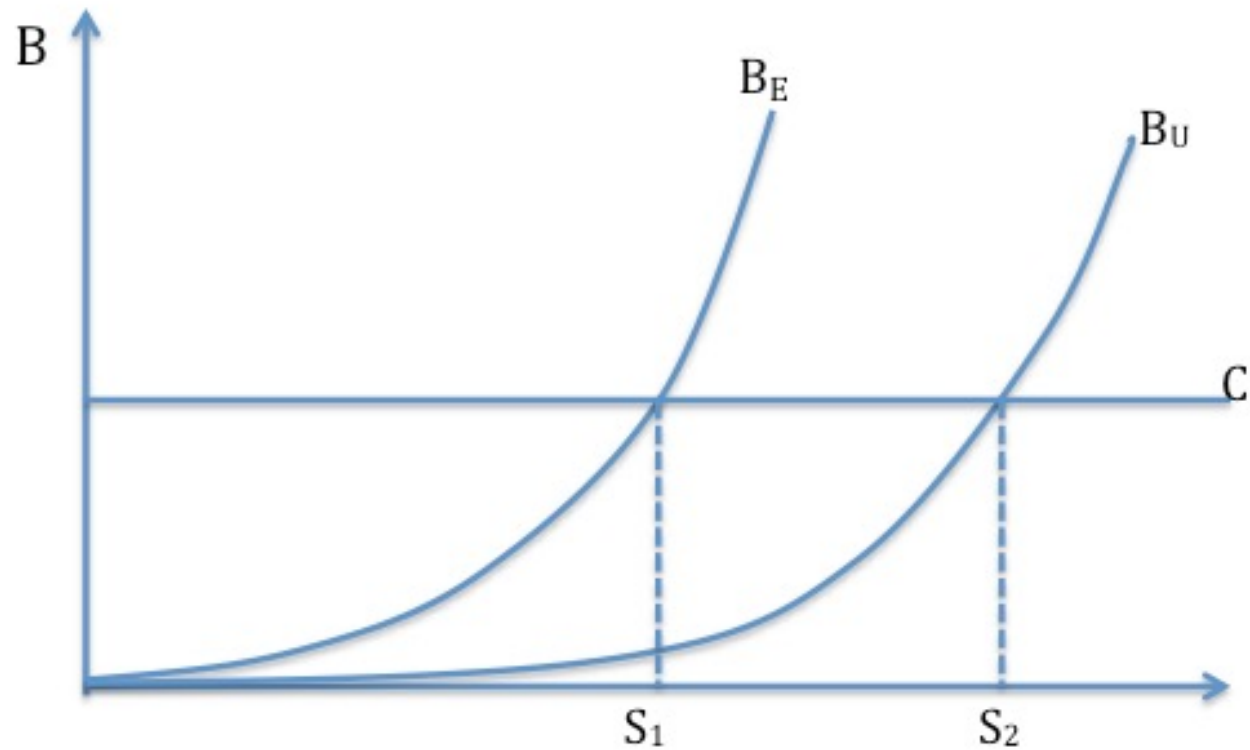
What is missing in this account?

The role of financial markets' expectations

- When investors expect a default, they will sell government bonds. As a result, the interest rate on government bonds increases.
- This raises the government budget deficit requiring a more intense austerity program of spending cuts and tax hikes. Thus, default becomes more attractive.
- For every solvency shock, the benefits of default will be higher than they were when the default was not anticipated

Cost and benefit of default

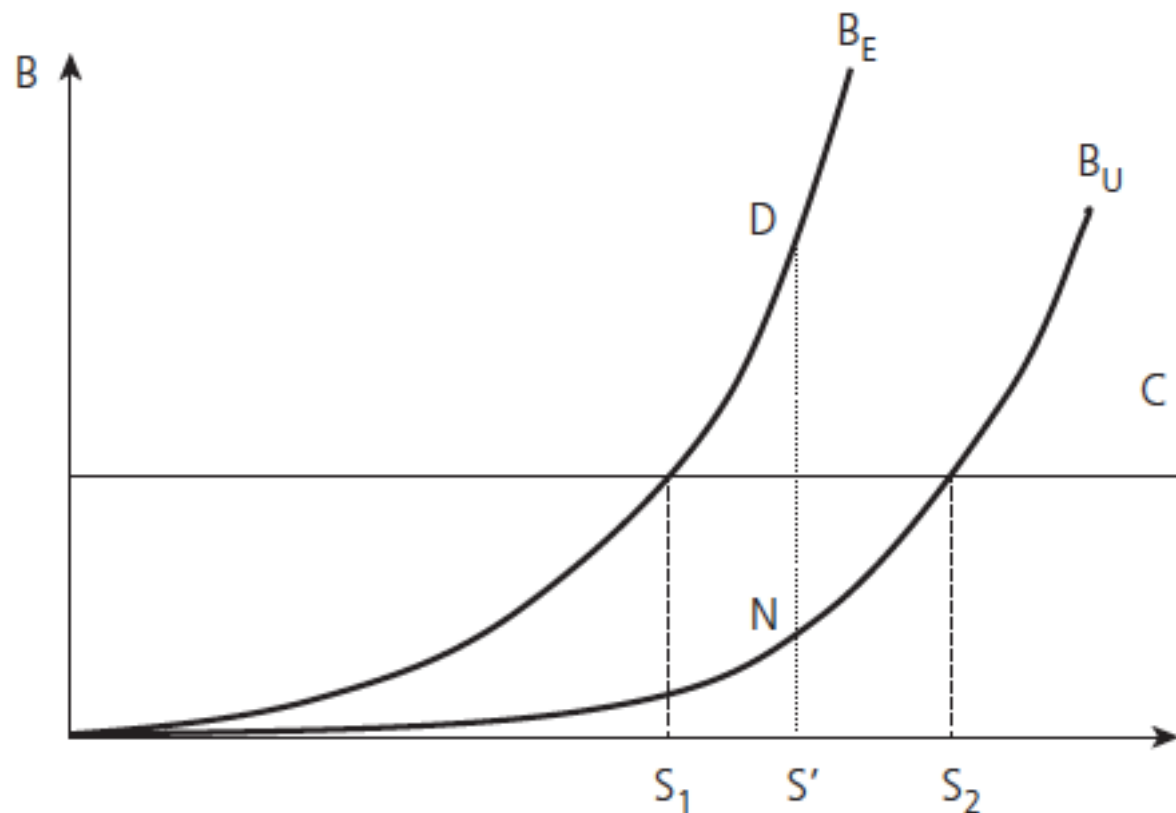
Cost and benefits of default after a solvency shock



Solvency
shock

Three types of shocks

Good and bad equilibria



Small shock: $S < S_1$

There will be no default because
cost exceeds benefits,
Consistent with expectations

Large shock: $S > S_2$.

Default is certain because benefits
exceed costs
Consistent with expectations

Intermediate shock:

$$S_1 < S < S_2$$

Two equilibria: N and D

Both consistent with expectations

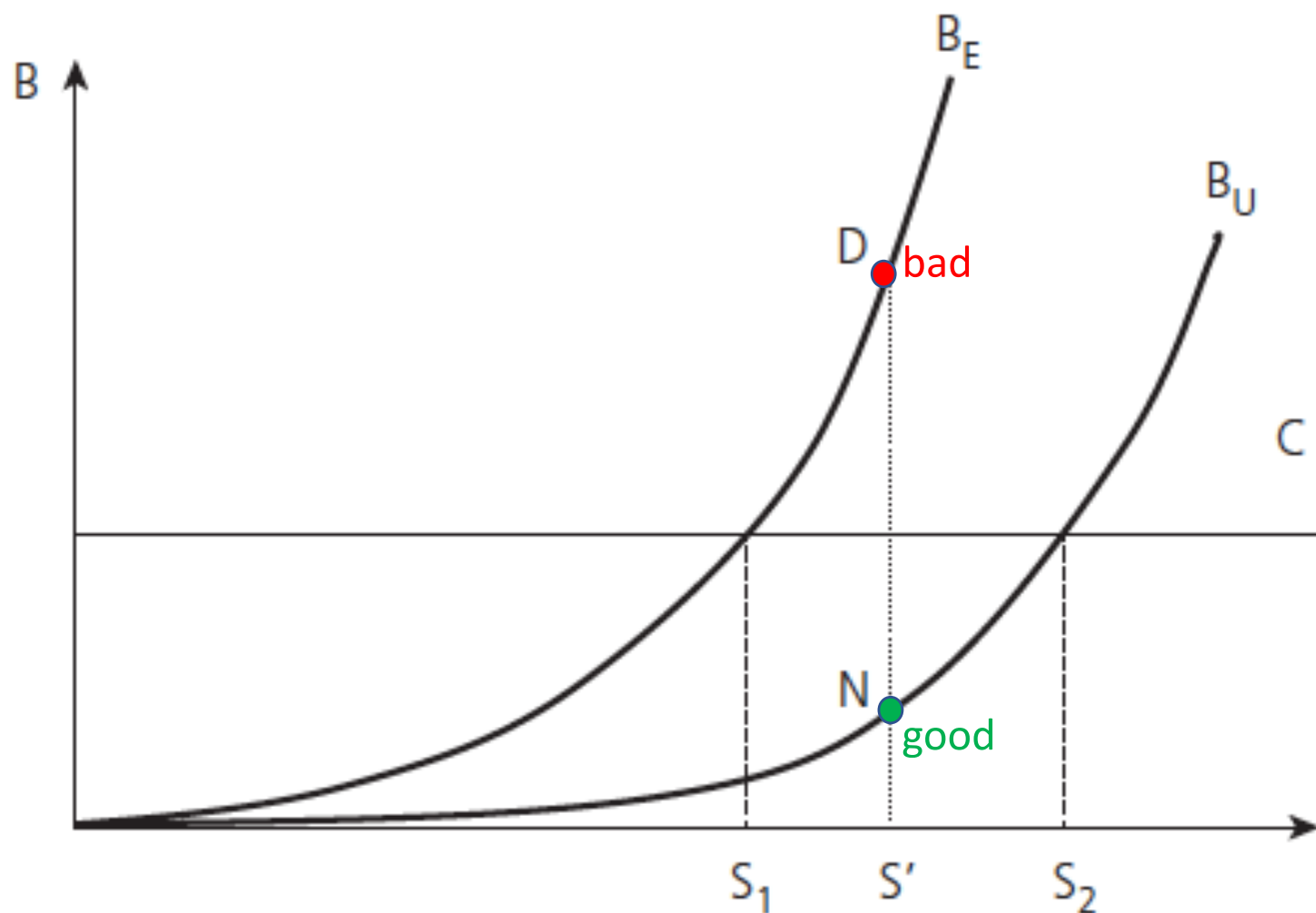
- When solvency shock is not too small nor too large:
- One obtains two possible equilibria:
 - a bad one (D) that leads to default,
 - a good one (N) that does not lead to default.
- Both are equally possible.
- The selection of one of these two points only depends on what investors expect.
 - If the latter expect a default, there will be one;
 - if they do not expect a default there will be none.
 - this remarkable result is due to the self-fulfilling nature of expectations.
- We have **coordination failure**

- Note: There would be no scope for multiple equilibria if the government could always guarantee that the cash would be available
- The B_E -curve would coincide with the B_U -curve.

Can policies avoid a coordination failure? Can they avoid the system moving into a bad equilibrium?

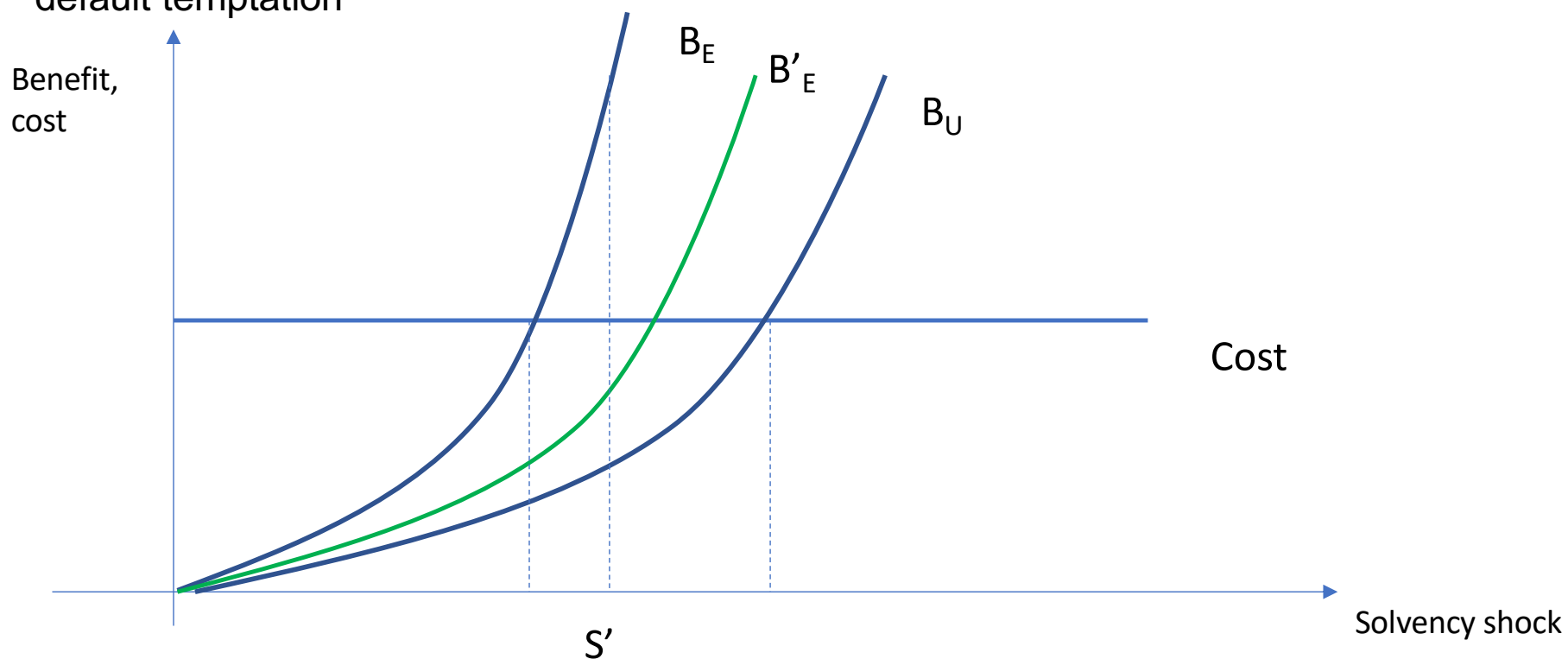
- In practice, in EZ, the two curves do not coincide
- The new instruments (EFSM and EFSF eventually ESM) have helped but had not then been sufficient
- To avoid the coordination failure and the then likely collapse of the eurozone the monetary policy was crucial

Similarly, in terms of benefits and costs:



The role of the CB

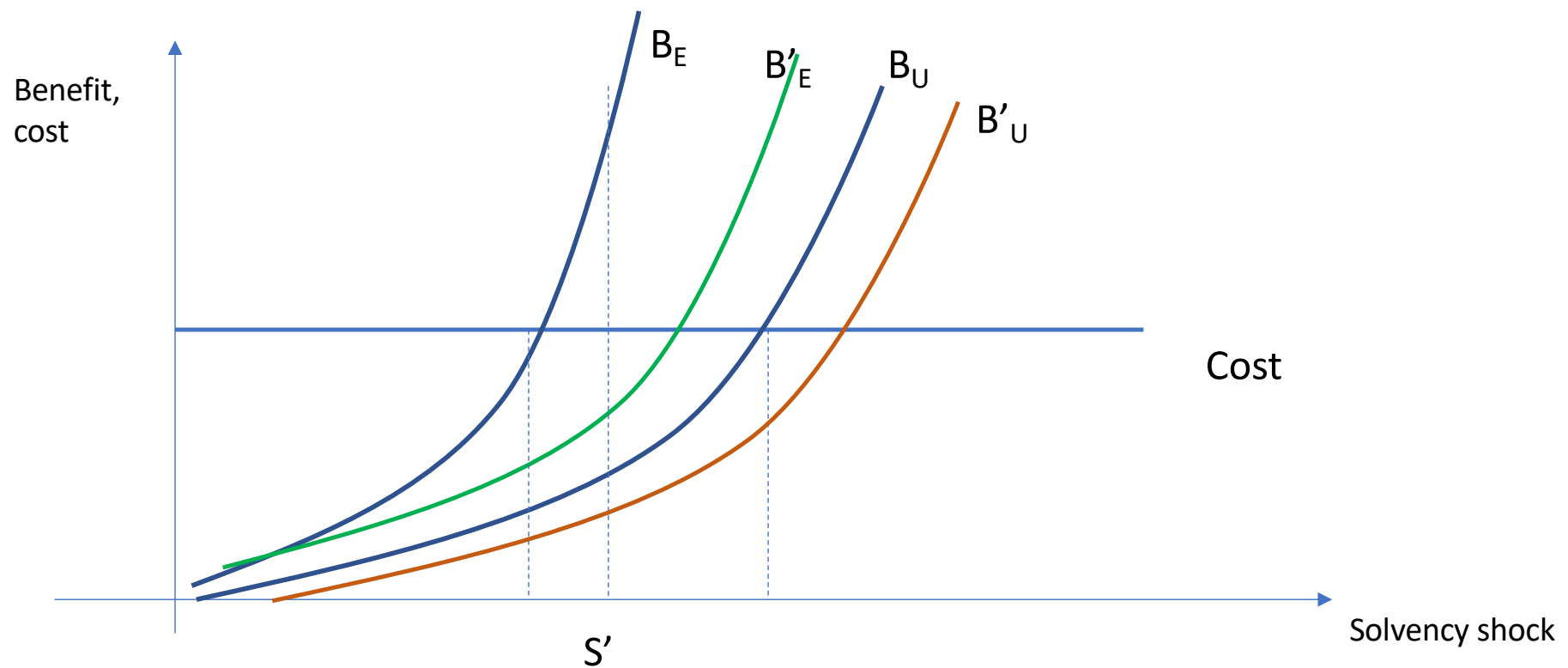
The bad equilibrium could be avoided **if the benefit of default could be lowered**; e.g. the announcement of the CB to step in in case of financial distress and panic to calm the markets; if credible, this could reduce markets runs on debt, lower the spread and the default temptation



Note. In B'_E for a given shock S' , the equilibrium is good one, no default (cost > benefit)

The role of financial help

If the government obtains loans (from EMS and/or from EU) at a relatively low interest rate, the benefit to default is reduced.



Note. In B'_E for a given shock S' , the equilibrium is no default (cost > benefit)

Are there other ways to solve the
fragility of EMU?

Budgetary union

- This consists in centralizing a significant part of the national budgets into a common union budget.
- Such a budgetary union works as:
 - *Insurance mechanisms*: triggers **income transfers** from the country experiencing good times to the countries hit by bad luck (note: no need of loans...).
 - *Protection mechanism*: allows **consolidating a significant part of national government debts and deficits**, thereby protecting member states from liquidity crises and forced defaults

- Centralized budget allows for automatic transfers between countries of a monetary union
 - Can offset asymmetric shocks
 - But may create problems of **moral hazard** unless the shocks are temporary
- In addition, a strong union government may be capable of ‘forcing’ common central bank into providing liquidity in moments of crisis.
- Union government acquires the characteristics of a “stand alone” government, i.e. it *issues debt* in a currency over which it has full control.

Budget in EU

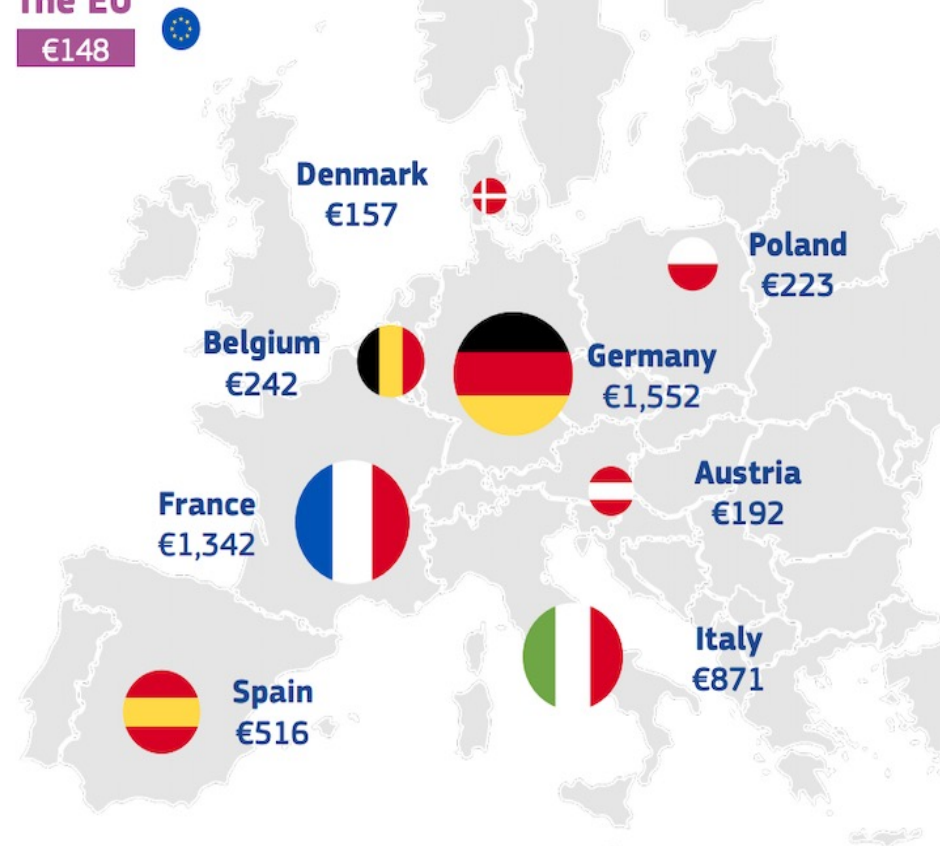
In the EU the budget has been traditionally very small:

- 2019: €148 billions or 1% of EU GDP (part of Multiannual Financial Framework MFF – 7 year budget 2014-20)
- national budgets typically absorb 40% to 50% of GDP

(See Infographic next slide)

How big is the EU budget?

The EU
€148



In billions, in 2019. Forecast from May 2019. The EU budget is expressed in payment appropriations.



The EU budget costs the average citizen less than a cup of coffee per day.

Did you know?

At some €148 billion (2019 figure), the annual EU budget is in fact smaller than the budgets of Austria or Belgium. The EU budget represents a small part of total public expenditure in the EU: around 1% of combined EU income and only around 2% of public spending in the EU.

The EU budget is only for investments. It finances infrastructures and research projects where economies of scales are relevant; it avoids duplication of efforts.
NOTE: It does not fund social protection (e.g., unemployment benefits, pensions), primary education or national defence.

It amounts to 1% of combined total income in EU and 2% of total expenditure in the EU

The EU budget at a glance,
May 2019

<https://ec.europa.eu/>

At some **€148 billion** (2019 figure), the EU budget is in fact smaller than the budgets of Austria or Belgium.

This was a **tiny fraction (2%)** of the combined national budgets of all EU countries (€7,524 billion) in 2019.

Some comparisons...

National governments in the EU spend more than **50 times** what the EU does through its budget;

EU spending represents less than **1% of the total value of the EU economy** (Gross National Income of all EU Member States);

By contrast, an average national budget in the EU is **46%** of the value of its economy.

...And a contrast

Unlike national budgets, which are mainly used to provide public services and fund social security systems, the EU budget is **primarily used for investment**.

The average EU citizen pays **€240 per year** towards the EU budget (2018 figures) – less than the price of an average cup of coffee per day.

Source: https://ec.europa.eu/info/strategy/eu-budget/eu-budget-added-value/fact-check_en#howbigistheeubudget

Budget in EU

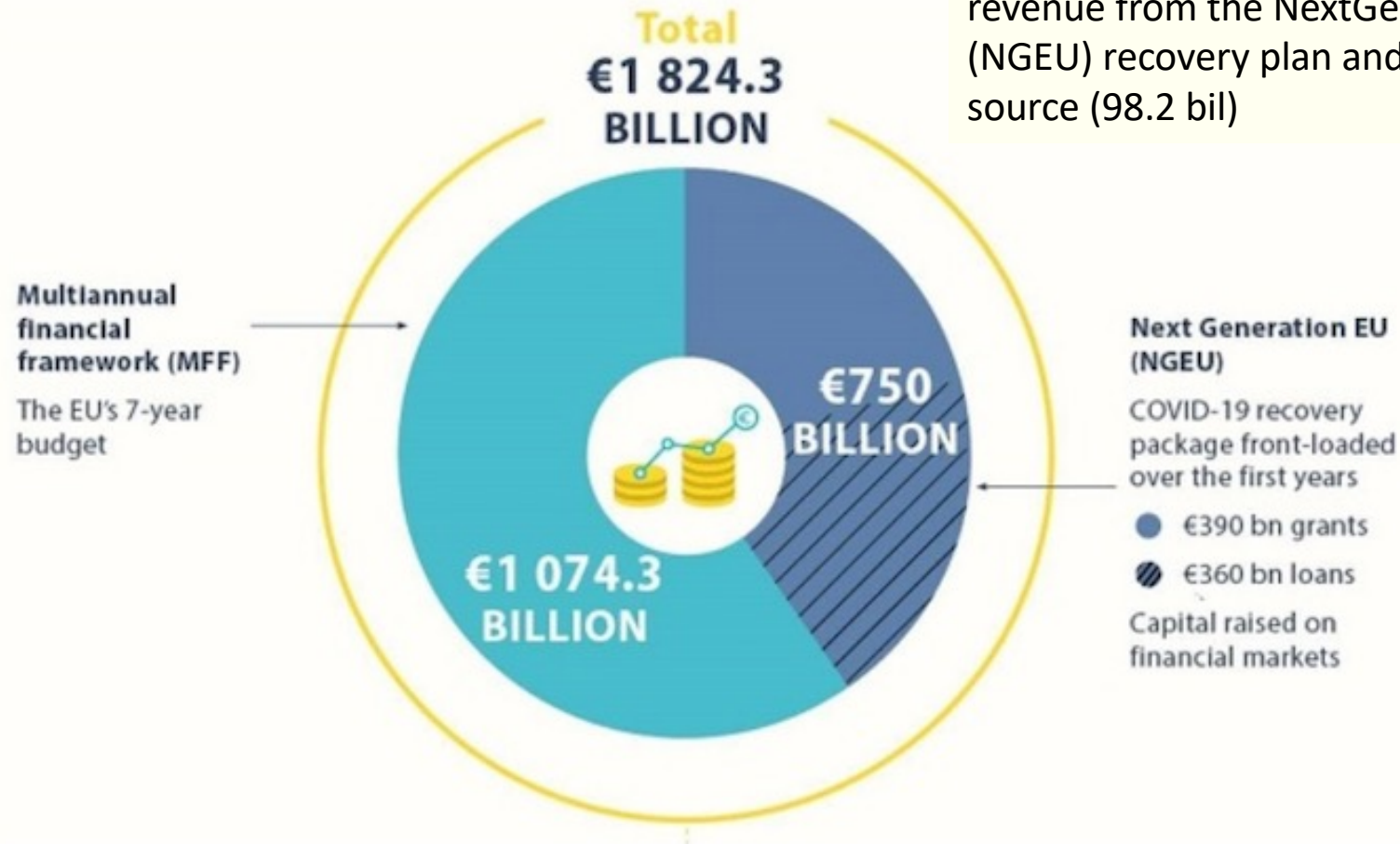
BUT

In response to Covid-19, a fiscal expansion of 750 billion (almost 5% of EU GDP) has been agreed in July 2020: Next Generation EU (NGEU)

- It is the first pan-European fiscal policy
- It is financed by capital raised on the financial market

Multiannual Financial Framework (MFF) 2021-27: €1074 billion (in line with previous MFF) of which 50% to be used for the recovery

Overall budget 2021-2027



In 2024 the EU budget allocated €146.1 billion in payments, with total payments reaching €247.0 billion when including assigned revenue from the NextGenerationEU (NGEU) recovery plan and other source (98.2 bil)

Note: current 2024 prices

The annual EU budget is part of the EU's long-term budget, which currently covers 7 years.

This long-term budget, also known as the Multiannual Financial Framework or MFF, allows the EU to secure the resources to fund its political priorities. The size of the long-term budget and of the [annual EU budget](#) is decided by the governments of the Member States and the European Parliament, with the objective of delivering on the EU's policy priorities.

Single Market, Innovation and Digital

149.9 (+ 11.5 from NGEU)

Cohesion, Resilience and Values

429.8 (+ 776.5 from NGEU)

Natural Resources and Environment

400.3 (+ 18.9 from NGEU)

Migration and Border Management

28.3

Security and Defence

16.4

Neighbourhood and the World

113.7

European Public Administration

82.5

Total: €2 027.9 billion



**Total
€2 027.9
billion**

In current 2026
prices

Is there any prospect that Europe could move into a budgetary union?

- A centralization would require a **far-reaching degree of political unification**.
- How is the political convergence in EZ?

Incomplete monetary unions

- Monetary union without a budgetary union is likely to function in a very different way from a monetary union that is coupled with a budgetary union.
- The former can be labelled an “**incomplete monetary union**”, the latter a “**full monetary union**”.

European Safe Bonds – Esbies (I)

As we have seen the presence of at least one member state in the EZ that is considered safe is sufficient for capital to fly there and leave the risky countries. This asymmetry between countries is then reflected in an asymmetry between bonds.

Can a **common bond** be designed such that a single equilibrium with no cross-region flights to safety can be obtained?

2011, the European Systemic Risk Board (ESRB) published a report titled: **“ESRB Task Force on Sovereign Exposures – European Safe Bonds (ESBies)”**

- This report did **not** recommend the introduction of joint EU debt directly (which would have required political and legal agreement among Member States).
- Instead, it presented a **technical design** for a *market-based* instrument that could function **like** eurobonds, called **European Safe Bonds (ESBies)**.

European Safe Bonds – Esbies (II)

Brunnermeir et al. (2011) – the paper in which the pool of experts appointed by the ESRB explain their proposal- state that a bond where all regions are jointly liable for the payments, like a Eurobond, so that if one does not pay the others must cover the shortfall, creates great moral hazard.

Alternatively, they suggest sovereign bond-backed securities that remove the joint liability, and so do not create these distortions.

The idea of Ebies is to bundle sovereign bonds – assembled from countries able to issue debt to private investors – and use it to back the issuance of new securities with different levels of seniority. The most senior of these would be the safe bond.

- a **senior tranche (ESBies)** considered very safe;
- a **junior tranche** that would absorb potential losses.

European Safe Bonds – Esbies (III)

- Because risk is spread across all member states, the senior tranche would be a “**European safe asset**”, reducing financial fragmentation.

The ESRB’s aim was to:

- Reduce the “doom loop” between banks and their national governments.
- Create a **common low-risk asset** for the euro area, similar in role to U.S. Treasury bonds.
- Strengthen **financial stability** without requiring full fiscal union or debt mutualization.

(see for example <https://voxeu.org/article/feasibility-sovereign-bond-backed-securities-euro-area>)

How ESBies would work

Collect European sovereign bonds (Germany, Spain, France, Italy,...) and put them in a portfolio.

Say the portfolio consists in total of €100 billion of sovereign bonds.

A special purpose vehicle buys the portfolio and issue two securities, e.g.:

- €70 billion senior tranche ESBies
- €30 billion junior tranche

The senior tranche is the Safe Bond as the potential losses are absorbed first by the junior tranche.

The latter then pays a higher yield to compensate investors for absorbing the first losses.

Note: Banks will buy only the senior tranche → reduce the doom loop, i.e. be not exposed to the risk of one sovereign only

Questions:

- will it there be a buyer of the junior tranche?
- What happens if a crisis expands to big countries and the junior tranche is insufficient to absorb the losses?

Disagreements

- According to de Grauwe and Ji (2018) the safe asset is not the solution but a budgetary union is needed.
- “The European Systemic Risk Board proposes to create a “safe asset” for the eurozone that is based on a repackaging of the risks of sovereign bonds. The hope is that this financial engineering will stabilise an otherwise unstable system of sovereign bond markets in the eurozone. We argue that a financial system that is fundamentally unstable cannot be stabilised by financial engineering. The ESRB-proposal creates the illusion that the sovereign bond markets in the eurozone can be stabilised without the need **to share the risk among sovereigns**. We argue that sovereign bond markets can only be stabilised via risk sharing. This in turn necessitates further budgetary union and thus also political union” <https://www.ceps.eu/ceps-publications/how-safe-safe-asset/>
- Moral hazard....how relevant is it? Is there evidence that countries' expenditure is determined by moral hazard behaviour?

Note: The European Systemic Risk Board was established in 2010 to oversee the financial system of the European Union (EU) and prevent and mitigate systemic risk

Recent works and views

ECB working paper nr. 2712, August 2022) **Can EU bonds serve as eurodenominated safe assets?**

Abstract

A safe asset is of high credit quality, retains its value in bad times, and is traded in liquid markets.

We show that bonds issued by the European Union (EU) are widely considered to be of high credit quality, and that their yield spread over German Bunds remained contained during the 2020 Covid-19 pandemic recession.

Recent issuances and taps under the EU's SURE and NGEU initiatives helped improve EU bonds' market liquidity from previously low levels, also reducing liquidity risk premia.

Eurosystem purchases and holdings of EU bonds did not impair market liquidity.

Currently, one **obstacle to EU bonds** achieving a genuine euro-denominated safe asset status, approaching that of Bunds, lies in the one-off, time-limited nature of the EU's Covid-19-related policy responses.

Bank of Italy, Questioni di Economia e Finanza (Occasional papers
No. 937) June 2025

Issuing European safe assets: how to get the most out of Eurobonds?

Kevin Pallara, Marcello Pericoli and Pietro Tommasino

Abstract

- The paper analyses the market for euro-denominated bonds issued by the European Commission on behalf of the European Union, i.e. Eurobonds. The aim is to assess, in particular, the factors that determine the yields of bonds currently in circulation, in order to identify possible solutions to reduce the overall cost of debt and make joint issuance programs advantageous for all member states.
- The lack of liquidity and the uncertainty over the issuance outlook translate into a higher financing cost - 40 basis points higher than in a scenario where Eurobonds, jointly guaranteed by Member States, have similar characteristics to national government bonds. Continuous issuance, supported by mechanisms to redistribute savings on interest expenditure, would foster the development of the Eurobond market and help reduce financing costs for all member countries.

Bank of Italy, Questioni di Economia e Finanza (Occasional papers No.1010) June 2026

A European safe asset? Not without the investors

Giovanni Bonfanti and Juri Marcucci

Abstract

- The paper analyses why bonds issued by the European Union, despite being extremely safe, offer higher yields than the government bonds of countries such as Germany or France. Specifically, the analysis focuses on the role played by the exclusion of EU bonds from the main financial indices.
- Bonds issued by the European Union are excluded from many financial indices and are therefore held by a relatively narrower investor base. This makes their yields higher and more volatile than those of some EU member states, especially during periods of financial stress and rising interest rates. Full recognition of EU bonds as European sovereign bonds, together with their inclusion in the relevant financial indices, would improve their liquidity, stability and ability to function as a European safe asset.