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EUROPEAN ECONOMIC POLICY (SECOND PART)

2° BIEM/BIG

2023-2024 Edition

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European Economic Policy Part II

The EU Budget

- The size of EU budget
- Rationale, framework and principles
- Expenditures
- Revenues
- The budget procedure
- Assessment and the net balance issue
- Next Generation EU

The EU needs **financial resources** to conduct policies.

The **EU budget is the tool** through which money is collected and spent for EU policies.

Overall the EU budget has a **very modest dimension: around 1.2% of EU GNI**

This is proportionally much less than national governments' budgets (e.g., more than 55% of national GDP in France)

Public expenditure in the EU budget corresponds to only about 2% of the sum of the public expenditure implemented through the national budgets

Notwithstanding its **small size**, the EU budget has a **fundamental political importance** which is reflected in the legislative procedure needed for its adoption.

Intuition: a discussion on how much to spend, and in which areas, is a discussion about the development (or not) of EU integration, and in which direction.

For the Eurosceptics, consider that:

- cost of the EU Institutions (administrative expenditure): about 7%. That is, **93%** of the EU budget goes to fund **concrete activities** in the different areas of EU policy.
- The EU budget does not finance activities typically covered by national budgets. That is, **no unnecessary duplication of expenditure**.
- the EU budget amounts to an expenditure of **about 95 cents per EU citizen per day**.... Is the EU worth (less than) a coffee each day?

Rationale for EU Budget

1. **Revenues:** The EU budget is financed either **directly**, from levies paid by individual taxpayers, or **indirectly**, via contributions paid by the member states. Thus EU resident taxpayers are the ultimate resource for the money available to the EU budget.

2. **Expenditures.** Most of the EU budget is spent in EU countries (some 9% of the total goes to non-EU countries).
⇒ There is a large correspondence between payers and beneficiaries.

But why exactly do we need an EU budget?

The rationale for the EU budgetary expenditure lays in a '**double market failure**', i.e., when private market (first failure) and the national public authorities via the national budgets (second failure) would provide a suboptimal amount (subsidiarity principle).

Example 1: Transport

First market failure: the private sector would not supply the optimal quantity (some less populated routes would not be covered) ⇒ national governments intervene.

Second market failure: trans-European networks benefit all countries (positive externalities). Single countries alone would invest in a sub-optimal way, i.e. too little, because they do not reap all the benefits (e.g. a tunnel between France and Italy benefits Spain as well) ⇒ role for EU-level expenditure activated within the EU budget.

Example 2: Research and development

First market failure: companies do not capture the whole benefits of their R&D (other firms and society at large could benefit as well) thus suboptimal quantities produced by the market ⇒ national governments intervene (R&D subsidies).

Second market failure: EU-level research networks are more efficient and benefit all countries (positive externalities) ⇒ role for EU.

MFF and Yearly Budget

When we think about the EU Budget, we need to make a distinction between **2 main tools: Multiannual Financial Framework (MFF) and annual EU Budget**

1. The **Multiannual Financial Framework**, which currently covers a period of 7 years, sets the main guidelines for both revenues and expenditures, i.e. how to broadly allocate money within each yearly budget document, and where to source the money from.
2. Given the constraints set by the MFF, every year we approve the **annual EU Budget**, which sets in detail the annual authorized expenditure for the year for any single policy item.

The Multiannual Financial framework (MFF)

From art. 312 of the TFEU

“The MFF shall ensure that Union expenditure develops in an orderly manner and within the limits of its own resources. **It shall be established for a period of at least five years.** The annual budget of the Union shall comply with the multiannual financial framework.

The Council, acting in accordance with a special legislative procedure, shall adopt a regulation laying down the MFF. **The Council shall act unanimously after obtaining the consent of the European Parliament, which shall be given by a majority of its component members.**

The MFF shall determine the amounts of the **annual ceilings** on commitment appropriations by category of expenditure and of the annual ceiling on payment appropriations. **The categories of expenditure, limited in number, shall correspond to the Union’s major sectors of activity.”**

MFF 2021-2027 total allocations per heading

| | MFF |
|--|----------------|
| 1. Single Market, Innovation and Digital | 132.8 |
| 2. Cohesion, Resilience and Values | 377.8 |
| 3. Natural Resources and Environment | 356.4 |
| 4. Migration and Border Management | 22.7 |
| 5. Security and Defence | 13.2 |
| 6. Neighbourhood and the World | 98.4 |
| 7. European Public Administration | 73.1 |
| TOTAL MFF | 1 074.3 |

The MFF is not the budget of the EU.

It is a mechanism for ensuring that EU spending is predictable and at the same time subject to strict budgetary discipline. It defines the maximum amounts (**‘ceilings’**) available for each major spending area (**‘heading’**) of the Union’s budget.

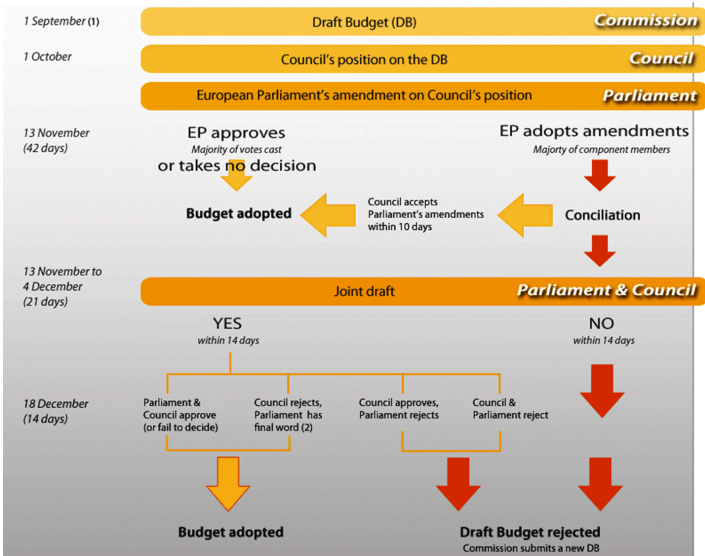
- The MFF was introduced in 1988 within the “Delors I package”
- **The MFF de facto sets political priorities for future years** and constitutes therefore a political as well as a budgetary framework (‘in which areas should the EU invest more or less in the future?’).
- Within the constraints of the MFF, the European Parliament and the Council (the ‘budgetary authorities’) have to agree each year on the annual budget for the subsequent year.

| | |
|---|--|
| <p>Pros:</p> <ul style="list-style-type: none"> - Allows for <u>multi-annual planning</u>. - Is a great instrument for fiscal discipline at the EU level | <p>Cons:</p> <ul style="list-style-type: none"> - <u>Unbalanced in terms of influence</u> for European Parliament vs. Council - <u>Unanimity rule</u> gives veto power to all governments, which are inclined |
|---|--|

| | |
|--|---|
| | to go for initiatives that maximize singular national benefit rather than the creation of value added for the EU as a whole |
|--|---|

The annual budget procedure

- 1) **Proposal.** The European Commission prepares the draft budget, and submits it to the Council and Parliament in year t-1 (e.g. 2021)
- 2) **Adoption.** The budgetary authorities, the Council and the EU Parliament, amend and adopt the draft budget by December of year t-1
- 3) **Execution.** The European Commission is the main responsible for implementing the budget in year t (2022)
- 4) **Technical control.** The European Court of Auditors audits in year t+1 the EU accounts (2023, on the 2022 budget) and then issues a verdict on the accounts, as well as on the underlying transactions down to the final beneficiary.
- 5) **Political clearing.** Discharge is the final approval of the EU budget for a given year (following the audit and finalization of the annual accounts), by March of year t+2 (2024, for the 2022 budget). Discharge is granted by Parliament on a recommendation from the Council. Discharge equates to approval by the representatives of the EU citizens (the Parliament) of how the Commission implemented the budget in that financial year, and the closure of that budget.





The Budget procedure

If, at the beginning of a financial year, the budget has not yet been definitively adopted, a sum equivalent to no more than **one twelfth** of the budget appropriations for the preceding financial year may be spent **each month** (art. 315 TFEU).

The EP votes the budget discharge by **qualified majority** (50%+1 of the EP members) and, in case the political clearing is not given, it can cast, by overqualified majority (66%+1 of the EP members) a **vote of non-confidence**, which leads to the dismissal of the Commission.

⇒ this has never happened → but we got close to it

In 1998 the EP denied the discharge of 1996 budget

- 1) In 1998 a whistle-blower working in the Commission, had sent the Parliament a report alleging widespread fraud and cover ups, stating: *"I found strong indications that . . . auditors have been hindered in their investigations and that officials received instructions to obstruct the audit examinations . . . The commission is a closed culture and they want to keep it that way, and my objective is to open it up, to create more transparency and to put power where it belongs – and that's in the democratically-elected European Parliament."*
- 2) In a vote on 17 December 1998, the Parliament denied the discharge of the budget notwithstanding that the President of the Commission, **Jacques Santer**, announced that the Commission would treat the vote of discharge of the budget as one of confidence.
- 3) On the night of 15 March 1999 Santer announced the **mass resignation** of his Commission, without a formal vote of non-confidence
→ Édith Cresson (French Commissioner responsible for Research) was found **guilty** of mismanagement of funds by the European Court of Justice in July 2006.

The EU budget procedure resembles very closely the national procedure in terms of democratic legitimacy and power separation.

The five phases and the division of powers across institutions ensure both the democratic character of any expenditure (that is, any coin spent has been authorized by direct citizens' representatives) and the correct functioning of the system of **checks and balances**, proper to any developed democracy.

Budgetary principles

1. **Unity:** all expenditures and revenues must be found in one document (i.e. the budget).
2. **Universality:** total budget revenue covers total budget expenditure, no earmarking thus no use of a specific revenue (e.g., VAT provisions from France) to finance specific expenditure (e.g., agricultural policy).
3. **Annuality:** one yearly budget within the multi-annual programming period.
4. **Specification:** every committed expenditure has to have a definite scope and purpose. The budget is divided into sections, titles, chapters, articles and items.
5. **Unit of account:** the budget is denominated in Euro.
6. **Equilibrium:** art. 310 (TFEU) reads "*The revenue and expenditure shown in the budget shall be in balance*". Any deficit or surplus should be corrected by an increase or reduction of the member states' contributions.

"Equilibrium" principle

The EU budget must **always be balanced** in each and every year

Total lack of inter-temporal flexibility: no deficit, no debt. **Hence the EU budget cannot be used as a tool for fiscal policy** (smoothing the effects of the business cycle on the economy, e.g. by increasing expenditure when the economy slows down). **Next Generation EU does that, but outside of MFF... more on this later!**

⇒ This requirement is the result of a politically conscious choice of **limiting the financial autonomy of the EU**. Member States wanted to prevent the EU institutions from (mis)using a non-balanced budget as an additional budgetary resource (that is, the EU could borrow to spend instead of levying resources from MSs).

Again this is a reflection of the principle of conferral: the source of legitimacy of the EU is in the Member States, and thus **only the Member States decide how much to tax / redistribute resources among themselves, not a supra-national authority** (at least for the time being...)

⇒ This rigidity of the EU budget clearly **limits the growth potential of the EU** as a whole, leaving it closely in the hands of national governments.

“Annuality” principle

This principle means that expenditure entered in the budget is authorised for one financial year only, which runs from 1 January to 31 December.

In order to reconcile this requirement with the necessity of engaging in multi-annual operations, **two types of expenditures** in the EU budget:

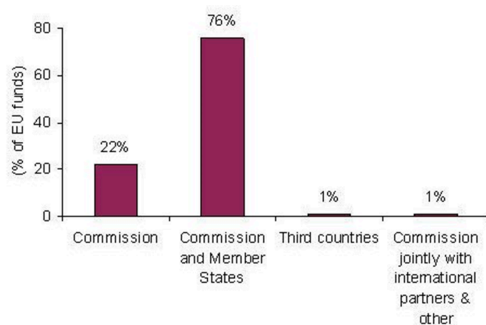
1. **commitment appropriations:** the expenditure committed by the EU in a given year with respect to operations that can be carried out over a longer period of time;
2. **payment appropriations:** the expenditure effectively incurred by the EU in a given year in meeting the commitments of that and/or previous years.

→ The two differ because multi-annual programmes and projects are usually committed in the year they are decided, while paid over the years as implementation progresses.

Example: if the EU wants to finance the construction of a bridge over 7 years, in year t-1 money is committed for the next 7 years (commitment appropriations), then payments are authorized year by year (payment appropriations).

Management of the EU

Even though the **Commission is the main responsible for implementing** the budget, in practice, some 76% of the budget is spent under what is known as '**shared management**', with individual EU countries actually distributing funds and managing expenditure.



Expenditures

Historically, 5 main areas of expenditure:

1. **Agriculture:** Common Agricultural Policy
2. **Structural:** aimed at fostering convergence and cohesion by supporting investments in poorer regions and countries

3. **Internal policies:** money spent inside the EU for other purposes (no agricultural or structural), e.g. research, student mobility, energy, trans-European transport networks
4. **External policies:** pre-accession assistance to candidate members, European Neighbouring policies, humanitarian aid, development cooperation
5. **Administration:** cost of running the EU Commission and all the other institutions of the Union (overall about 55,000 people staffed, really not much)

Evolution of Expenditure

Tiny budget in early years, mostly spent in administration

Steady growth in budget over time, but always below 1.2% of EU GDP (max level reached in 1993)

Agricultural expenditure started in 1965 and soon dominated the budget, peak of 92% in 1970

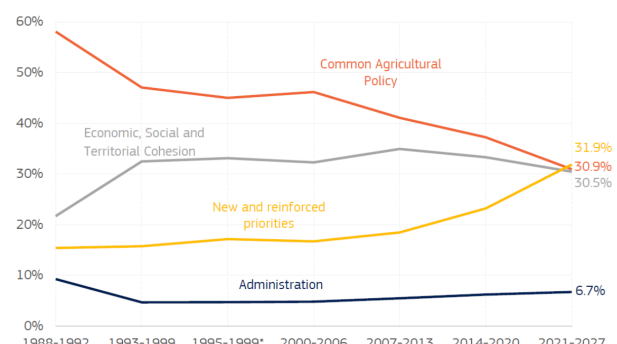
Cohesion spending grew significantly from the 80s, with parallel decline in the relative importance of agriculture

Increased external expenditure for the enlargement process + more spending on research and internal policy for growth in the 90s

Cohesion + Agriculture: around 80% of total
Administration: around 6-7% of total

MFF 2021-2027: Overview

1. **“Single Market, Innovation and Digital”:** research and innovation, SMEs competitiveness, ERASMUS program, connecting Europe in terms of energy, transport, telecommunications
2. **“Cohesion, Resilience and Values”:** resources for less developed regions and Member States
3. **“Natural Resources and Environment”:** agriculture, rural development, fisheries, environment and climate change
4. **“Migration and Border Management”:** policies related to external borders, asylum and migration, justice
5. **“Security and Defence”:** internal security and common defence



6. “Neighbourhood and the World”: enlargement, neighbouring policy, development cooperation

Revenues

4 sources of “own resources” (i.e. sources of revenues to which the EU is legally entitled through the Treaties):

1. one “traditional” own resource (**TOR**): Custom duties on imports
2. VAT resource
3. GNI resource
4. Plastic own resource

Other resources (around 1% of total): tax on EU staff remuneration, fines paid by companies violating competition rules, bank interests etc.

1. “Traditional” own resource (TOR):

Custom duties on imports from outside the EU stemming from the Common External Tariff (CET), both for agricultural and non agricultural goods

Until 2017 there was another resource: *sugar levies*, then abolished

Custom duties are collected by national customs authorities and transferred **directly** to the EU coffers (Member States keep a collection fee equal to 25% of the total amount).

This is the first and **most complete expression of the financial autonomy** of the EU ⇒ these resources go to the EU budget automatically

In the 1970s and 1980s, TORs used to represent about 50% of the EU budget revenues; they have been steadily decreasing since. Now they represent only about **15%** of the EU budget revenues. Their **decrease** is due to **two reasons**:

- 1) the increase in the absolute size of the EU budget; and
- 2) the reduction of the EU tariff revenues as a result of the enlargements, creation of Free Trade Areas with many countries, and multilateral trade liberalisation through the WTO.

2. VAT Resource

Essentially, every time you purchase a good (and pay VAT), a part of the tax goes to the EU budget.

It is computed by applying a common EU VAT rate (today 0.3%) to a VAT base commonly calculated, i.e., harmonised, across each EU country.

In general terms: [Tax revenue=Tax rate * Tax base]

This implies: [Tax base=Tax Revenue / Tax rate]

The harmonised VAT base is obtained as the ratio between the VAT revenues of the country and the weighted average rate of VAT applied in the country (since countries apply different VAT rates to different goods).

0.3% of the harmonised VAT base is transferred to the EU budget.

If the calculated VAT base exceeds **50% of the country's GNI**, the common VAT rate is applied only to 50% of the GNI (max ceiling).

The VAT own resource makes up around 12% of total revenues.

3. GNI Resource

The GNI resource, or 'fourth' resource, was introduced as a **marginal resource** in the 1980s: its amount is equal to the difference between the total expenditure and the revenues raised by the other resources ⇒ equilibrium principle: the budget must be balanced!

The **same percentage is levied on each Member State's GNI, established in accordance with Union rules**. The rate is fixed during the budgetary procedure (currently around 0.7-0.8%). A reduction has been granted to: Denmark, Germany, Netherlands, Sweden, and Austria.

The GNI resource has ensured **financial sufficiency** for the EU, by calling on **national governments to close the gap** between increasing expenditures at the EU level and dwindling revenues. The transfer has to be included each year in the Member States' national budget laws, so it contributes to government deficit!

The GNI resource went from 10% of total resources in 1988 to about **73%**: as a result, the resources for the supranational EU policies are largely in the hands (and thus the willingness to contribute) of the EU governments ⇒ **loss of financial autonomy for the EU Institutions**.

4. Plastic own resource

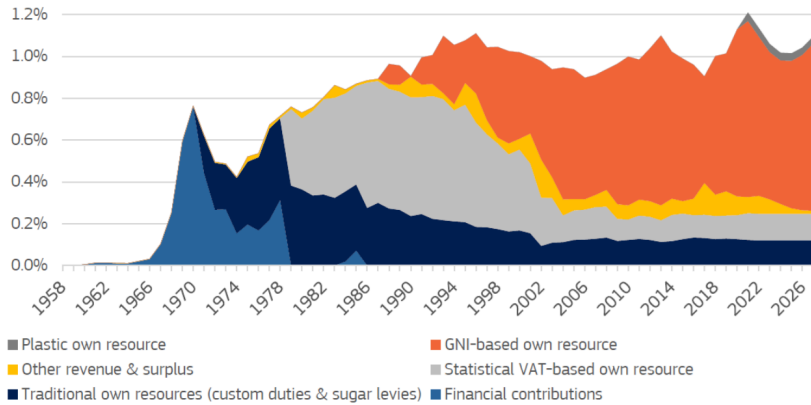
Introduced in January 2021, with the 2021-2027 MFF.

National contribution based on the amount of non-recycled plastic packaging waste.

A uniform call rate of €0.80 per kilogram applied to the weight of plastic packaging waste that is not recycled.

Mechanism to avoid excessive contributions from less wealthy Member States, below EU average GNI per capita. They get back €0.80 paid on a number of kilos equal to 3.8*country population (of 2017). That is, no contribution for up to 3.8 kilos per citizen.

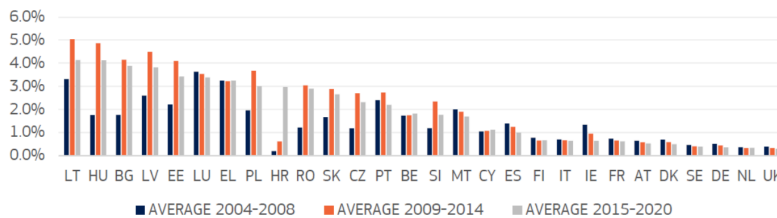
It is a resource, but it also works as an incentive mechanism for states to reduce pollution.



Who benefits from the EU Budget?

Relatively poorer countries receive relatively more payments (as a % of GDP).

This is a natural outcome of EU policies, e.g., cohesion policy and agricultural policy tend to naturally redistribute.

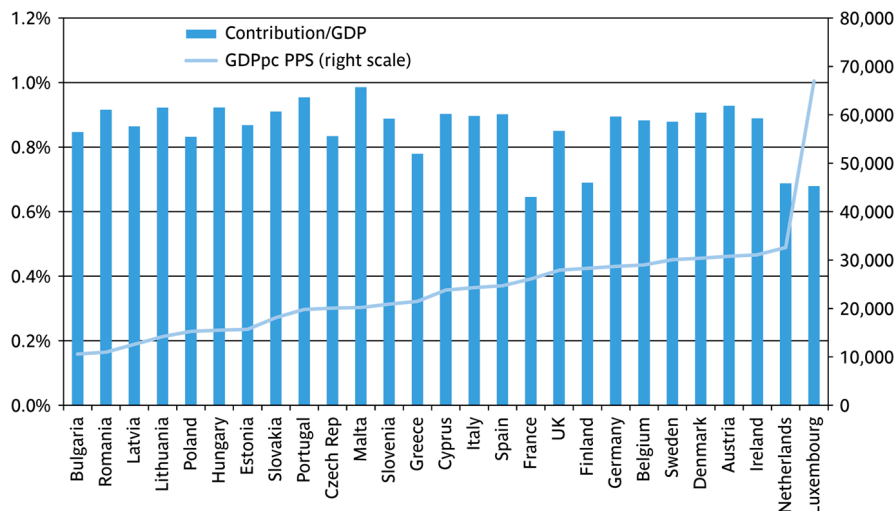


2021

No progressivity in contributions

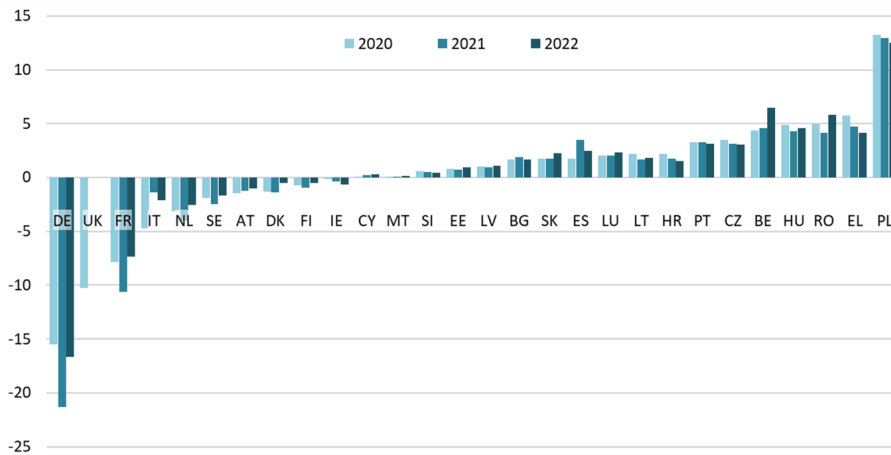
Contributions as a share of GDP do not vary much across countries: about 1%

There is no progressive contribution according to GDP per capita.



The National net balances (bl eur)

Difference between the EU budget expenditure in the country (without Next GenerationEU in 2021 and 2022) and the National contribution to the EU budget (mainly VAT and GNI)



A comment on Italy

Italy has always been a net contributor to the EU budget

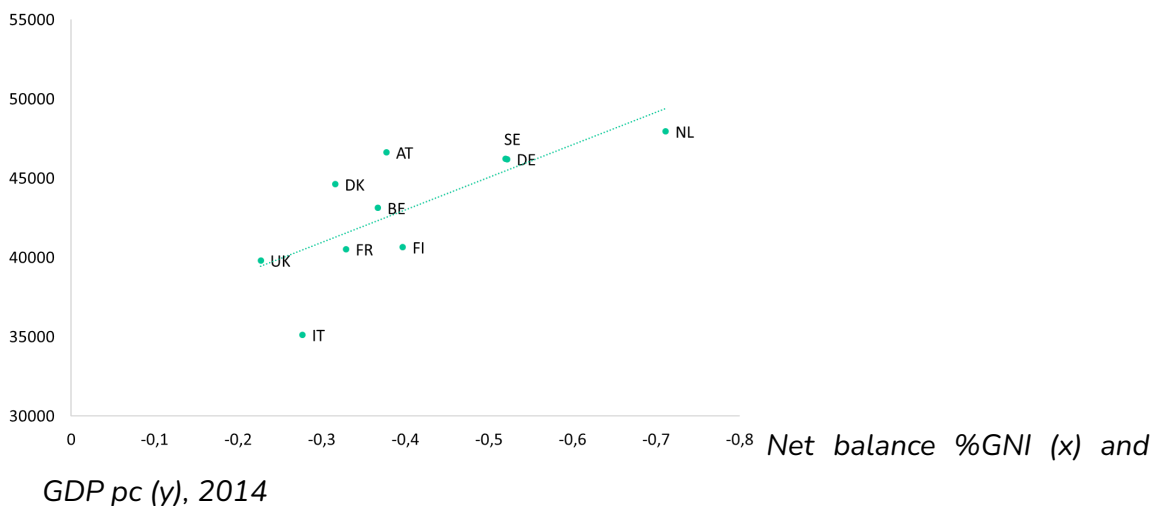
Italy has never been bailed out

Italy has always contributed to the bail out of other countries over the financial and sovereign debt crisis (i.e., Greece, Portugal, Ireland, Spain, Cyprus)

Yet... the perception of many external observers is that Italy has been kept alive by, say, German taxpayers ⇒ **That is simply not true**

It is only with Next Generation EU, as we will see later, that Italy becomes a net beneficiary, owing to the stronger economic impact of Covid-19 with respect to other countries

Net balances and relative prosperity



But does it make sense to think of net balances?

The issue of burden-sharing of the *net financing or net balances*, has become in the last few years an unavoidable stumbling block of nearly every EU negotiations. The issue is: **am I receiving from the EU Budget more than what I am contributing?**

Net balances are not a policy objective per se, but a simple outcome of policies.

This issue is more political than economic.

An accounting system is a **zero-sum game** where the gain of one player always comes at the expense of another. This comes in contradiction with a fundamental feature of the European political project, which aims at creating a **positive-sum game**, notably through the realisation of common projects through the EU budget.

Instead of opposing Member States, the European project aims at uniting them, which some proponents of a **juste retour** concept sometimes forget.

We share the Commission's position: *"constructing estimates of budgetary balances is merely an accounting exercise of the purely financial costs and benefits that each Member State derives from the Union. **This accounting allocation gives no indication of many of the other benefits gained from EU policies** such as those relating to the internal market and economic integration, not to mention political stability and security".*

The focus on net-balances reflects a narrow inter-governmental, **non-solidaristic vision of Europe**.

But the EU is not (only) about solidarity... Net balance issues are also at odds with self-interested economic considerations.

- **Intuition:** EU budget is small; net contributions are less than 1% of national GNI... That is a very low price for sustaining a large single market, and financing infrastructural investment in relatively poorer countries that end up benefiting also companies in richer countries.

Example: Polish infrastructures are great for German companies investing in Poland, and selling on the Polish market.

Assessment: equity

There seem to be several inconsistencies in the system

The corrections negotiated on the revenue side partially undo the impact of certain expenditure policies. It appears inconsistent that Member States benefiting from redistributive packages to poorer regions (e.g. IT or ES) have to pay more for corrections granted to richer countries such as Germany and the Netherlands.

The VAT resource has a regressive impact (poorer countries tend to bear a relatively large share), not entirely solved by the 50% capping (benefiting some of the richest countries like Luxembourg or Ireland)

Keeping 25% of custom duties as collection fee is arguably too much and favours big entry points of the EU: Belgium (port of Antwerp), Netherlands (Rotterdam, Amsterdam),

Denmark (Copenhagen). Before the 2021-2027 MFF, it was 20% and the Commission proposed to decrease it... Well, it actually went up to 25%

Assessment: autonomy and transparency

The financing system is both opaque and very complex. As a result, it is almost impossible for EU citizens to ascertain who effectively bears the cost of financing the EU.

The financial autonomy of the EU is limited. The two largest sources of revenue – the VAT- and, in particular, the GNI-based own resources – display many of the characteristics of national contributions and are often perceived as such.

They are provided by national Treasuries and are presented as an expenditure item in national budgets. This inevitably creates a tension which poisons every EU budget debate. The new plastic own resource is a step in the right direction.

The EU Commission is currently considering a number of potential new own resources...

These should substitute part of the GNI resource and thus improve the EU's financial autonomy

For more details see the report of the High Level Group on Own Resources chaired by Mario Monti and concluded in December 2016

Next Generation EU

MFF 2021-2027 total allocations per heading

| | MFF | NEXT GENERATION EU | TOTAL |
|--|----------------|-----------------------|----------------|
| 1. Single Market, Innovation and Digital | 132.8 | 10.6 | 143.4 |
| 2. Cohesion, Resilience and Values | 377.8 | 721.9 | 1 099.7 |
| 3. Natural Resources and Environment | 356.4 | 17.5 | 373.9 |
| 4. Migration and Border Management | 22.7 | - | 22.7 |
| 5. Security and Defence | 13.2 | - | 13.2 |
| 6. Neighbourhood and the World | 98.4 | - | 98.4 |
| 7. European Public Administration | 73.1 | - | 73.1 |
| TOTAL MFF | 1 074.3 | 750.0 | 1 824.3 |

Notice: Out of 721.9 in Cohesion, Resilience and Values... 672.5 are in the Recovery and Resilience facility so they go directly to Member States, i.e., they are not managed through the standard procedures of the MFF

MFF 2021-2027 works in the standard way, and it is 2% bigger than 2014-2020. It is about 1.26% of EU GNI.

Next Generation EU comes on top of that, for the sole purpose of addressing the COVID-19 crisis

- The EU Commission is allowed to borrow on the market 750 billions

- Funds have to be borrowed and spent by 2026, and repaid by 2058
- 70% of funds to be used in 2021-2022 (not achieved!)
- At least 37% of the total expenditure will target climate-related projects
- 20% invested in the digital transformation

Even though part of the funds are spent through the MFF categories (see previous chart), they are legally distinguished from the MFF, being treated as “external assigned revenues” (i.e., exception to the equilibrium principle)

Up to 360 billions can be used to provide “**loans**” to member states

Up to 390 billions can be used to provide “**grants**” to member states (either through standard MFF programs, or through RRF... see next slide)

Allocation across countries based on: population, GDP per capita, unemployment, impact of COVID-19

To clarify: if Germany gets a “**loan**” from the EU Commission, this amount contributes to German public debt and has to be repaid by Germany

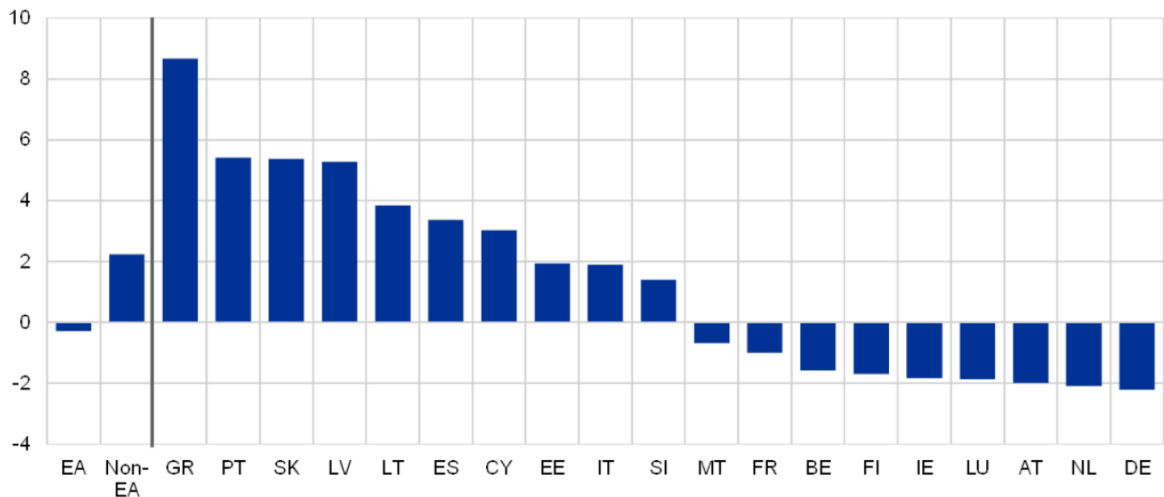
If Germany gets a “**grant**”, this does not contribute to German public debt, and is repaid by the EU Commission using its own resources

Since Germany contributes to the own resources of the EU Commission, part of the received grant is actually also repaid by Germany itself

In other words, the net amount of money received is lower than the grant if you are a net contributor to the MFF

Recovery and Resilience Facility

RRF: Allocation of grants, net of expected repayments (as share of national GDP)



Sources: European Council conclusions of 21 July 2020, European Commission and ECB calculations.

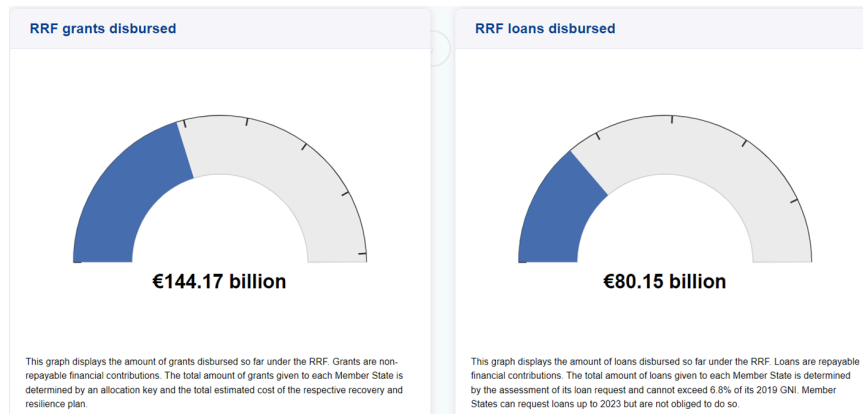
Recovery and Resilience Facility (RRF) is the main part of NGEU ⇒ This accounts for 360bn of loans and 312.5 of grants

Countries need to prepare national recovery and resilience plans for 2021-2023. These need to be consistent with the country-specific recommendations and contribute to green and digital transitions.

Disbursements approved by Council with qualified majority, upon reaching targets

According to Commission's guidelines, money should be spent in:

- **Power up:** future-proof clean technologies and renewables.
- **Renovate:** improvement of energy efficiency of public and private buildings.
- **Recharge and Refuel:** sustainable, accessible and smart transport, charging and refuelling stations and extension of public transport.
- **Connect:** fast rollout of rapid broadband services to all regions and households, including fibre and 5G networks.
- **Modernise:** digitalisation of public administration and services, including judicial and healthcare systems.
- **Scale-up:** increase in European industrial data cloud capacities and the development of the most powerful, cutting edge, and sustainable processors.
- **Reskill and upskill:** adaptation of education systems to support digital skills and educational and vocational training for all ages.



Next Generation EU: Financing

Headroom: ceiling on commitment appropriations raised to 1.46% of GNI (0.2% on top of 1.26% of MFF, to be used as guarantee for EU Commission borrowing)

New Own Resources are foreseen to allow the EU Commission to pay back the loans related to Next Generation EU

Current state of the art:

- **Non-recycled plastic packaging waste based contribution**
 - introduced on 1 January 2021
- **Carbon border adjustment mechanism own resource**
 - introduced in October 2023 in transitional phase
 - That is, a tariff on goods produced in countries with less stringent environmental regulation. The EU Commission has proposed to send 75% of generated revenues to the EU budget.
- **Emissions Trading System own resource**: EU Commission has proposed to send 30% of generated revenues to the EU budget.
- New own resource based on **taxes on profits of large multinationals** reallocated to EU countries according to OECD/G20 Inclusive Framework Agreement.
 - EU Commission has proposed to send 15% of reallocated profits to EU budget. Plus 0.5% of the notional EU company profit base, an indicator calculated by Eurostat on the basis of the national accounts statistics.

Working on introducing other new own resources, possibly a *financial transaction tax*

Final Remarks:

Sometimes the actual interest expense borne by the EU is bigger than expected so the Commission must reduce funding or increase member states' direct contribution.

In fact, we don't have a common tax on corporate profits. This makes some differences between European countries and corporations choose their location based on the least corporate tax payable.

The best direction would be to reduce this distortion by harmonising the income tax rate in the EU.

Economic and Monetary Union

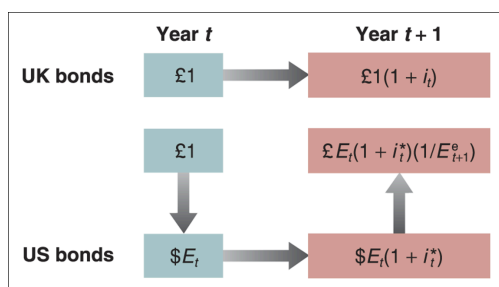
the rationale behind the euro, the step towards it but before its introduction.

Agenda for EMU

1. Macroeconomic refresher
2. The "Impossible Trinity" principle
3. The rationale for a single currency
4. Bretton Woods
5. The European Monetary System
6. The Maastricht Treaty
7. Economic Theory and the EMU
8. Convergence criteria and results
9. EMU monetary policy: set-up and results (1999-2008)
10. EMU fiscal policy: set-up and results (1999-2008)
11. EMU in the financial and sovereign-debt crisis
12. EMU after the Covid-19 crisis – Guest Lecture

Openness in financial markets

Expected returns from holding one-year UK bonds or one-year US bonds



Notice: the choice between domestic and foreign bonds does not only depend on the comparison of nominal interest rates. The expected movement in the exchange rate matters as well!

Let's study the decision of British people by assuming that there are only two one-year

bonds available: the UK one and the US one

- If you decide to hold UK bonds, you get a nominal interest rate equal to $i_{t,t}$, i.e. for every pound invested you get £1(1+ $i_{t,t}$) next year

- If you decide to hold US bonds, you must first buy dollars, i.e. for every pound you get E_t dollars (notice: the nominal exchange rate tells you how many dollars correspond to one pound)

When you invest $\$E_t$ in US bonds, you get $\$(E_t (1+i_t))$ next year, where i_t is the nominal interest rate paid by US bonds

But you will then have to convert these dollars back into pounds, at the expected nominal exchange rate prevailing next year E_{t+1}

So, overall, the expected return from holding US bonds is:

$$\pounds E_t (1+i_t) (1/E_{t+1})$$

Interest Rate parity

In equilibrium, if both domestic and foreign bonds are to be held, they must have the same expected returns, so the following has to hold:

$$(1+i_t) = (1+i_t^*) (E_t/E_{t+1})$$

→ That is, financial markets are in equilibrium when:

Domestic interest rate (return on foreign assets) = Foreign interest rate + Expected exchange rate depreciation

→ **Interest rate parity condition:** holds if capital is fully mobile across countries.

Intuition: if domestic interest rate goes up (down), ceteris paribus, capital flows in (out) and domestic currency appreciates (depreciates), so expected exchange rate depreciation grows (decreases) and equality is restored.

The real exchange rate is defined as the price of domestic goods relative to foreign goods. In order to compute it, you first need to express both prices in the same currency.

Example:

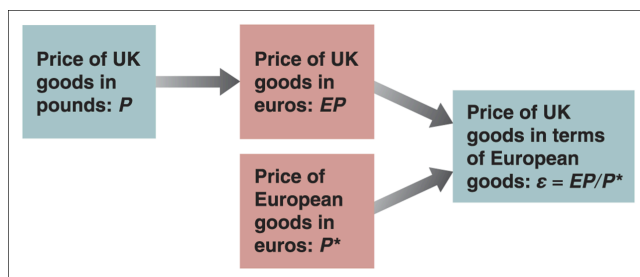
- The UK produces only 1 good, a Jaguar, at a price of 30,000£, while the Euro Area produces only a Mercedes, at a price of 50,000€
- The real exchange rate is the price of UK goods in terms of euro area goods, i.e. how many Mercedes cars you need to buy one Jaguar.
- Assuming a nominal exchange rate $E=1.23$, the price of a Jaguar in euros is $30,000 \times 1.23 = 36,900\text{€}$
- and so the real exchange rate is $36,900/50,000 = 0.738$, i.e. it takes less than a full Mercedes to buy one Jaguar.

In reality countries produce more than 1 good, so we need to construct real exchange rates that reflect the relative prices of all goods produced...

So we use the **GDP deflator**, i.e. an index for the prices of all final goods and services produced in an economy.

Denoting P the domestic price deflator, and P^* the price deflator in the foreign country, we have the following expression for the real exchange rate ε :

$$\varepsilon = EP/P^*$$



The construction of the real exchange rate in the UK/euro area example

rate in the UK/euro area example

$$\varepsilon = EP/P^*$$

So, the intuition is exactly the same as for the Jaguar-Mercedes example. However P and P^* are indexes, so we are not interested in their level (1 or 100 in the whatever base year), but just in their changes over time!

| | |
|--|--|
| <p><u>A real appreciation</u> is an increase in the real exchange rate ($\varepsilon \uparrow$), i.e., an increase in the relative price of domestic goods in terms of foreign goods \Rightarrow loss of competitiveness</p> | <p><u>A real depreciation</u> is a decrease in the real exchange rate ($\varepsilon \downarrow$), i.e., a decrease in the relative price of domestic goods in terms of foreign goods \Rightarrow gain in competitiveness</p> |
|--|--|

Real appreciations and depreciations can be the result of different price dynamics (P vs P^*) Or they can arise from changes in the nominal exchange rate E

Example: in a competitive devaluation, one could lower the domestic interest rate in order to generate a depreciation of the domestic currency ($E \downarrow$), thus leading to a real depreciation ($\varepsilon \downarrow$)

At the same time, ceteris paribus, a trading partner would see a real appreciation with loss in competitiveness

In a single market, there is a cost of lack of macroeconomic coordination!

A single market is not sustainable if beggar-thy-neighbour policies become prevalent ⇒ **need for macroeconomic coordination and exchange rate stability**

The rationale for a single currency

The EU is a Single Market characterised by four fundamental freedoms: **goods, services, capital, labour**

In a single market, cross-border transactions should be essentially equivalent to within-country transactions

For instance: if I am an entrepreneur in Milan, buying inputs from Rome, within Italy, or from Berlin, in Germany, should be equivalent

Yet, this cannot really happen if you have different currencies and face risk related to exchange rate volatility

⇒ *to avoid volatility and uncertainty in transactions between different countries, avoid exchange rate risk (value of foreign investment could go down unexpectedly)*

Plus, competitive devaluations as beggar-thy-neighbour policies

⇒ *to prevent policies that undermine the functioning of the single market (ex. policies focused on devaluation, there is the opportunity for a country to increase competitiveness by decreasing value of currency, it will be cheaper for foreigners to import domestic products. but we are not increasing to long run competitiveness based on investment and technology development.*

So EU countries have always aimed for **exchange rates stability**

However, the impossible trinity is binding!

⇒ In the single market, you **cannot have restrictions to capital mobility**

This implies that, if you also want to keep stable exchange rates... there is **no room for independent monetary policy**

The impossible Trinity: only two of the 3 features are compatible: Fixed exchange rate, Monetary policy autonomy, full capital mobility

⇒ *most of the developed countries have full capital mobility and autonomous monetary policy (US, Switzerland)*

⇒ *Some countries have currency pegged to the Euro = full capital mobility and fixed exchange rate (Denmark, Bulgaria)*

⇒ *Fixed exchange rate and autonomous monetary policy (China, exchange rate computed on a basket of securities, there are restrictions for movement of capital, pillar of development of China)*

If you leave it to the market, a natural leader emerges, i.e., the country with lowest inflation, lower interest rate and more stability, Germany (see infra...)

This is not politically viable... the only solution then is a coordinated monetary policy, single currency, the Euro

→ without the Euro there would be Germany with monetary policy of Deutsche Mark and all the other countries would have had to adjust to their decisions.

Monetary system before the EMU

After WWII, the Bretton Woods conference established an international monetary system based on paper currencies:

- gold as ultimate source of value, but the **dollar as the anchor of the system** (with US government guaranteeing its value in terms of gold)
- all other currencies defined in terms of the dollar, and through that you have a system of bilateral parities
- **exchange rates 'fixed but adjustable'** (in a coordinated way)
- countries **maintained monetary policy autonomy**
- the system was consistent with the impossible trinity, as most countries made abundant use of **capital controls**

System unravelled with lifting of capital controls in the 1960s: exchange rates had to be freed or authorities had to give up monetary policy autonomy. Most governments refused to make such a choice. The dollar gradually became overvalued and:

- USA 'suspended' the dollar's standard convertibility into gold in 1971;
- **'fixed but adjustable' principle was officially abandoned in 1973.**
- due to the spike of inflation after the first Oil Shock ⇒ high inflation around the world and difficulties in having fixed exchange rates, period of huge instability, lot of volatility in exchange rates market

⇒ the ultimate value of any country, constraint of currency ⇒ no constraint, there is no real constraint to the amount of money that CB can print

They have a policy goal (inflation) but no constraint.

⇒ value determined by credibility based on how CB is able to pursue low inflation target

Europe's snake (in the tunnel)

First European response to the collapse of Bretton Woods: 'European Snake' = **regional version of the Bretton Woods system** to limit intra-European bilateral exchange rate fluctuations (± 2.25 per cent, stricter than allowed by Bretton Woods post 1971: $\pm 9\%$) .

It was a very loose arrangement and when inflation rose due to the first oil shock of 1973–74, divergent monetary policies (e.g. restrictive in Germany, less so in UK and Italy) led several countries to leave the Snake.

⇒ if i rate of Germany increased the other countries could:

1. increase i rate and endure a recession
2. not increase i rate and have inflation and depreciation

⇒ most countries chose 2 because they were not really interested in controlling inflation and wanted to avoid a recession

In spite of its failure, the Snake brought about **two innovations**:

1. **determination** to keep intra-European rates stable, irrespective of what happened elsewhere in the world;
2. European currencies needed to be defined vis-à-vis each other (**no role for the dollar**) no external anchor. The Snake was meant to be 'an island of stability in an ocean of instability'.

The next move was the **European Monetary System (EMS)**.

Established in 1979, when it was clear that large exchange rate fluctuations were a threat to the well functioning of the Single Market (recall the need for macroeconomic coordination)

Heart of EMS is the **Exchange Rate Mechanism (ERM)**: grid of agreed bilateral exchange rates ⇒ still in place for countries with fixed exchange rates with the Euro

- All ERM currencies were fixed to each other, with a band of fluctuation of ± 2.25 percent around the central parity (Italy, Spain, Portugal and UK were allowed a margin of fluctuation of ± 6 per cent, due to historically higher inflation)
- Fully symmetric system, as parities were defined with respect to the European Currency Unit (ECU) artificial currency against which all European countries had an established exchange rate, i.e. a basket of EMS currencies ⇒ exchange rate is fixed but adjustable
- **Defence of bilateral parities through cooperation of central banks, symmetric agreements with some flexibility.** if the exchange rates were to move towards limits of fluctuation, political commitment of banks to intervene on the market by selling/buying currencies to stabilise the exchange rate.

When the exchange rate hits the upper (or lower) bound of the bands of fluctuation, **Central Banks intervene**

Ex. When the exchange rate hits the lower bound, the Bank of Italy sells Deutsche Mark and buys Liras. This intervention reduces the supply of Liras on the market and increases the supply of DM: the Lira appreciates, i.e., the "price" of liras in terms of DM increases.

In order to sell DM, Bank of Italy has to use its **foreign reserves**, or obtain overnight loans of DM from the German Central Bank, through a specific mechanism known as **Very Short Term Financing Facility (VSTFF)**.

This implies a certain degree of **cooperation between Central Banks**.

An alternative channel of intervention is an increase of the interest rates on Liras... costly in terms of GDP growth as it reduces investment.

⇒ costly in terms of impact on real economy, loss of growth and risk of recession

Realignments possible upon consensus of all participating countries, implying some loss of autonomy

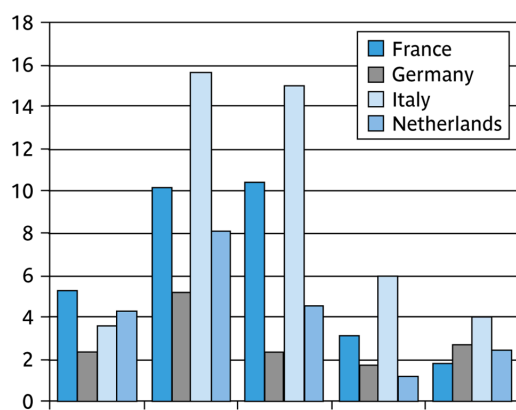
When a country is not able to structurally maintain the exchange rates within the agreed central parities, e.g. due to diverging inflation rates, it is possible to realign the parities towards a new value.

However, this can be done only with a unanimous decision.

⇒ realignment is necessary but it will affect the credibility of the system if there are too many instances

A delay in realignment involves a **cost for the concerned country**, with losses of foreign reserves to defend the parity, and/or GDP growth slowdown due to contractionary monetary policy, plus lower exports due to real appreciation

If capital flows are free, **speculation** can play a destabilising role!



No fewer than 12 realignments during 1979-1987 due to different inflation rates and the need to re-establish competitiveness:

As capital controls were lifted, realignments became increasingly destabilising and costly. Thus, high-inflation and depreciation-prone countries tried to reduce inflation to converge to the lowest rate: Germany became the standard to emulate (i.e., German monetary policy

became the ERM standard and **other countries de facto surrendered monetary policy independence**) and inflation rates started to converge.

⇒ in order to have a fixed exchange rate the interest rate must be aligned so monetary policy must be managed by a unified CB.

- No realignment between 1987 to September 1992; a system designed to be symmetric became perfectly asymmetric, especially as capital controls within the EU were formally banned in July 1990.

Other countries resented the **Bundesbank leadership**, and wanted a shared monetary policy... ... Germany was unwilling to give up leadership but accepted a political deal in 1991: monetary union in exchange for reunification with the former East Germany

⇒ **Maastricht Treaty (Dec 1991) – idea of common currency to share responsibility of monetary policy**

1992 was the year of the crisis of the monetary system, speculation against stability of the system: investors were selling weak currencies (Lira) and buying DM and increasing pressure on the depreciation of the Lira.

CB could intervene to support the currencies doing the opposite, buying Lira and selling DM. The pressure of speculators was so strong that all the reserves were not enough to keep the exchange rate fixed. it was impossible for them to avoid depreciation.

German reunification was costly and became inflationary with increasing i rates, which led to contractionary German monetary policy. When other countries did not follow and referendum in Denmark rejected the Maastricht Treaty, **speculative attacks** targeted countries that were less competitive due to over-evaluation:

Bank of Italy and Bank of England intervened to support their currencies;

attacks became so massive that Bundesbank stopped its support the lira and the pound withdrew from the ERM;

speculation shifted to the currencies of Ireland, Portugal and Spain (devalued twice); contagion then spread to Belgium, Denmark and France;

- monetary authorities adopted new ultra-large (± 15 percent) bands of fluctuation: tight ERM was dead, but some countries were still inside. (Italy and UK withdrew from ERM)


Post-crisis ERM agreed in 1993 differed little from a floating exchange rate regime (i.e., bilateral parities could move by 30%).

One condition in Maastricht Treaty for joining the monetary union: at least two years of ERM membership ⇒ ERM is still in use as a temporary gateway but it has been **re-engineered**:

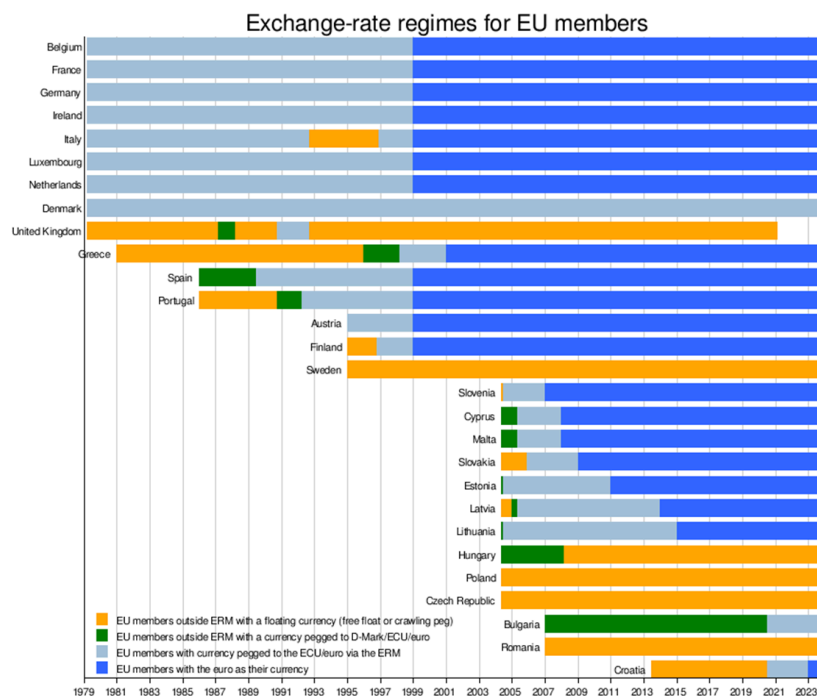
- parities defined vis-à-vis the euro;
- margins of fluctuation less precisely defined;
- interventions automatic and unlimited, but ECB may stop bilateral agreements.

Table 14.3 ERM membership as of September 2011

| Country | Date of ERM membership | Band of fluctuation (%) |
|-----------|------------------------|-------------------------|
| Denmark | 1 January 1999 | ± 2.25 |
| Lithuania | 27 June 2004 | ± 15 |
| Latvia | 2 May 2005 | ± 15 |

 Latvia has adopted the euro on 1st January 2014 and Lithuania on 1st January 2015

Nowadays:



Must stay within ERM

for at least two years before joining the Euro.

Denmark has no formal obligation to enter the Euro.

The EMS has been a key step in European monetary integration. For the first time, European currencies defined their interrelationship without reference to an external store of value, like gold or the US dollar. It involved deep and comprehensive agreements among sovereign states that remain unmatched elsewhere in the world.

And yet, the impossible trinity is binding!

As long as the weaker-currency countries imposed restrictions on capital movements, speculative attacks often accompanied exchange rate realignments, but they were manageable. Once full capital mobility was achieved, central banks soon realised that even large stocks of foreign exchange reserves are too small to repel speculative attacks, and that unlimited interventions are practically impossible. In other words, the conclusion was that monetary integration with separate currencies is a very risky endeavour, possibly a hopeless quest. Monetary union was the response

Before the euro, it was the central bank of Germany ⇒ it was de facto controlling the European monetary system since it had the strongest currency

After the euro: ECB is in charge of monetary policy

Competitive devaluation: strategy to increase the competitiveness of a country by decreasing the nominal exchange rate ⇒ this was not so good for the functioning of the common market since some areas could have short term advantages with respect to others and lead to imbalances, due to the impossible trinity there must be a common monetary policy

The long run solution to become more competitive and maintain the single market is ⇒ **increase productivity**

By having a common currency = there is a strong incentive in the area to solve structural problems by improving productivity ⇒ investing in education, innovation, technology
⇒ improves internal efficiency and internal competitiveness

EU countries get the possibility to determine and influence EU monetary policy, otherwise the “natural leader” would be Germany.

Two-fold mutually reinforcing effects of a single currency:

1. Micro: one currency
⇒ **dynamic gains (from structural improvement)**
⇒ **static gains (from better allocation of resources)**
⇒ higher competition (price transparency) => stimulate industry consolidation and investment in the EU => **growth**
2. Macro: one (independent) central bank => low inflation in a context of low interest rates => **stability**

From the point of view of a firm, investing in a stable environment means that you don't have to consider an additional risk premium in the forecasts.

!There are criteria to manage and enter the euro area!

The Maastricht Treaty (signed by every member state of EU, can only be changed with unanimity)

Building on the report of the Delors' Committee (1989) and the EC document (One Market, One Money), the Maastricht Treaty (December 1991) established the foundations of the European Monetary Union:

- it described in great detail how the system would work, including the statute of the European Central Bank;
- it set the conditions under which the monetary union would start;
- it specified **entry conditions** (mostly at German request);
fulfilment of these criteria was formally evaluated in May 1998. In the end, all the countries that wanted to adopt the euro qualified, with the exception of Greece, which had to wait for another two years.
 - conditions related to money management and stability and deficit of the government
- The UK and Denmark negotiated an **opt-out clause**. All the other EU countries have a formal obligation to join the euro in the future (no deadline).

In May 1998 there was an **evaluation of the countries** to determine which ones could immediately join and which ones had to make structural changes to enter since they would have posed a risk of inflation.

On 4 January 1999, the exchange rates of 11 countries were 'irrevocably' frozen and the **power to conduct monetary policy was transferred to the European System of Central Banks (ESCB), under the aegis of the European Central Bank (ECB)**. Euro banknotes and coins were introduced in January 2002. ⇒ *the ECB cannot absolutely and in any case intervene to reduce government debt, common rules were needed to prevent bad national policies*

Since then, nine more countries have adopted the euro, for a total of 20, the last being Croatia (1st January 2023)

The set-up of the EMU

The European Monetary Union has a number of specific characteristics:

- Once the exchange rates of the national currencies are irrevocably fixed, these are progressively replaced by a new physical currency, the euro

- The monetary policy is run by a new single institution, the **ESCB**, where all the countries share their monetary sovereignty. monetary policy is centralised.
- While the monetary policy is centralised, **fiscal policy remains decentralised** (i.e. in the hands of national governments) but is increasingly coordinated

In order to optimize the working of the EMU, both monetary and fiscal policies within the euro area have been subject to a number of **rules**. These rules are firmly grounded in **economic theory** (Nobel-awarded pieces of economic research have been legally 'incorporated' in the Maastricht Treaty)

⇒ rules about deficit and debt have been suspended during the pandemic and now we have a new agreement

EMU Monetary Policy

According to the TFEU, Art. 127, the monetary policy is managed by the **European System of Central Banks (ESCB)**, whose tasks are:

- to define and implement the monetary policy of the Union;
- to conduct foreign-exchange operations (following the instructions eventually given by the Council);
- to hold and manage the official foreign reserves of the Member States;
- to promote the smooth operation of payment systems;
- prudential supervision of credit institutions (details later in the course)

In particular:

- **Executive Board of European Central Bank:** ECB President, vice-president, 4 Executive Members appointed by European Council. Responsible for implementation of monetary policy.
- **Governing Council of ESCB:** 6 members of ECB Executive Board, plus all the 20 Governors of national central banks of EMU. Responsible for the definition of monetary policy (and guidelines for operational implementation) ⇒ they don't represent national point of view, they represent EU and some are more accommodating while others aren't with respect to inflation.
- **General Council of ESCB:** ECB President and vice-president, plus all the 27 Governors of national central banks of member States. Responsible for harmonisation of rules and consulting function

Economic Theory

price stability and economic growth are two goals with the same weight for ECB, in Maastricht treaty there is a focus on **price stability**

⇒ it highlights the need of keeping **independent CBs** focusing on inflation, otherwise there will always be an incentive for government to use the money to offer short run solutions to the national budget

If you don't have an independent CB ⇒ One way to reduce the Deficit is to ask the CB to print more money even if this will cause inflation. This incentive is present especially in difficult times, for faculty to finance inconsistent macroeconomic policies.

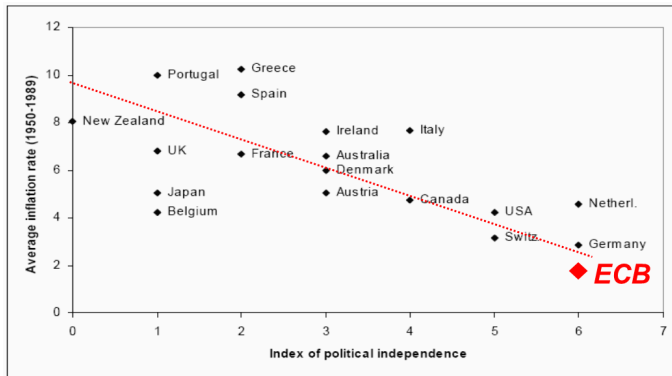
- It is widely recognized that price stability is important for investment and growth.
- For price stability to be achieved, ideally central banks have to **care mainly about inflation** and have to be as **independent as possible** from the national government and the political cycle.
- If central banks mainly care about unemployment, e.g. because they are not totally independent from the government, they may deviate from the announced inflation target after wages have been fixed: **time-inconsistency problem of monetary policy** (Kydland and Prescott, Nobel prize takers in 2004).
- This inconsistency ultimately results in the same rate of unemployment but higher inflation, as economic agents anticipate such behaviour of the bank

ESCB objective: Clear commitment to price stability, in line with the most credible and stable continental monetary institute which preceded it: the Bundesbank.

Monetary policy shall also support the general economic policies of the Union, but always without prejudice to the objective of price stability.

⇒ the lower the independence the lower the ex post inflation rate

ESCB independence: TEC Art 130 *"...neither the European Central Bank, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Union institutions, bodies, offices or agencies, from any government of a Member State or from any other body..."*



The ECB is highly independent.

A Central Bank independent from the Government is more credible in its goal of fighting inflation (Kydland & Prescott, 1977; Barro & Gordon, 1983).

“No bail-out clause”

There is no possibility in any case for the CB to finance any government at any level

→ can't directly buy government securities

difference from **quantitative easing** = buying government bonds on the secondary market, indirectly intervening in financial markets

→ **The no bail-out clause** is aimed at further reducing the incentives for moral hazard by member States. It is strict for the ECB (art. 123), somewhat milder for Member States (art. 125) => used during the crisis

Article 123 (ex Article 101 TEC)

1. Overdraft facilities or any other type of credit facility with the European Central Bank or with the central banks of the Member States (hereinafter referred to as 'national central banks') in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the European Central Bank or national central banks of debt instruments.

ECB

Article 125 (ex Article 103 TEC)

1. The Union shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project. A Member State shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of another Member State, without prejudice to mutual financial guarantees for the joint execution of a specific project.

Member

States

⇒ these rules **do not say about a procedure to adopt in times of crisis** or when a country is at risk of default

⇒ it is not forbidden for another member state to intervene in a country with a debt crisis, but they also have **NO OBLIGATION TO DO SO**.

→ all aimed at avoiding that in the euro area countries have an incentive to increase deficit and debt to hinder other countries or increase competitiveness

ECB Strategy

At the beginning, the ECB announced a “**double pillar strategy**”:

1. **Direct inflation targeting**: between zero and 2 per cent ⇒ autonomous decision of ECB
2. **Monetary targeting**: annual growth of the M3 monetary aggregate at 4.5 per cent with Real GDP: 2.5%

However, the ECB did not achieve these objectives in the first years. In particular, M3 growth is always above 4.5 per cent.

⇒ we had an increase of money above target level

Criticism emerged that ECB was announcing and trying to run an overly restrictive monetary policy w.r. to the economic conditions.

In May 2003, **ECB revised the strategy**:

- The Governing Council has clarified that “**The ECB aims at inflation rates of below, but close to, 2% over the medium term**”. This is to “provide a safety margin against the risk of deflation”
- Formal reference to monitoring of M3 is dropped (although M3 developments still taken into account in medium run due to monetary neutrality)

⇒ inflation target needs to be positive and far from 0 in order to avoid deflation risk, a deflationary spiral could cause consumers to postpone consumption and reduced production bc of profitability problems ⇒ GDP decreasing

Further revision in 2021 – Symmetry:

*“The Governing Council considers that price stability is best maintained by **aiming for two per cent inflation over the medium term. The Governing Council’s commitment to this target is symmetric.** Symmetry means that the Governing Council considers negative and positive deviations from this target as equally undesirable. The two percent inflation target provides a clear anchor for inflation expectations, which is essential for maintaining price stability.”*

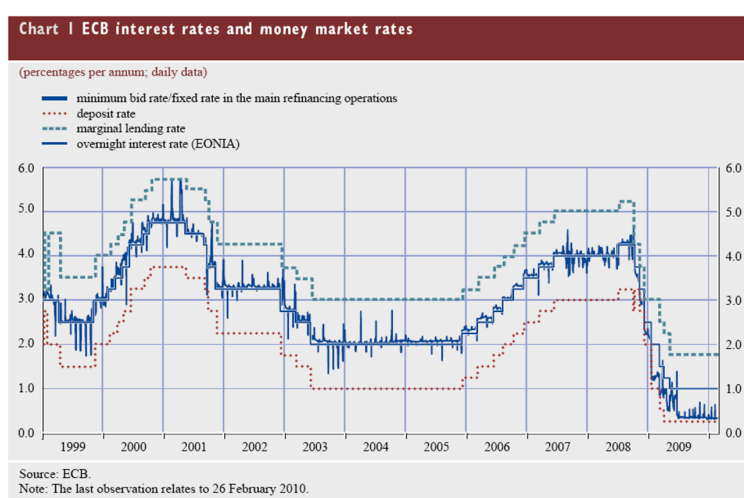
There are **3 main problems** related to a **too low inflation target**:

1. it may imply **ineffective monetary policy**, due to the zero lower bound for nominal interest rates (if inflation too low => in equilibrium nominal interest rates are too low (recall from macro: $\text{nominal interest rate} = \text{real interest rate} + \text{expected inflation}$) => no room for decreasing them enough to stimulate the economy in case of recessions);

[in this case you would need non-conventional monetary policies, e.g. Quantitative Easing]

2. due to measurement errors, a low measured inflation may actually **capture a slight deflation**, which may lead to recession;
3. Some inflation may actually “grease” the mechanism of relative price adjustments in response to shocks, as there are nominal downward rigidities to lowering prices/wages.

Example: it is easier for a country to regain competitiveness in a context of moderate inflation rather than in a context of stable prices, as the latter would imply nominal decreases in prices/wages. Hot issue in the aftermath of the financial and sovereign debt crisis!



Monetary policy: ECB before

the crisis.

The **ultimate goal of the central bank** is to influence the inter-banking market rate, which in turn affects the rate at which households and companies can borrow: transmission mechanism of monetary policy

To this purpose, the Governing Council of the ECB sets the key interest rates for the euro area:

- ★ The **interest rate on the main refinancing operations (MRO)**, which provide the bulk of liquidity to the banking system. This rate is either a minimum bid rate through an auction system (pre-crisis), or a fixed rate (post-crisis);
- ★ The **rate on the deposit facility** (deposit rate), which banks may use to make overnight deposits with the Eurosystem;
- ★ The **marginal lending rate**, which offers overnight credit to banks from the Eurosystem.

These rates are referred to as **policy rates**. They influence (but do not determine!) the inter-banking interest rates, i.e. the market rates at which banks lend to each other (overnight EONIA, or different monthly maturities EURIBOR). Inter-banking rates always stay within the corridor!

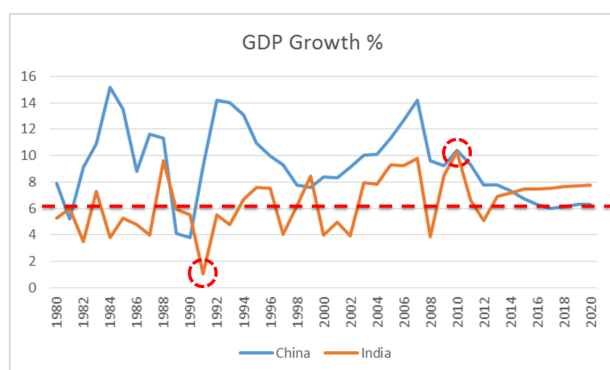
A commercial bank may deposit part of its excess of reserves on its account with the CB at the deposit rate (transaction A).

It may also lend to a commercial bank at the market rate (transaction B) against a guarantee (e.g. bonds)

A commercial bank may pledge a guarantee and receive a refinancing of (newly printed) money by the CB at the policy rate via a MRO, or a loan by the CB through the marginal lending rate (transaction C in both cases).

It may also receive a loan from a commercial bank at the market rate (transaction D)

GDP Growth and economic policy



The fiscal side

In general, monetary and fiscal policies should ensure the stabilisation of the business cycle over time so as to foster **consumption smoothing** (stable consumption over time)

The latter implies the ability to generate deficits in 'bad' times to compensate for the negative phase of the cycle => national budgets have a cyclical component (vs. EU budget, in equilibrium each year)

But in any case there is an intertemporal budget constraint: in the long-run the **discounted sum of government revenues = discounted sum of government expenditures**.

Any tax cut / higher public expenditure today has to be compensated by higher budget surpluses tomorrow → creates a link between monetary and fiscal policy: printing money may be a way of increasing government revenues, generating inflation which reduces the real burden of debt.

Hence, in an economy which experiences high budget deficits, and where the central bank is not fully independent, inflation expectations rise and inflation rates tend to be higher...

So, if an inflation target has to be achieved, public finances need to be balanced in the medium-run

This is even more beneficial in general as high public deficits tend to crowd-out private investments in the economy (and hence reduce long term growth)

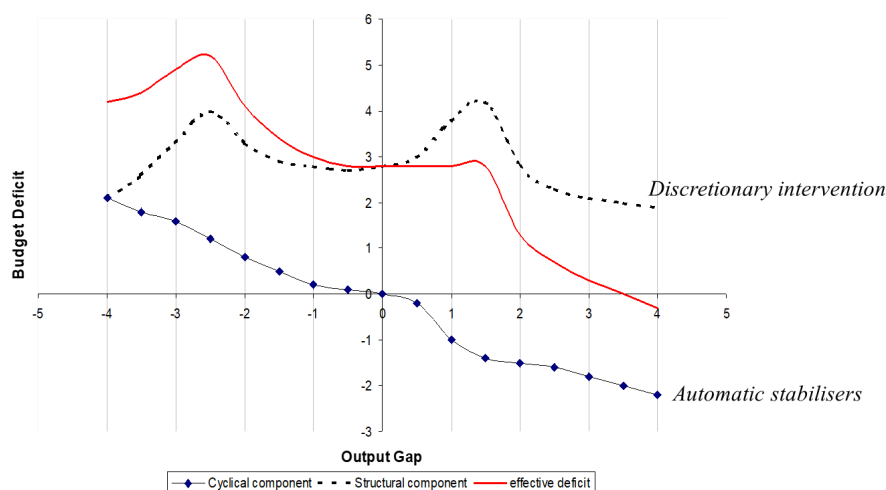
In EMU, the need for balanced public finances is reinforced by 2 factors:

1. **Individual fiscal policies by Member State:** a country can increase public spending => rise in the interest rates; but part of this increase spreads out to other countries of the union even if they have not changed their fiscal position, i.e. negative spillover (via crowding-out of private investment)
2. As financial markets become integrated, the **common central bank might have an incentive not to let any country go bankrupt** (by setting lower interest rates or buying government bonds). This may loosen the incentives for budget discipline in each country, i.e., moral hazard

Overall... There is a clear need for stringent rules on budget discipline in a monetary union

And yet, **why would any country accumulate unsustainable debt?** Several answers have been provided: fiscal illusion, political business cycle, coalition governments...

The political business cycle (Alesina & Perotti, 1995) or the same form of Government, parliamentary vs. presidential (Persson & Tabellini, 2003) can lead a Government to generate permanent and excessive deficits, even in positive phases of the cycle, and hence a build up of debt. This is what has happened in Europe since 1960.



Source: Buti & Sapir (1998)

Red line= **Actual**

budget deficit

Discretionary intervention = (The expenditures voted each year by the Government, e.g. infrastructure)

Automatic Stabilisers = (Progressive tax revenues and social expenditures, e.g. unemployment benefits)

EMU Fiscal Policy

Two key objectives:

1. achieve **solid budgetary discipline** and maintain it over time;
2. achieve a **strong coordination** of macroeconomic policies.

The Maastricht Treaty states that “member States shall avoid excessive government deficits” (Art. 126).

Two specific fiscal provisions:

1. **deficit/GDP below 3%**, and
2. **debt/GDP below (or converging to) 60%** (as in convergence criteria).

The Treaty contains also an excessive deficit procedure to enforce these provisions

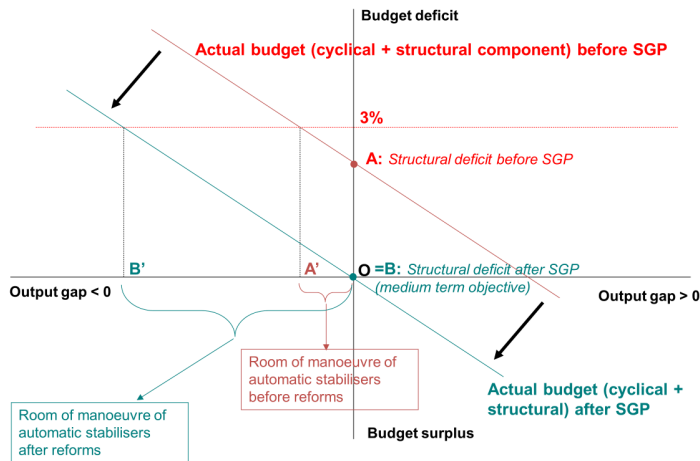
The Maastricht fiscal criteria should ensure the consistency between a centralised monetary policy and decentralised national fiscal policies: aim is to **avoid the generation of excessive inflationary expectations** and prevent the emergence of negative spillovers / moral hazard problems.

But is it enough? If we fix a 3% maximum deficit threshold and countries stay around that threshold in the medium term (i.e. at zero output gap), this implies that **in case of slow-down of the economy the 3% threshold will be overcome, with a very limited scope for the use of automatic stabilisers !**

Hence, in 1997, the idea to design a refined set of rules, on top of those contained in the Maastricht Treaty, that ‘obliges’ countries to achieve a medium-term budget target of close to balance, or in surplus

⇒ Stability and Growth Pact

Stability and Growth Pact (SGP): the rationale



So why 3% and 60%?

The previous analysis by Buti and Sapir (1998) across European nations in the period 1961-1990 has shown that the functioning of automatic stabilisers would have never taken the deficit above 3% of GDP, starting from a situation of balanced structural budget (i.e. no deficit at potential output level with no inflationary pressure)

However, this does not apply to large recessions... Hence the exception for “extraordinary circumstances” (i.e. a contraction of GDP by more than 2%, or even between 0.75 and 2% discretely)

3% of GDP is also in line with public gross capital expenditure in Europe, thus implying that capital investment can be financed also by future generations through public debt

60% of debt/GDP is the stable level of debt that can be sustained with a 3% deficit when having nominal growth (including inflation) of 5% per year (that is, 2% inflation target + 3% GDP growth), which is in line with the potential output of the European economy at the start of EMU

The preventive arm

The underwriters of the Pact commit themselves to a medium-term objective (MTO) of a public budget ‘close to balance or in surplus’, a stricter goal than the 3% deficit rule.

- The MTO is achieved over time through the set up of “*stability programmes*” (updated each year) that detail the adjustment path of budget deficits toward the MTO. These programmes normally range over five years.

- The medium-term objective (MTO) of budgetary positions “close to balance or in surplus” is differentiated by member State (from -1% to surplus) and defined in structural terms, which means that the MTO should take into consideration business cycle swings and filter out the effects of one-off and other temporary measures.
- For the definition of the MTO and of the adjustment path, transitory elements besides cyclical components have to be taken into account. In particular, the assessment has to consider the role of structural reforms such as labour market reforms, policies to foster R&D and innovation, pension reforms. Furthermore, the Council has also stated that *‘due consideration has to be given to any other factors which, in the opinion of the concerned member state, are relevant in order to comprehensively assess in qualitative terms the excess over the reference value’*.

⇒ room for political compromise with danger of ambiguous interpretations

The corrective arm

The deficit/GDP value of **3% remains as a maximum threshold**, not to be trespassed. Automatic **exceptions** are foreseen if the growth rate of a country falls by at least 2%; for reduction in growth rates between 0.75 and 2% a temporary waiver can be granted.

- **Non-automatic waivers** can also be granted for (temporary) excessive deficits resulting from a period of negative growth rate, or from the accumulated loss of output during a protracted period of very low growth relative to potential growth.
- **Public debt is also considered excessive under the Treaty if it exceeds 60% of GDP** without diminishing at an adequate rate.
- If the country does not comply, an **excessive deficit procedure** proposed by the Commission can be voted by the **ECOFIN** Council: the country is then obliged to take all the necessary measures to comply with the SGP (i.e. reduce the deficit) within the time horizon defined in the procedure (TFEU art. 126).
- If the country is still not complying, a **fine is imposed: 0.2% of GDP**, if it fails to abide by either the preventive or the corrective rules, or 0.5% of GDP, if it repeatedly fails to abide by the corrective rules.

⇒ These rules of the SGP have been further strengthened during the crisis

Member States compliance with EMU fiscal policy

After the introduction of the SGP in 1997, the Commission requested to the EcoFin Council the **activation of several excessive deficit procedures** since 2002.

But these requests were not always effective, as governments in the Council “colluded in a repeated game”, e.g., sanctions against France and Germany were not approved by the Council in 2003, which abstained from voting on the Commission recommendation.

The Commission then appealed to the EU Court of Justice, which ruled against the Council... asking for an explicit vote on the Commission request.

The European Council then intervened, and ‘encouraged’ the Commission (recall who is the boss in the EU?) to propose a reform of the SGP able to encompass the new situation giving more flexibility to the Council with the introduction of a number of discretionary waivers / exceptions... ‘due consideration has to be given to any other factors’

⇒ **Nowadays this remains a critical open issue:**

The SGP has been suspended over the Covid-19 crisis → New rules are currently under approval

The Optimal Currency Area

Since the seminal work of Mundell (1961), we know that a region can be considered as an Optimal Currency Area (OCA) if 4 conditions are met:

1. ⇒ **related to ECB: The business cycles are perfectly synchronised**, in order to ensure an optimal conduct of the centralised monetary policy;
the higher the degree of synchronisation of the business cycle the higher the effectiveness and benefits of having a common currency and monetary policy.
A synchronised **business cycle** means having aligned positive and depressive phases. Typically in the positive phase there is pressure on inflation so you must increase interest rates, while in the negative phase the opposite happens.
2. ⇒ **related to Stability and Growth Pact: Fiscal policies are able to cope with asymmetric shocks eventually hitting the area**, there must be room of manoeuvre to solve crisis;
3. **Prices and wages are perfectly flexible across the area**, flexibility means that if there are problems in one country, if wages are flexible they will adjust. when there is a high increase in productivity in one country then wages will increase ⇒ this can happen when it is not possible to restore competitiveness by decreasing the exchange rate and devaluing currency;
4. **Product and labour markets are integrated**. If there is a crisis in one state in the US, workers can easily move to another state with limited barriers

These factors have influenced the set-up of EMU and Mundell got the Nobel prize in Economics in 1999

The Maastricht Convergence Criteria

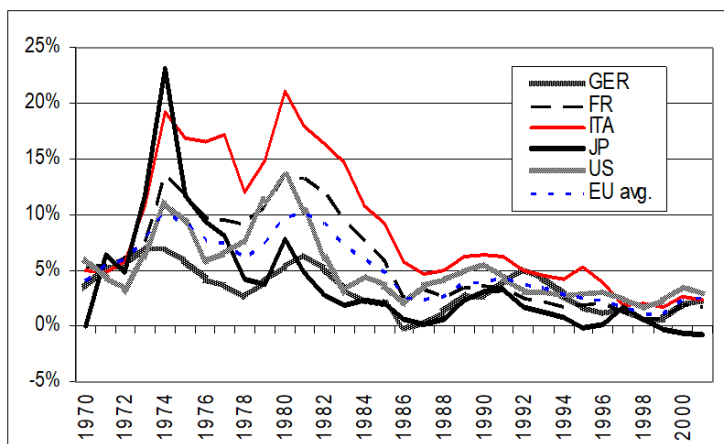
The Maastricht Treaty contains **3 nominal convergence** criteria to be fulfilled by Member States willing to adopt the euro: ⇒ for countries with low interest rates and low inflation

1. **inflation rates** no more than **1.5** per cent above the average of the three EU countries with the lowest inflation rates (one year before joining)
2. **Long-term interest rates** should be no more than **2** per cent above the average of the three EU countries with the lowest rates
3. **National currencies** must not have been devalued and must have remained within the normal (15 percent) bands of the EMS for the previous two years

Rationale: These nominal convergence criteria aim to ensure the elimination of costs associated with the *synchronisation of business cycles* (“one monetary policy fits all?”);

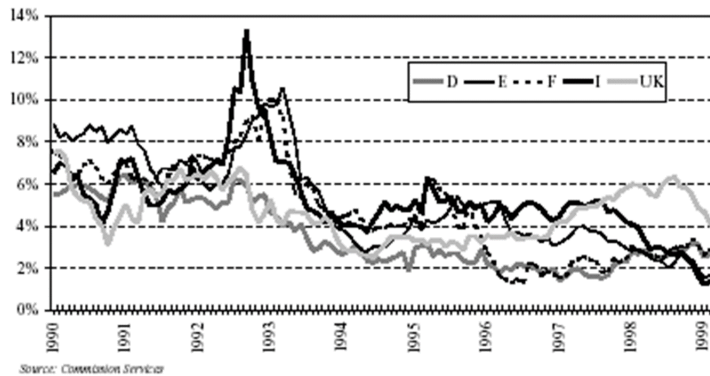
N.B. recall that in the Maastricht Treaty there are two fiscal provisions related to the evolution of public debt and deficit. Hence sometimes people refer to ‘five convergence criteria’ in the Treaty, although the latter two are clearly different in nature. ⇒ they refer to the budget of the government

1. Deficit/GDP below 3%
2. D/GDP below 60% or converging to that figure



Convergence of inflation rates

CHART 3.3 : Real short-term (3-month) interest rates
(CPI deflator)



the same happened for the interest rates, after the crisis of the european monetary system (in italy it got to more than 13%)

| Deficit/GDP | | | | | | | | | | | |
|-----------------|---------|---------|-------|--------|---------|-------|-----|---------|---------|----------|---------|
| | Belgium | Germany | Spain | France | Ireland | Italy | Lux | Netherl | Austria | Portugal | Finland |
| 1991 | -6.3 | -3.1 | -4.4 | -2 | -2.3 | -10.1 | 1.9 | -2.9 | -3 | -6 | -1 |
| 1992 | -7 | -2.6 | -4 | -3.8 | -2.5 | -9.6 | 0.7 | -3.9 | -2 | -3 | -5.9 |
| 1993 | -7.3 | -3.2 | -6.8 | -5.7 | -2.2 | -9.5 | 1.6 | -3.2 | -4.2 | -6.1 | -7.1 |
| 1994 | -4.9 | -2.4 | -6.2 | -5.8 | -1.7 | -9.2 | 2.7 | -3.8 | -5 | -6 | -6.4 |
| 1995 | -3.8 | -3.3 | -7.1 | -4.9 | -2.1 | -7.7 | 1.8 | -4.1 | -5.1 | -5.7 | -4.6 |
| 1996 | -3.1 | -3.4 | -4.5 | -4.1 | -0.2 | -6.6 | 2.8 | -1.8 | -3.7 | -3.3 | -3.1 |
| 1997 | -1.6 | -2.7 | -2.5 | -3 | 1 | -2.7 | 3.8 | -1 | -1.8 | -2.5 | -1.2 |
| 1998 | -0.9 | -2 | -1.7 | -2.9 | 2.4 | -2.7 | 2.5 | -0.7 | -2.2 | -2.2 | 0.9 |
| Public Debt/GDP | | | | | | | | | | | |
| | Belgium | Germany | Spain | France | Ireland | Italy | Lux | Netherl | Austria | Portugal | Finland |
| 1991 | 128.5 | 41.4 | 44.6 | 35.7 | 94.3 | 101.5 | 4 | 79 | 57.9 | 62.9 | 23.1 |
| 1992 | 130.1 | 44 | 47.1 | 39.6 | 91.1 | 108.7 | 4.9 | 80 | 57.9 | 56.3 | 41.3 |
| 1993 | 136.8 | 48 | 59 | 45.7 | 92.6 | 119.1 | 5.9 | 81.2 | 62.7 | 61 | 57.6 |
| 1994 | 135.1 | 50.2 | 61.3 | 48.5 | 86.1 | 124.9 | 5.5 | 77.9 | 65.4 | 63.8 | 59.3 |
| 1995 | 132 | 58.3 | 64.2 | 52.8 | 78.4 | 125.3 | 5.8 | 77.9 | 69.4 | 65.9 | 58.1 |
| 1996 | 128.8 | 60.8 | 68.5 | 55.7 | 68.6 | 124.6 | 6.3 | 76.1 | 69.8 | 64.9 | 57.6 |
| 1997 | 123.4 | 61.5 | 67.1 | 58.1 | 59.9 | 122.4 | 6.4 | 70.8 | 64.1 | 61.7 | 55 |
| 1998 | 118.2 | 61.1 | 65.1 | 58.8 | 49.5 | 118.7 | 6.9 | 67.5 | 63 | 57.8 | 49.7 |

Deficit: In Italy there was a long process of reducing the deficit, still in 1996 it was more than double the threshold of the treaty.

In 1997 Italy was able to be evaluated and comply with the standards, with structural reforms (Euro tax, reduced government spending,...)

⇒ Entering the Euro reduced the interest rates and the cost of public debt, it reduced the Spread

The Maastricht Criteria was able to give a direction to the governments with regard to policy.

Debt: the Maastricht Treaty also considered a process of convergence so it opened the doors to Belgium and Italy

What is the optimal EMU setup?

From the theoretical arguments presented so far, we can identify the key optimal ingredients for a well functioning Economic and Monetary Union:

Monetary policy is able to achieve price stability through **independence of the central bank**, a well defined statutory objective, and the no-bail out clause

Fiscal policies, though decentralised, are **coordinated** towards the medium-term objective of a public budget close to balance or in surplus, concurring to the objective of price stability via the deficit and debt provisions (3%-60%) and the Stability and Growth Pact

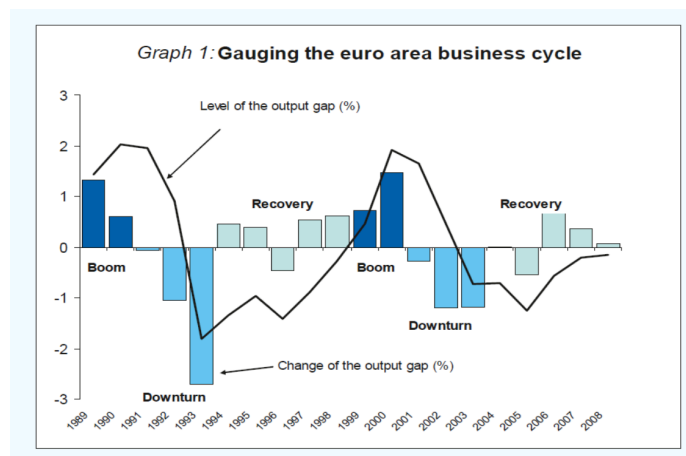
The **4 costs predicted by the OCA theory are minimised**

The Maastricht nominal convergence criteria allow for the **synchronisation of business cycles**

The Growth and Stability Pact creates the necessary room of manoeuvre for fiscal policy to cope with asymmetric shocks

→ A well-working Single Market should foster product and factor market integration

EMU Monetary Policy: results 1999-2008

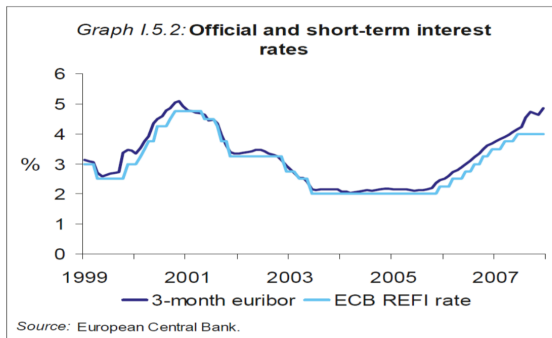


Interesting exercise as the **economy has gone through a complete cycle**: peak in 1999-2000; downturn as dotcom bubble burst (2001-2003), then recovery.

Notice: output gap is difference between GDP growth and potential growth achievable without excessive inflationary pressures

the **business cycle** is computed as GDP differential:

- at 0: actual GDP = potential GDP
- below 0 you are growing more than average economic growth of normal times
- above 0 you are producing less than optimal

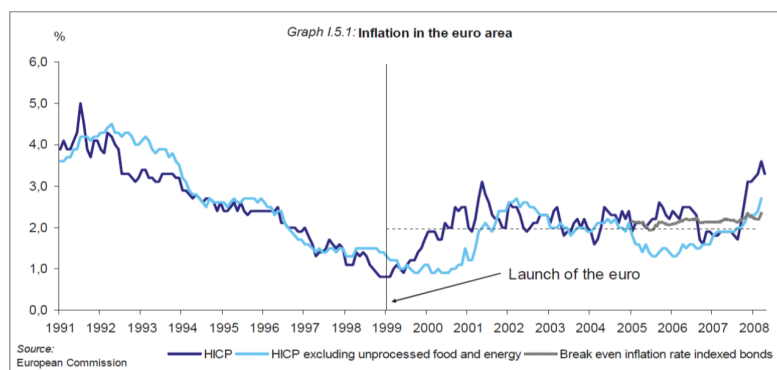


Interest rate of the market: EURIBOR

ECB REFI rate starts from 3%, first decreased to 2.5% and then raised up to 4.75% in a buoyant economy. Then a series of cuts down to 2% as a reaction to the downturn. Increases only at the end of 2005.

Market rate follows the policy rate until the crisis, then divergence!

even if for banks the cost for borrowing ECB money was stable, the interbanking rate was increasing \Rightarrow there is **higher perceived risk in the market**

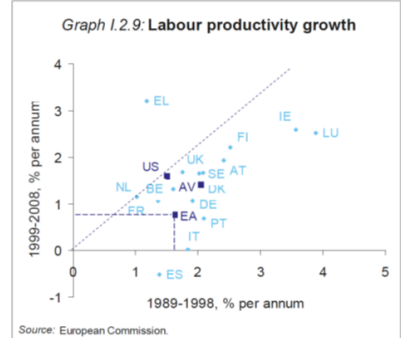
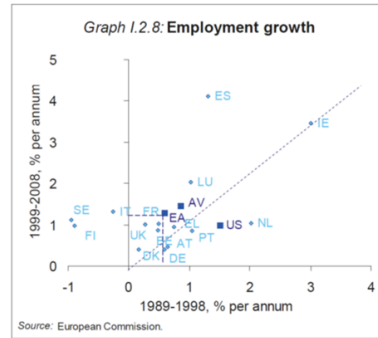
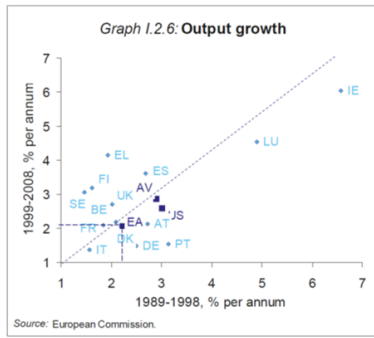


ECB established a **strong reputation of commitment to price stability**. \Rightarrow fundamental for a new institution

Inflation dynamics are a success: in 42 out of 110 months **inflation below 2%**, and anyway upper deviations have not been substantial, especially if we look at “core inflation” excluding unprocessed food and energy (more volatile at global level).

Expectations remain just slightly above 2% even after 2005, as standard inflation was rising due to food and energy price shocks.

- Volatility has also been reduced: from 0.6% in 80s to 0.3% in the 90s to 0.2% after 1999.



- 2.1% avg. GDP growth for 1999-2008, same as 1989-1999 (2.2%), less than 2.6% of the US.

Heterogeneous picture across member States, e.g. small countries have grown more.

- 2 big economies have slowed down: Germany (from 2.5% to 1.5%) and Italy (around 1.5%).

GDP growth can be decomposed in employment growth and labour productivity growth.

- **Employment growth** has been high: 1.3% against 0.6% in the previous decade (and 1% in US). Unemployment has decreased from 9.3% to 8.3%. This is attributed to labour market reforms, shift to labour intensive services and wage moderation due to higher competition (Single Market and Globalization at work).
- **Labour productivity** growth has been very low: 0.8% against 1.6% in the previous decade (and 1.6% in the US). **WHY?**

⇒ Problem is low R&D, low productivity in services, low ICT adoption, outdated managerial practices **inconsistent with IT revolution**: not enough competitive pressures / market integration (i.e. without the euro it could arguably have been worse)

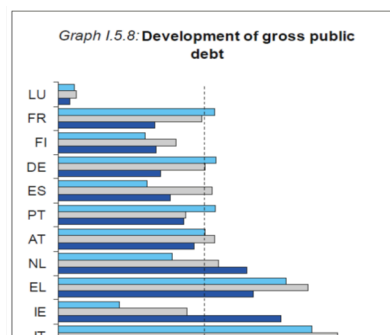
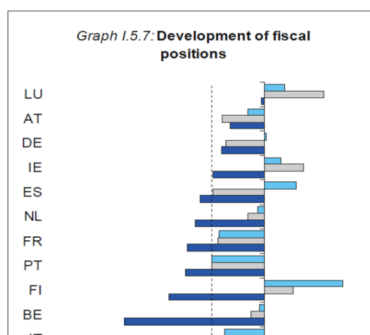
⇒ the internal market productivity is worse than the US because of other factors slowing down interconnection (languages, entry barriers, non-trade barriers to services)

⇒ when we speak about the potential of the economic growth we must look at the structural variables related to productivity (DGP produced per worker), innovation, employment (labour factor)... all factors that bring more production

⇒ in the euro area the only way to increase competitiveness if productivity factors cannot be changed is lowering the cost of labour (wage moderation)

Data on public budgets: we can observe the positive impact of the Euro (on avg)

Deficit was reduced well below the 3% threshold



Average deficit/GDP in 1999-2008 has been 1.7%, below 4.3% of

1989-1999, and below the critical 3%. So it seems that the SGP has been effective, although the upturn in cycle has helped.

Notice also the improvement from 1992 to 1998, thanks to convergence criteria.

Average debt/GDP is 68.6% in both decades, increasing above 60% in France, Germany and Portugal, although decreasing in high-debt countries, but decreasing in Italy and Belgium.

How was fiscal consolidation obtained?

Some countries have managed to reduce the tax burden, especially Ireland, Netherlands and Finland.

Almost all countries have reduced expenditure. However, especially in the most indebted countries this has happened only thanks to **lower interest payments** thanks to declining interest rates (thanks to the Euro), and not through a structural reduction of expenditure (primary expenditure) which was only done partially in most countries ⇒ crucial when averting a crisis (2008)

Understanding the 2008 Crisis

The Globalisation Shock

mainly related to China and Asia entering the global economy which decreased the pressure of prices, and average cost of production ⇒ positive supply shock

From the second half of the nineties, globalisation allows US and EU firms to import lower price inputs and goods on a large scale from Asia and particularly from China, which benefits from huge scale economies further lowering down unit costs.

This creates a positive supply shock in industrialised countries:

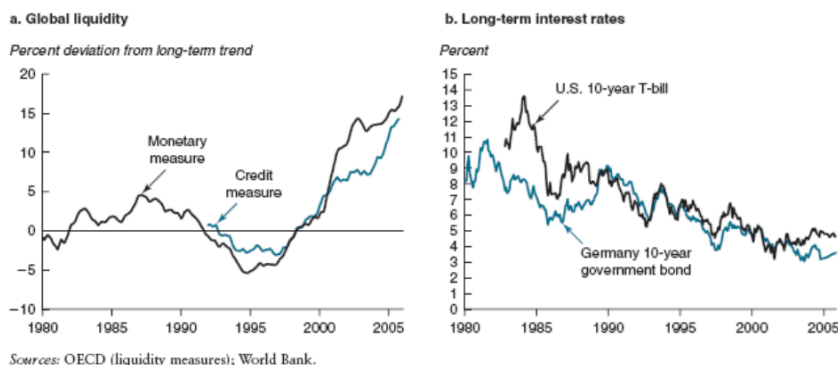
- Downward pressure on inflation...
- The Economist has referred to these dynamics as “weapons of mass disinflation”
⇒ **lower interest rates**

means that the cost of investment will be lower, so there will be more investments

⇒ there will be an appreciation of the dollar and developed countries' currencies, because there was an increase in deposits in foreign currency in developing countries due to exports.

⇒ this capital was used to invest in projects in developed countries, advanced economies. they bought banknotes, T-bills and stock

⇒ another decrease in interest rates due to all the demand and capital coming from China



⇒ Emerging economies experience significant current account surpluses “*saving glut*”
Capital flows towards EU-US, hence \$ e € remain overvalued notwithstanding low interest rates

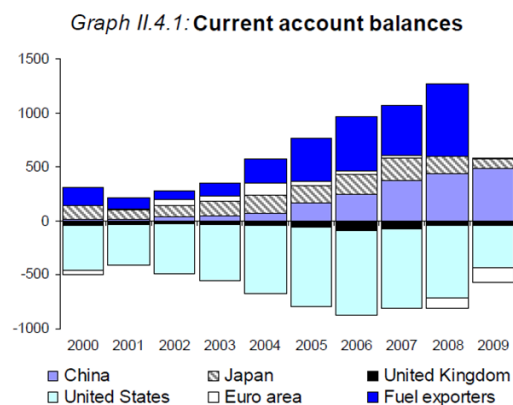
$$(\text{Exports} - \text{Imports}) = (\text{Savings} - \text{Investments})$$

→ China, Japan, oil exporters, have a lot of savings invested abroad

The strong \$ and € work against the expansionary monetary policy in US-EU, i.e. imports remain very cheap, keeping inflation down.

Interest rates have to be kept at low levels for a long period. This determines sustained investment, increasing prices and the creation of a bubble in housing prices, particularly in the US.

At the same time, big permanent imbalances in current accounts are witnessed by many countries (US, Spain, Portugal, Greece...)

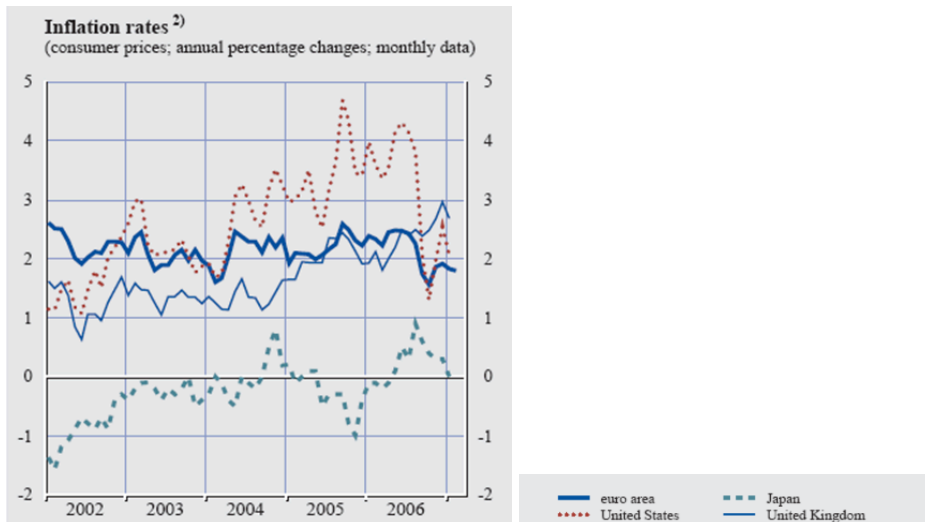


This also had a strong effect on CA balance

In 2004-2005 it seemed like it was finally time to increase interest rates.

⇒ The supply shock seems finally reabsorbed, and inflation starts to rise, especially in the US.

→ Both FED and ECB start increasing interest rates.

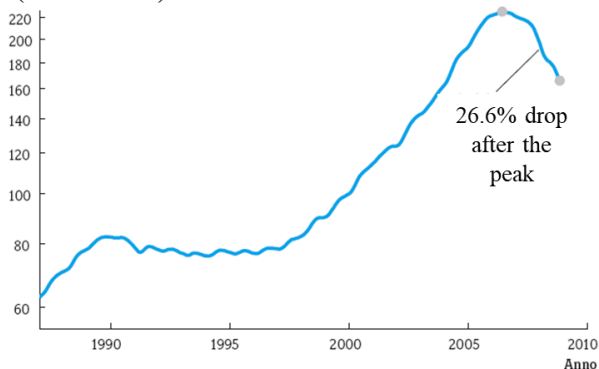


Euro: from 2 to 4%

US: from 2.5 to 5%

2006-2007: first signals of a mortgage crisis

Housing price Index
(Jan 2000=100)



Drivers of the crisis:

1. Business cycle: the housing market bubble burst. As interest rates go up due to new monetary policy, housing prices start declining (i.e. less people willing to buy, and more people unable to repay their loans)... End of the bubble! **Crisis of subprime mortgages... Inter-banking interest rates soar...**

2. Financial innovation: for the first time, the financing activity on the housing market dramatically changed, we had new means, derivative, and due to securitization of mortgages through Collateralized Debt Obligations (CDO). (bundles of mortgages that range from safe to junk)

The chain of events leading to the crises

- Collateralized Debt Obligations (CDO) are created and sold ⇒ “originate to distribute” model of risk (from mortgage to investors) ⇒
- higher US interest rates and falling housing prices ⇒
- crisis of subprime mortgages (then extended to normal mortgages, why pay a mortgage for 200k \$ if your house is now worth 150k?, you'd better sell your house) downturn in asset price due to monetary policy (higher interest rates)

- tensions on the **inter-banking market**, impossibility to borrow money and get credit
⇒
- fall in asset values ⇒ **liquidity crisis became a solvency crisis since the value of the asset became lower than the amount of debt**
- deleveraging of banks' **balance sheets** ⇒ possible (e.g. Lehman Brothers) solvency crisis and overall contagion via Credit Default Swaps (CDS) ⇒
- credit crunch ⇒ banks did not want to lend money bc of their own liquidity problem and general risk of default

This led to the collapse of international trade.

recession, international trade collapse, i.e. “from Wall Street to Main Street”

⇒ this crisis had a very big impact on the Euro area due to lack of regulation

⇒ from a monetary perspective, it was due to the rise of interest rates, which made it impossible for borrowers to repay their debt

Banks Balance Sheet

| | Assets | Liabilities | Capital | Leverage |
|--------|--------|-------------|---------|----------|
| Bank A | €100 | €80 | €20 | 5 |
| Bank B | €100 | €95 | € 5 | 20 |

Assets: government bonds, other securities, mortgages, loans to firms, reserves.

Liabilities: deposit accounts, short-term and long-term debts as a result of borrowing from financial investors or other banks.

Capital: difference between total assets and total liabilities, you can think of it as being funds initially invested by the owners of the bank.

If there is a loss on assets, this will be absorbed by capital. If, due to losses, assets become lower than liabilities, then the bank goes bankrupt... that's why a safe amount of capital has to be maintained, as a share of assets.

Such a high value of leverage means that in good times you have a very high return on capital, but in bad times you don't have enough capital to absorb the loss in value of your assets.

⇒ value of capital will become zero so the bank will be insolvent. Most banks had a leverage similar to bank B, some banks had a leverage of 20, 30.

Capital ratio=capital/assets

It is equal to 20% for bank A, and only 5% for bank B.

Leverage ratio=assets/capital

That is equal to 5 for bank A, and 20 for bank B.

The position of **bank B is very risky...** As soon as the value of assets decreases below €95 there is bankruptcy!

And yet, a higher leverage ratio increases expected profits per unit of capital in good times. For example, assuming assets pay 5% and 4% is paid on liabilities, the following expected returns on capital are obtained:

Bank A: $(€100*5\% - €80*4\%)/€20 = 9\%$

Bank B: $(€100*5\% - €95*4\%)/€5 = 24\%$

Because of a long period without a crisis, many banks were in the position of bank B in 2007, with too little capital over assets... When the value of assets went down, these banks went bankrupt!

From the US to the EU

The EU Banking system is the largest in the world: cannot be exempt from purchasing available assets yielding good returns like derivatives and CDOs... ⇒ 50% of bank assets are in the EU.

- Bank financing is more important for EU firms (around 70% of total) than for US firms (around 25% of total, they rely on corporate bonds and stock market)

Not by chance, the first 'signals' of the crisis erupted in Europe (suspension of two CDOs funds by BNP Paribas in July 2007)

⇒ even if the crisis started in the US real estate market it had a huge impact on Europe due to the magnitude of the EU banking system.

2007-2008 the "Heart attack" scenario

The credit crisis exploded in the summer of 2007, as BNP Paribas defaulted on two CDOs funds.

- **In November 2007** the liquidity crisis turned into a solvency crisis for some institutions: **Bear Stearns** (5th largest global investment bank) went bankrupt and was rescued by JP Morgan with the help of FED lending 80 bn USD in exchange for toxic assets owned by Bear Stearns.
- **On September 15th 2008, Lehman Brothers** (4th largest global investment bank) went bankrupt and was not bailed-out by the government
- **Merril Lynch** (the 3rd largest) in distress is acquired by Bank of America, a commercial bank (decision taken in the same meeting organized to rescue Lehman...) some commercial banks were merged.

⇒ the FED changed these illiquid assets to liquid to help JP Morgan acquire Bear Stearns.

After Lehman and Merrill, the 2 remaining IBs (Goldman Sachs and Morgan Stanley) changed their statute to commercial banks and accepted FED supervision. Then crisis hits AIG (the greatest global mortgage broker), plus Fannie Mae & Freddie Mac (two federal mortgage institutions).

In the meantime, in the EU, several Banks had to be rescued: Northern Rock & RBS (UK), Landesbank Sachsen (Germany), Fortis (Belgium), Bradford & Bingley (UK), Dexia (France-Belgium), ABN-AmRO (the Netherlands)...

On October 10th 2008 the global inter-banking market got stuck: banks do not trust each other anymore... there is no liquidity exchanged...

The whole economic system was about to collapse!

Interest rate divergence

The crisis leads to a divergence between the inter-banking rate and the CB policy rate (or Refi rate, i.e. rate of the Main Refinancing Operations - MRO)

=> the inter-banking market stops working properly

The negative effects of the credit crisis quickly went from the financial to the real side of the economy:

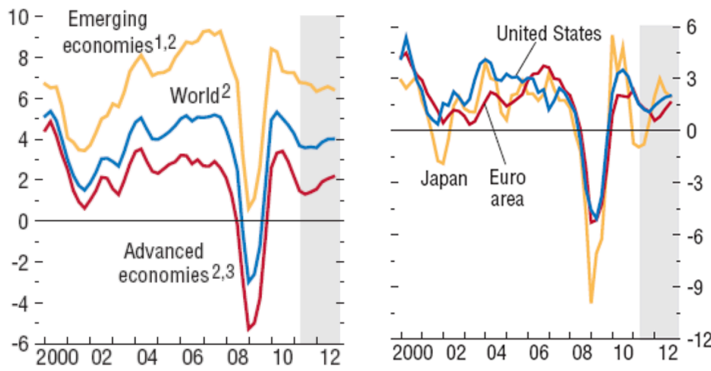
Credit crunch: large increase in interest rates at which firms and families could borrow, or simply drain of available loans (because of problems in banks' balance sheets), unavailability of liquidity, now even good borrowers could not get funding => **lower investment**

Loss of wealth: the value of financial assets and houses drops => **lower consumption**, individuals postponed consumption

Decrease in confidence: with financial markets stuck and assets' value spiralling down, both companies and firms were afraid the situation would become worse and worse => **negative effect from expectations on C and I**

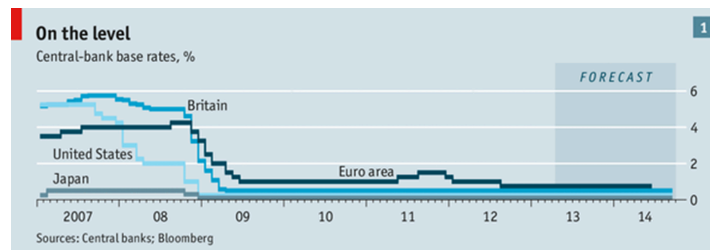
Trade collapse: with less money available to pay in advance invoices, and with demand falling everywhere in the world, also trade flows collapsed => **lower net exports**

Overall there was a large decrease in spending, synchronised across countries... [A big shift of the AD curve to the left!] Risk of Great Depression #2



To avoid the free fall of the world economy, in Fall 2008 countries had to organise an extraordinary and coordinated (at the G-20 level) set of responses, which refer to both monetary policy and fiscal policy

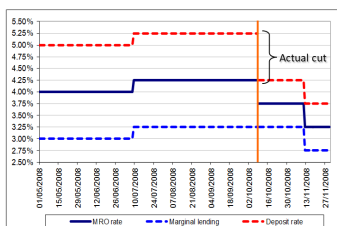
Policy response: conventional monetary policy



Conventional monetary policy: interest rates were cut down to (almost) zero over time so as to stimulate consumption and investment (+ increased government spending mainly to bail out banks). also increased monetary mass to solve liquidity problems.

Policy response: ECB quasi-conventional policy

- In 2008 EURIBOR was out of control



As a response, not only the ECB cut the interest rate (traditional tool), but it also modified the implementation of its monetary policy through the following:

- turned the **minimum bid rate** for the main refinancing operations (auction system) into a **fixed rate** with full allotment of requested liquidity ('cash dispenser' system)
- restricted the spread on marginal lending and deposit rate \Rightarrow **lower cost for standing facilities** \Rightarrow 'forced' compression of EURIBOR rates from the top. \Rightarrow ECB reduced the corridor to +0.5; -0.5 in order to reduce volatility of the interbanking interest rate
- Later on in 2011, the ECB also **increased the maturity** of some of the main refinancing operations: from the standard 1 week to several months.

Policy response: unconventional monetary policy

As interest rates hit the zero lower bound, a number of **unconventional monetary policy** measures have been undertaken globally...

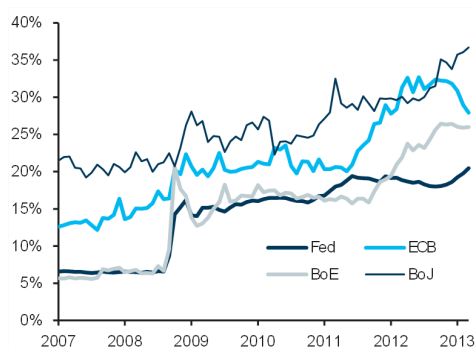
In particular, USA, UK and Japan engaged in Quantitative Easing (QE):

- goal to increase liquidity and also to reduce interest rates in the bond market
- direct intervention in the bond market

using newly created central bank money for large purchases of an array of financial assets, i.e. not only short-term government bonds, but also long-term ones, as well as mortgage-backed securities, corporate bonds etc. **QE is essentially a far-reaching monetary expansion, aiming to boost aggregate demand for given interest rates.**

Intuition: even when CB refinancing rates (official policy rates) are set equal to zero, firms, governments and households may pay much higher interest rates if commercial banks do not transmit properly the monetary policy set by the CB (recall inter-banking markets not properly working)

QE aims at reducing such interbanking rates: buying sovereign bonds or other assets, the price of these assets goes up, the interest borrowers pay goes down. The owners of these assets also become richer. Thus, richer people and easier financing conditions => spending in the economy (C+G+I) grows for a given official interest rate.



As a result of Quantitative Easing (FED, BoE, BoJ),

the balance sheets of Central Banks grow much larger as a share of GDP

(Recall: money is a liability in a CB balance sheet => higher amounts of money have to be matched by higher amounts of assets)

Policy response: fiscal policy to bank rescues

Between 2008 and 2009, national public budgets throughout the world have been used for several **banks' bail-out operations**, with provision of special loans, guarantees, new capital and the like.

All these measures in Europe have required public funds amounting to about 13% of EU GDP (2008-2011).

As a result of these operations, out of the 76 top EU banking groups, 19 ended up having a major or even a 100 percent government stake (=> temporary exception to the State aid rules for banking).

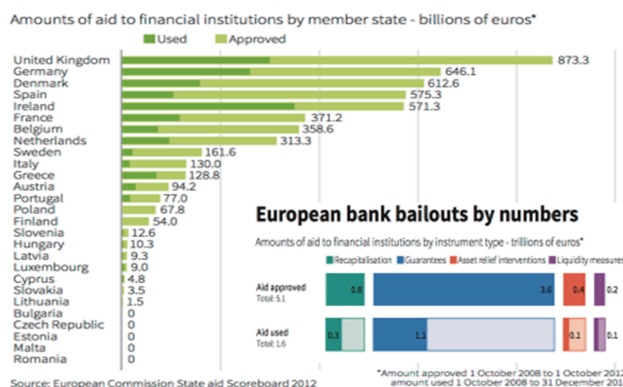
In the US, among other things, the Congress pledged around 700Bln\$ (TARP - Troubled Asset Relief Program) to purchase illiquid, difficult-to-value assets from banks and other financial institutions

Rescuing banks by type of action:

EU: Public interventions in the EU banking sector: 2008-2011 (in billions of Euro) => but there was heterogeneity among member countries

| | Used amounts | | Approved amounts | |
|---|--------------|-------------|------------------|-------------|
| | Bln EUR | % of GDP | Bln EUR | % of GDP |
| Capital injections (these banks became partially or totally public companies) | 288 | 2.4 | 598 | 4.9 |
| Guarantees on bank liabilities (public guarantee on bonds or deposits) | 1,112 | 9.1 | 3,290 | 26.8 |
| Relief of impaired assets (to buy illiquid derivatives to provide liquidity) | 121 | 1.0 | 421 | 3.4 |
| Liquidity and bank funding support (money lent to banks for temporary liquidity) | 87 | 0.7 | 198 | 1.6 |
| Total | 1,608 | 13.1 | 4,506 | 36.7 |

the distribution of this intervention is very relevant:



The rule at the time was that **each country had responsibility for bailing out banks in times of crisis**, there was no common direction in the EU. (Italian Banks had lower leverage and were less integrated in the international market so the government didn't

spend as much as other countries, around 1BL).

In the UK, the gov approved up to 800Bl euros to rescue banks. Most of which were guarantees.

The Role of banks in the Euro Area

Problems:

1. **Constraint of the ECB:** it was not immediately possible to authorise a QE program, which only started in 2015 because some reforms were needed
2. **The banking system:** banks are very relevant
Euro area firms rely on bank borrowing to a much greater extent than their US peers.

Policy response: fiscal policy to sustain output

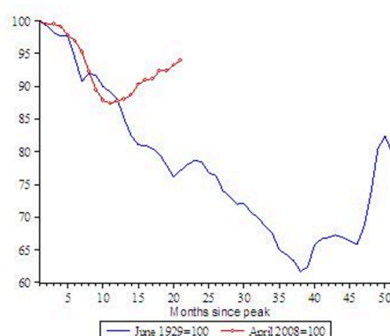
In addition to public money spent for banks, both in EU, US and the RoW, public spending was also used to stimulate the economy (mix of lower taxes and higher expenditures)

Summary of Credit Crisis:

From October 2008, coordinated actions of monetary and fiscal policies. The G-20 meets for the first time at the level of Heads of State/Govt in November 2008

1. Conventional tool: CBs lowered down the interest rates by more than 3% in a few weeks, with the ECB adding some (quasi-conventional) twists to its monetary policy (e.g. fixed rate or longer maturities of MRO).
2. Non-conventional: Moreover, some CBs started (non conventional) interventions via Quantitative Easing (FED, BoE, BoJ)
 - In the meantime Governments in EU used public resources to guarantee bank liabilities or to clean banks' balance sheets (US)
 - They also sustained the real side of the economy via public spending+lower taxes
 - The aim was that of avoiding a complete collapse of the financial system, and trying to limit the contagion to the real economy.

This intervention was coordinated worldwide ⇒ shock therapy for the global financial system which prevented a "Second Great Depression".



⇒ the economic theory and government intervention was able to avoid a grave depression, in fact, the recovery was quite immediate and there was a positive growth after the peak. Recovery was a success, but **in the EU the measures to manage the crisis had an important effect on the sustainability of the euro area.** In all the other areas there was constant economic growth in the following years, but in the EU there was

the Euro Debt Crisis in 2012.

The main drivers were related to the Maastricht treaty:

- No bailout clause for Governments

- No bailout clause for ECB
- there was no co-responsibility to pay for the debt of other countries, there is no supranational rule about bailing out banks in times of crisis. National banks= National Governments

⇒ these are all rules to avoid a debt crisis, to force governments to have stable and decreasing public debt. But then the global crisis came.

The amount of intervention in the euro area was not as big as in other countries.

The increase in public debt had to be managed nationally with a common currency and with no co-responsibility on public debt.

The EU Debt Crisis

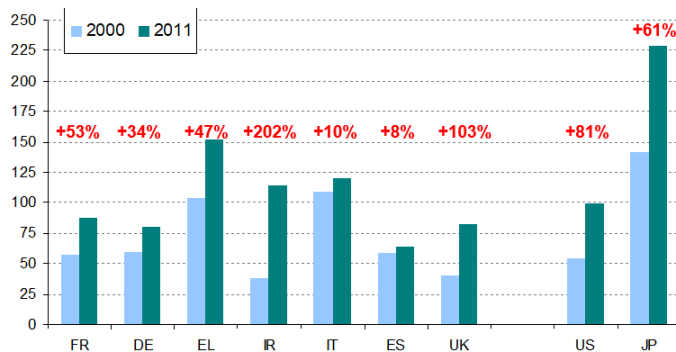


After the credit crisis in 2008-2009,

Debt crisis in 2012-2015

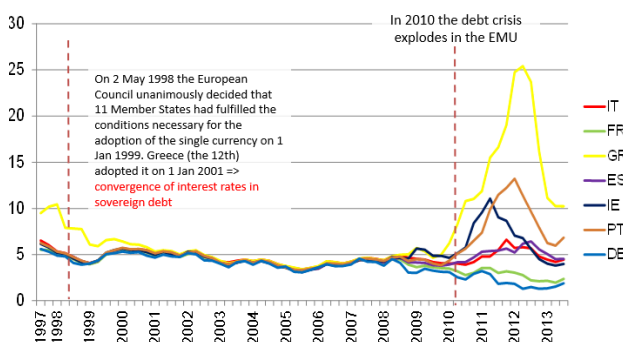
Leading up to the Debt Crisis:

Rescue of banks + Fiscal Stimulus ⇒ increase in public debt



Due to the combined effects of fiscal stimulus and the cost of rescuing banks, together with the fall in GDP, public debt/GDP ratios increased across countries.

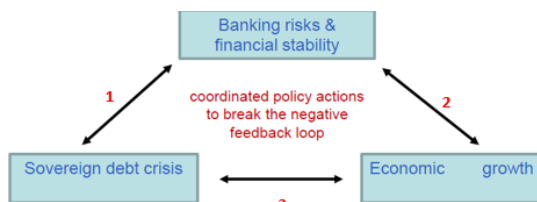
Markets started to have doubts on debt sustainability in some euro area economies, with negative implications for growth ⇒ negative feedback loop



Yields of 10-y Government bonds.

The Euro area sovereign debt markets weathered fairly well the credit crisis fairly well during 2008-09 Still, they 'exploded' after 2010...

The bank-sovereign negative feedback loop in EU



1. Rescuing banks (and fiscal stimulus) increases deficits, worsening the sustainability of debt.

2. Since banks already have sovereign assets in their portfolio, increasing sovereign risk implies increasing banking risk, more difficulties in bank financing, leading to less credit to the economy and lower growth.

3. Lower growth in turn worsens the sustainability of debt

The EU thus moves from a credit crisis (2007/08) to a debt crisis (2010/11)

⇒ capital were still very low as a wave of the financial crisis

EMU Crisis Management

The **bank-sovereign negative feedback loop**, if not stopped, endangers the entire monetary union via the potential insolvency of some Member States.

Still, the Maastricht Treaty did not foresee any specific mechanisms and/or institutions to manage such a broad financial crisis within the EMU: we had to engineer the solutions starting from the existing juridical base (no bail out clauses/ECB independence/ decentralised fiscal policy).

In the beginning, it was not even obvious that the EU had to intervene!

Two kinds of responses:

1. **Fiscal tools:** allow countries to provide mutual financial guarantees (art. 125) to support sustainability of public debt and minimise solvency risks
2. **Monetary tools via ECB:** allow the Central Bank to buy from the market sovereign debt bonds (thus indirectly, recall art. 123 and the no 'direct' bail out of sovereign debt), reducing borrowing costs of Member States and improving banks' balance sheets (higher value of sovereign bonds)

| All over the place | |
|--------------------------------------|---|
| Euro-area debt crisis: actions taken | |
| Event | |
| 2010 | May 2nd EU and IMF agree a bail-out package of €110bn for Greece |
| | May 10th → The EU agrees €750bn worth of emergency measures, including €440bn + 60 bn from EU Budget European Financial Stability Facility (EFSF) and €250bn from the IMF + ECB intervention (SMP) |
| | Oct 18th Deauville summit calls for permanent rescue mechanism and future private-creditor involvement, spooking markets |
| | Nov 28th €85bn bail-out for Ireland agreed |
| | Mar 11th EU agrees rules for new €500bn European Stability Mechanism (ESM) from 2013, replacing the EFSF |
| 2011 | May 3rd €78bn bail-out for Portugal agreed |
| | Jun 10th EU admits Greece needs second package. Germany demands private-sector involvement |
| | Jul 21st → EU agrees to boost lending capacity of EFSF and allow it to buy bonds on primary market. Second bail-out for Greece worth €109bn agreed |
| | Aug 8th ECB intervenes to steady Italian and Spanish bonds Securities Market Programme (SMP) |

Source: The Economist

EU Summits

The Early Crisis Management Tools: EFSF & SMP

1. **Fiscal tool:** the **European Financial Stability Facility – EFSF** (organised as an investment fund) issues a AAA bond on the market (paying a yield of x%), guaranteed by one EU country. The money collected is used to finance a country in difficulty (e.g. Greece) at privileged rates (x% + premium), lower than the rates the country would have to pay on financial markets.

In exchange, the country receiving the loan **runs a program of reforms** aimed at restructuring its public finances. Loans are disbursed in tranches: **one tranche = one reform**. The country then repays the loan, and the money is used to repay the original bond emitted on the market. The 'premium' covers the operational costs of the EFSF.

2. **Monetary tool:** under the **Securities Market Program (SMP)** the ECB is authorised to buy on the secondary market a sovereign bond of a distressed country, with newly printed money. In doing so, the ECB supports the price of sovereign bonds of distressed countries, therefore appeasing the potential losses (and perceived risk) of banks holding those bonds. The latter eases the access of these banks to the inter-banking market. The ECB then reverts the operation ('sterilises' it) once market conditions have normalised.

The Crisis Management tools after 2011

The **Long Term Refinancing Operation organised by the ECB** between December 2011 and February 2012 lends 490+530 Bln to banks at 1% for 3 years. This appeases the acute phase of the crisis as it provides liquidity to those banks not having access to the inter-banking market, easing the credit crunch and lowering the rates on public debt (the banks use the liquidity to repurchase public debt)

But the crisis got worse over 2012...

As a response, **two main crisis management tools:**

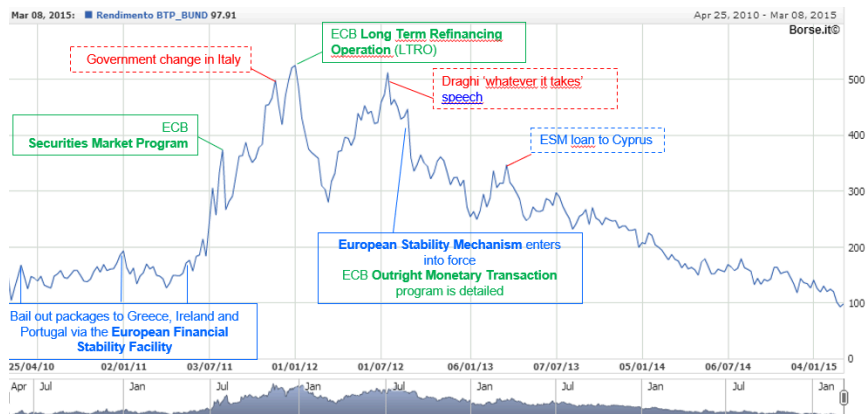
1. The **European Stability Mechanism**, a new EU Institution (fiscal tool)
2. The **Outright Monetary Transaction program** of the ECB (monetary tool)

These come along with strengthened rules on fiscal discipline. Intuition: more solidarity comes with more control on national fiscal policies.

During 2012 the EU Governments and the ECB negotiated a new 'fiscal compact' i.e. **amendments to the EU Treaties/SGP legislation aimed at further strengthening fiscal coordination** and discipline across the euro area with a number of features.

Most importantly:

- **European Semester:** National budget laws as well as national programs of reforms are drafted in April in each year under the guidance of the EU Commission, approved by the EU institutions in June, and only then implemented by Member States.



The European Stability Mechanism

The Treaty to create a European Stability Mechanism (ESM) was signed in February 2012 and the ESM became operational in September 2012. The ESM is a Luxembourg-based international financial institution, which supports euro area countries where it is indispensable to safeguard financial stability.

All eurozone countries become members of the ESM jointly investing in its capital (contrary to the old EFSF where guarantees were provided individually by each Member State). Non-eurozone member states may also participate in stability support operations.

The ESM has a range of tools available. It can **grant loans** to countries, provide precautionary financial assistance, **purchase bonds of beneficiary member states on primary and secondary markets** and provide loans for recapitalisation of financial institutions.

Financial assistance is linked to **appropriate conditionality** specified in an agreement concluded by the European Commission, ECB, IMF (the so-called *troika*) and beneficiary Member State.

Decisions to grant stability support are taken by mutual agreement (unanimity with possibility of abstention). However, **in crisis situations** in which the economic or financial sustainability of the eurozone is at risk, decisions may be taken by a **qualified majority** (85% of votes).

Transitional arrangements between the EFSF and the ESM are established. **The ESM's lending capacity is €500 billion**, and the combined lending ceiling of the EFSF/ESM is set at €700 billion.

The ESM treaty goes in parallel with the new **Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (TSCG)**, the so-called 'fiscal compact'.

ESM Key

The **ESM Key is the % contribution of each Member State to the fund**, proportional to its GDP. A similar 'capital-key' rule applies also to shareholding of the ECB

The total capital pledged by Member States to the ESM is 700Bln Eur, of which 80Bln have been paid cash to guarantee the operability of the fund

With this capital as a guarantee, the fund then issues ESM-denominated bonds on financial markets, rated AAA

As these bonds are ultimately guaranteed by capital jointly pledged by Member States, they can be technically considered as 'Eurobonds'

The ECB Outright Monetary Transactions

Through OMT, the ECB can purchase bonds on the secondary markets (as with the SMP) to safeguard an appropriate monetary policy transmission. Contrary to the SMP, the OMT program has well-defined characteristics:

1. **Conditionality:** a necessary condition for the ECB purchase is strict and effective conditionality attached to an **appropriate EFSF/ESM programme requested by the concerned Member State**, in the form of a full macroeconomic adjustment program (Enhanced Conditions Credit Line – ECCL as in IR, PT and EL), provided that these **programmes include the possibility of EFSF/ESM primary market purchases** of sovereign debt. The involvement of the IMF shall also be sought for the design of the country-specific conditionality and the monitoring of such a programme.

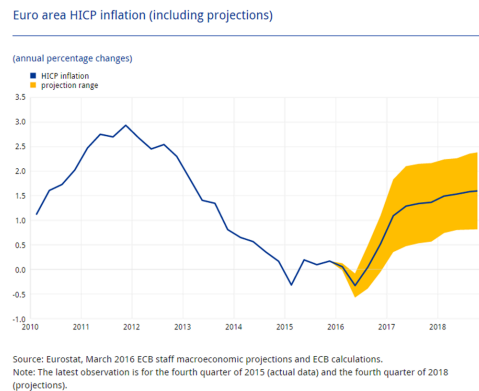
The Governing Council will consider OMTs (to the extent that they are warranted from a monetary policy perspective) **as long as program conditionality is fully respected**, and terminate them once their objectives are achieved or when there is non-compliance with the programme. The Governing Council will decide on the start, continuation and suspension of OMTs in full discretion and acting in accordance with its monetary policy mandate.

2. **Coverage:** OMTs will be considered for future cases of EFSF/ESM programmes or for Member States currently under a macroeconomic adjustment program when they will be regaining bond market access. Transactions will be focused on the shorter part of the yield curve, and in particular on sovereign bonds with a maturity of between one and three years. **No ex ante quantitative limits** are set on the size of OMTs.
3. **Creditor treatment:** The Eurosystem accepts the **same (pari passu) treatment as private or other creditors** with respect to bonds issued by euro area countries and purchased by the Eurosystem through OMTs, in accordance with the terms of such bonds => **no penalization of private investors** on existing traded securities

4. **Sterilisation:** The liquidity created through OMTs will be **fully sterilised** (as for the SMP)

5. **Transparency:** Aggregate OMT holdings and their market values will be published on a weekly basis. Publication of the average duration of Outright Monetary Transaction holdings and the breakdown by country will take place on a monthly basis.

The Legacy of the financial crisis in 2011-2013 was a stagnant business cycle with deflationary pressures ⇒ need to structurally revamp the EMU with a coherent set of policies



EMU Crisis Resolution: the EU “Four Arrows”

To revamp the economy and stop deflation dynamics, the EU needed a coordinated set of monetary, fiscal and banking policies, in a context of stability of inflation and public finances.

| | | |
|--------------------------|---------------------------|--|
| <i>Coherent Strategy</i> | <i>Monetary Policy</i> | revamp inflation dynamics (Quantitative Easing by ECB) |
| | <i>Financial Policies</i> | Banking Union and credit easing (Targeted LTRO) |
| | <i>Fiscal Policies</i> | trade-off flexibility with reforms / common EU investment Plan (Juncker plan) |
| | <i>Structural Reforms</i> | Supply-side: structural reforms to revamp productivity |

The ECB Quantitative Easing

In early 2015 the ECB announced an **expanded asset purchase program**, aimed at fighting deflationary dynamics.

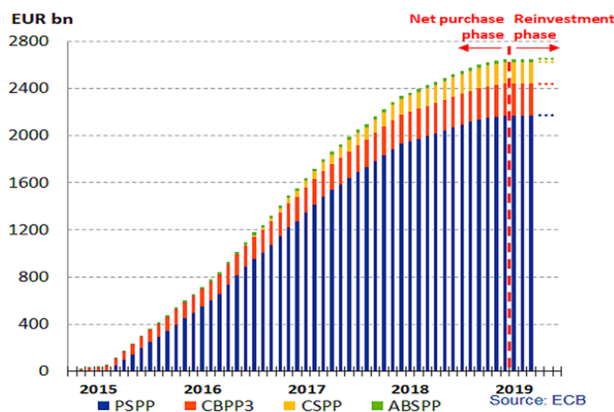
- This program crucially added the **purchase (on the secondary market...) of government bonds and other public bonds** (e.g. issued by EU institutions), to the already existing private sector assets purchase program (asset-backed securities and covered bonds, already active since Fall 2014).

- Combined monthly purchases were around €60 billion (€80 billion between March 2016 to March 2017), to be **carried until inflation goes back close to the 2% target.**

The program has been gradually phased out with lower purchases per month during 2018, and has ended in December 2018.

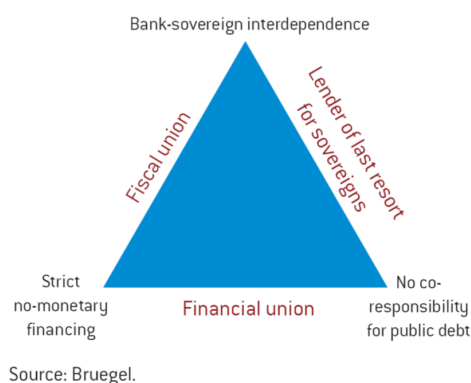
The ECB was however committed to a **reinvestment policy** i.e. it maintained a **constant size of its balance sheet**, by repurchasing the assets that progressively expire.

Purchases were allocated across countries according to **ECB capital key**; cannot account for more than 25% of a single national bond issue, and for more than 33% of total national issued debt.



Net purchases were then restarted after September 2019, and expanded over the Covid-19 pandemic

Solving the EMU trilemma



In a monetary union characterised by competitiveness differentials, only two of the three following features are compatible with a stable institutional setup:

- 1) there is **no monetary financing by the ECB** (art. 123);
- 2) there are **no fiscal transfers across States** (art. 125);
- 3) **commercial banks are dependent** on their sovereign States.

The EMU has to decide which corner of the triangle it wants to cut in order to survive in the long run. Cutting all corners = United States of Europe.

Fiscal Union: EU influence on national fiscal policies → surrender of budgetary sovereignty. Plus... going forward... Fiscal capacity for EU Budget

Banking Union: The banking union aims at breaking the link between sovereigns and banks, minimising taxpayer losses in case of banks resolution, i.e. losses are to be absorbed by banks' shareholders and creditors (from bail-out to bail-in).

There are **three key pillars**:

1. **Single Supervisory Mechanism** (a Single Rulebook, i.e., a common set of rules on bank activities across the Eurozone with the ECB acting as the single supervisor);
2. **Single Resolution Mechanism** (same principle of bank resolution across Member States);
3. **European Deposit Insurance Scheme** (TBD: a joint guarantee for depositors across countries)

Main Responses to Covid-19

Next Generation EU: as discussed earlier in the course, huge joint borrowing of EU countries, with large-scale transfers across countries.

One off event... Or planting the seeds for broader fiscal union?

Pandemic Emergency Purchase Program (PEPP): massive support provided by the ECB to sustain corporate and government borrowing.

→ *ECB role confirmed as preventing self-fulfilling sovereign debt crises.*

Cohesion policy

- The aim of the policy
- Disparities in the EU and abroad
- Economic Theory: Solow and New Economic Geography
- The EU Cohesion policy: main elements

TFEU art. 174

*In order to promote its overall harmonious development, the Union shall develop and pursue its actions leading to the **strengthening of its economic, social and territorial cohesion.***

In particular, the Union shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions.

Among the regions concerned, particular attention shall be paid to rural areas, areas affected by industrial transition, and regions which suffer from severe and permanent natural or demographic handicaps such as the northernmost regions with very low population density and island, cross-border and mountain regions.

⇒ there is a process of concentration of economic activity near the capital in all countries and especially least developed MS

There are exceptions: Berlin, Rome...

we have disparities at national and regional levels, we have dispersion of economic activity between regions. There is a process of convergence and divergence between countries → this is a global phenomenon

Is the process of European Integration responsible for the uneven distribution of economic activities across space/regions?

⇒ A number of theoretical approaches/theories deal with the regional distribution effects of processes of economic integration (i.e. lowering tariffs)

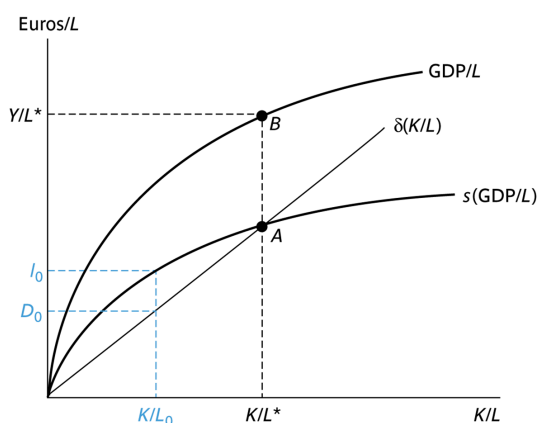
Neoclassical Growth Theory of Solow

- **Decreasing marginal productivity of K** and **exogenous** technological progress
- Differences in initial endowments of K

⇒ In the Single Market, capital would flow relatively more towards less-endowed areas, thus leading to **σ-convergence** and **β-convergence**.

In the long-run, **steady-state**, all countries will arrive at the same level of development, because the process of capital accumulation is based on decreasing marginal productivity of capital (investing capital in low developed countries will generate bigger returns)

Capital accumulation is the main driver of endogenous growth and technology of exogenous growth



medium-term growth effects: Solow diagram

EQM: when it is no longer possible to accumulate capital, where the depreciation of K is equal to the annual flow of investments (percentage of savings)

I₀-D₀ is the net increase in capital, which is 0 in EQM, after this it is only possible to

increase GDP by technological improvement.

When applying this model to the EU, we need to imply that we have free flow of capital etc, you will have more incentive (it will be more profitable) to invest in EU countries with lower level of development (other thing equal)

⇒ we should expect a flow of capital to poorer countries.

Two types of convergence:

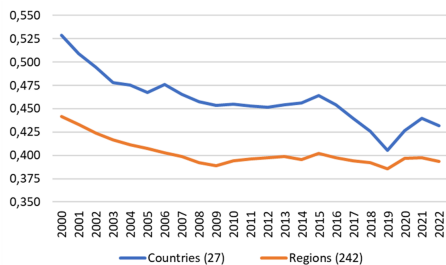
- σ-convergence** (sigma) occurs when there is a reduction in the dispersion of GDP per capita across a group of economic entities (e.g. countries or regions).
- β-convergence** (beta) occurs when the initially poorer economic entities within a group grow faster than the richer ones.

Notice: **β-convergence** is a necessary condition for **σ-convergence** (**must observe β-convergence to have σ-convergence**), though not a sufficient one.

Example: in year t, region A has GDP per capita equal to 100, region B to 200.

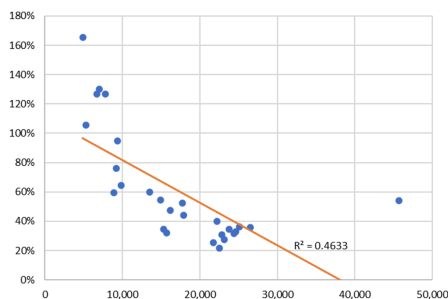
In year $t+1$, region A has grown and now it has a GDP per capita equal to 200, while region B had negative growth and it now has GDP per capita equal to 100. Overall, between t and $t+1$, there was β -convergence but NOT σ -convergence.

Income dispersion in the EU



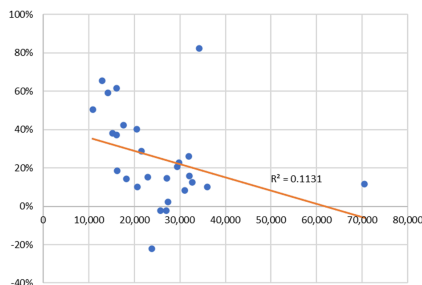
The process was very clear at the country level, but the impact of the pandemic has been higher in poorer countries. Convergence resumed after 2021.

During the Euro crisis 2009-2015 the dispersion increased, inequalities increased between “core” and “periphery”.



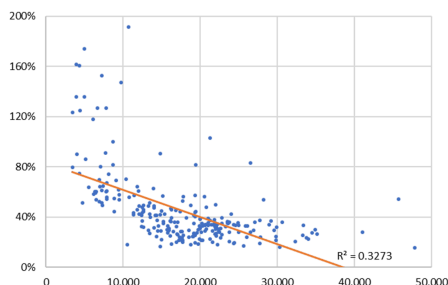
Y- GDP per capita in PPPs (change from 2000 to 2008)
X- GDP per capita in PPPs (2000)

Until the crisis, per-capita GDP of poorer (Eastern) countries has been growing faster than richer countries, in line with Solow model (b-convergence)



Y- GDP per capita in PPS (change from 2008 to 2020)
X- GDP per capita in PPS (2008)

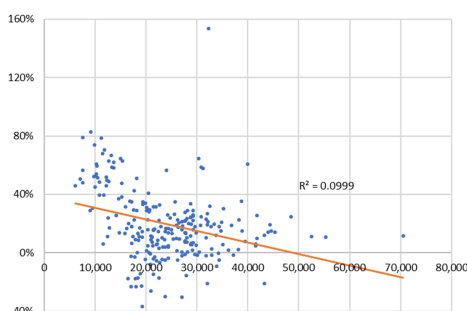
Since the crisis, still evidence of b-convergence at the country-level, but less clearly \Rightarrow clusters of countries with high growth with lower development



X- GDP per capita in PPPs (change from 2000 to 2008)
Y- GDP per capita in PPPs (2000)

regions with higher GDP per capita in 2000 have had a lower rate of growth with respect to countries with high GDP per capita.

Until the crisis, per-capita GDP of poorer regions has been growing faster than richer regions, in line with Solow model (b-convergence)



X- GDP per capita in PPS (change from 2008 to 2020)

Y-GDP per capita in PPS (2008)

Not coherent with Solow \Rightarrow linear convergence

the model is not enough to explain our data, there was no b-convergence during the Euro crisis

Since the crisis: many poorer regions have not been growing faster than richer ones (thus contrary to Solow model)

North-western EU countries have a high GDP per capita on avg higher than EU avg.

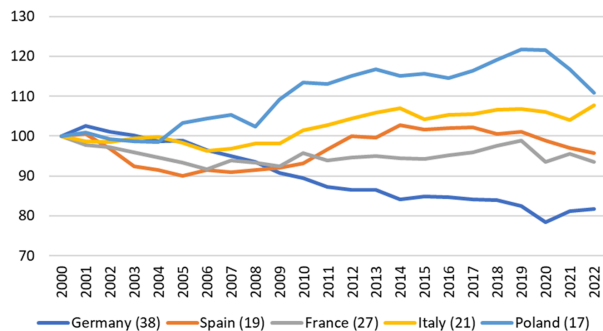
Eastern Europe regions drive convergence in the first group (<75%)

The median group (75%-100%) does not grow on average faster than the third (>100%)

In general: underperformance of the Southern EU, most of them have had low or negative economic growth. There was a lack of convergence in this area. \Rightarrow convergence is driven by southern countries and eastern underdeveloped MS.

Within-countries dynamics

Regional income inequality follows different trajectories in different countries...



the trend in Italy, after the crisis, increasing disparities.

Germany, decreasing disparities between east and west. Poland, fast growing econ, decreasing inequality.

Spain, after the crisis there was increasing disparity, but in recent years the economic growth of Spain brought decreasing inequality, positive policies to reduce

disparity.

Summing up: EU countries (by and large, and discounting for the Covid crisis) are following a process of convergence within the EU, in line with standard neoclassical growth models (Solow)

- The same is not always true for EU regions, especially in the aftermath of the financial crisis

How can we rationalise conceptually a phenomenon whereby countries converge while at the same time regions diverge? We need another theory...

New Economic Geography Theory

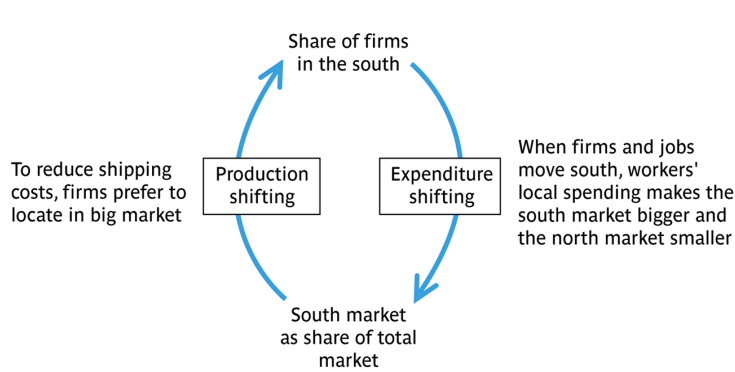
⇒ Suggests that integration might tend to concentrate economic activity spatially, i.e. EU integration may be partly responsible for EU regional inequality. It addresses the shortcomings of the Solow model.

New Economic Geography is based on two pillars:

1. on the one hand, **agglomeration forces** encourage spatial concentration, linked to demand and supply:
 - demand linkages: big markets, in some regions there are more consumers/tastes;
 - cost linkages: availability of suppliers
2. on the other hand, **dispersion forces** favour the geographic dispersion of economic activity (e.g., higher rent and land prices, high cost of services, pollution and congestion costs, competition with other firms)

New economic geography

Demand-linked circular causality: South market is larger, hence more consumers can be served at lower costs if a firm locates there.



(assumption: the output of a firm is intermediate to the production of another firm...)

hence even more firms located in the South to reduce shipping costs.

Note that if demand / cost-linked circular causalities are started, this **leads to self-reinforcing 'core-periphery' patterns** in the location of economic activities across space

⇒ so the market left behind will become smaller and smaller until desertification, while relevant market will continue to increase

Bottom line: The **balance** between agglomeration forces and dispersion forces will determine the observed allocation of economic activities across regions and countries

Any shock to the relevant forces (technological, institutional, infrastructure, transport costs) may change this allocation...

Here we focus on the locational effects for economic activity due to the **process of EU integration**.

The locational effects of European integration

European integration affects agglomeration and dispersion forces and thus the core-periphery pattern in complex ways. Essentially, it **reduces trade costs both within and across countries**. ⇒ removal of barriers, harmonisation and investment in infrastructure

How does this change agglomeration and dispersion forces and thus the locational outcome? In general:

Agglomeration force: firms would, all else equal, prefer to locate in the big market in order to save on trade costs of servicing that market, benefit from the presence of suppliers and knowledge spillovers ⇒ **lowering trade costs decrease agglomeration incentives** (you can obtain the same benefits of proximity even if at higher distance);

Dispersion force: firms would, all else equal, prefer to be in the market where there are few local competitors ⇒ **with lower trade costs, locating in the periphery becomes relatively less attractive** (you get higher competition even at the periphery).

Bottom line: lower trade costs due to economic integration decrease both agglomeration and dispersion forces. Which change will prevail (and thus whether higher or lower agglomeration is observed) remains an empirical issue. Plus, the result can be different at different points in time, and when we consider countries vs. regions.

Empirical evidence for the EU:

Especially at the regional level, and in some phases, dispersion forces have lost relatively more importance, so higher agglomeration has been observed.

As a result, cross-regions inequality has increased, even as cross-countries inequality was decreasing

Think of Poland: strong growth driving cross-country EU convergence, but within-country regional divergence

The Origin of Cohesion Policy 2021-2027

Given the previous theoretical setting, it is clear that a policy aimed at creating a Single Market could foster agglomeration of economic activities in the larger / richer markets at the detriment of the periphery.

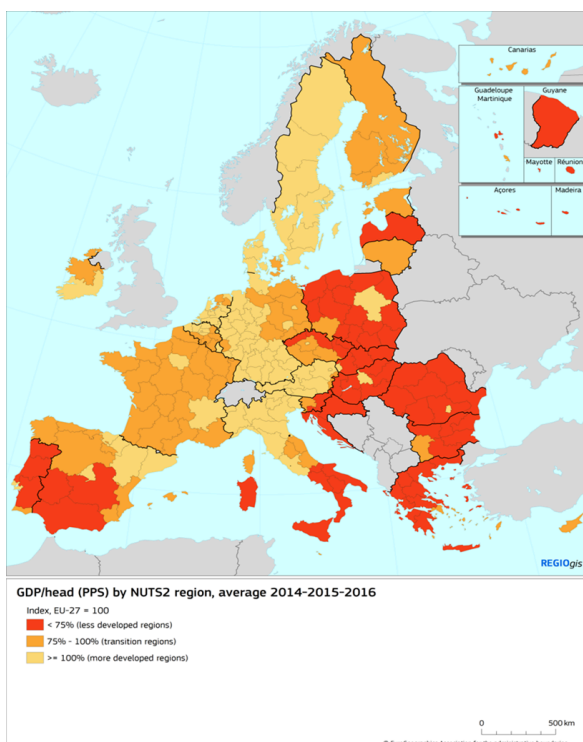
Hence, a sizable structural policy was needed to compensate for the potential losses from economic integration in the poorer countries and regions.

→ Plus, as always in the EU, it is win-win: if Germany supports highways construction in poor regions of Poland and thanks to this (and other factors) these regions become richer, there is a fair chance that Polish will buy Volkswagen and/or Mercedes cars to drive on these highways... and better infrastructures in Poland will be beneficial for German companies operating there.

3 Main Funds:

1. Regional Development Fund
2. Cohesion Fund
3. EU Social Fund+

1.Regional Development Fund

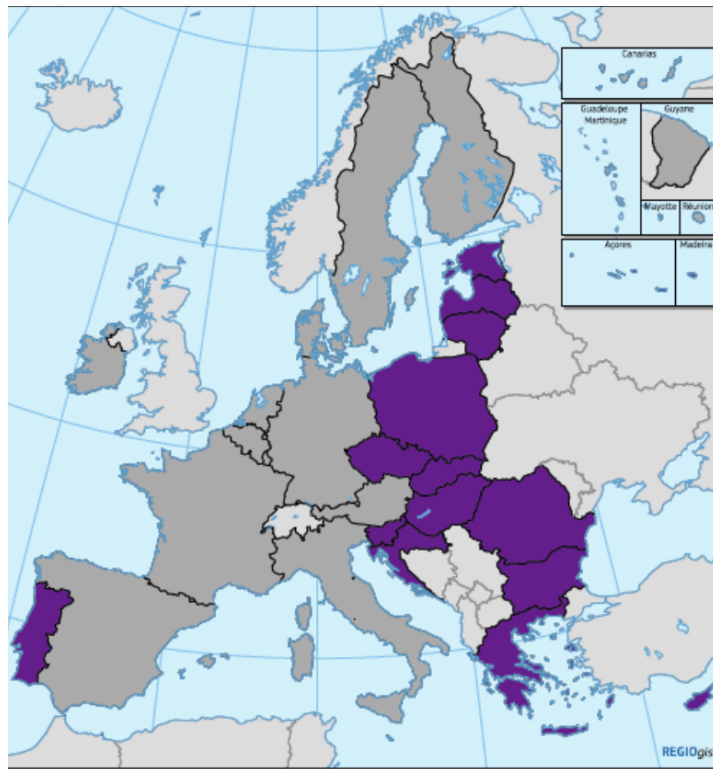


Regional development funds go to three categories of eligible regions:

- 1) Less developed regions (GDP < 75% of EU average)
- 2) Transition regions (GDP 75% to 100% of EU average)
- 3) More developed regions (GDP > 100% of EU average)

226 bl Euros

2. Cohesion Fund → 18 bl Euros



Cohesion Fund eligibility 2021-2027

Category
■ GNI/head < 90% of EU27 average
■ Other Member States

GNI/head figures: average 2014-15-16
Sources: Eurostat, DG REGIO

The Cohesion Fund goes to eligible Member States whose GDP per capita is <90% of EU average

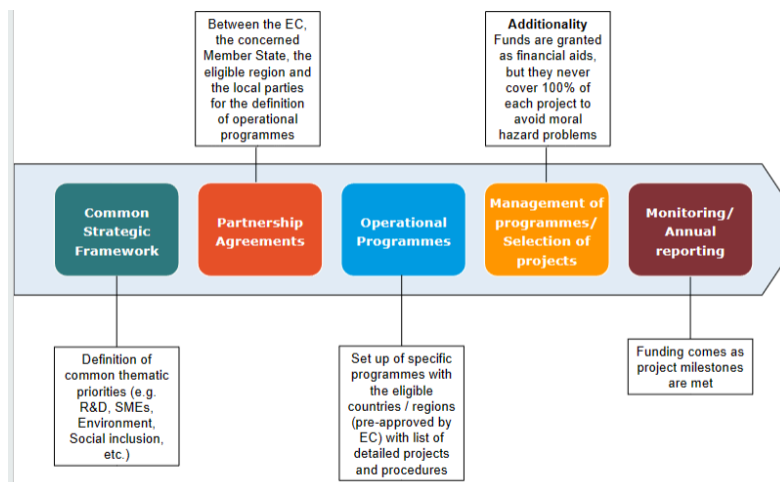
3. EU Social Fund+

Main areas of action:

- Training of workers
- Combating youth unemployment
- Reducing school drop-outs
- Fostering social inclusion and gender equality
- Encouraging social innovation

Resources allocated to this fund can be spent in every country/region of the EU.

Cohesion Policy 2021-2027 Management



These funds are additional to the Government's resources, every kind of project within the Cohesion Fund must be funded jointly with the EU (EU fund + national funds, **Principle of Additionality**), while with NextGenEU the projects are funded entirely by the EU.

The projects must fall within the EU framework, the EU and the receiving **MS** must build a **partnership agreement** when submitting their plan of development.

Ex. Italy: Programma Operativo Nazionale

Then the **operational programmes** are set up with the single region.

If the country is not able to use the fund satisfactorily, the funds are added back into the EU Budget, when they have been allocated but not transferred to the country yet.

The actual disbursement happens during the **Monitoring Activity**, when projects are set into motion and funds allocated.

Five key policy objectives:

1. Smarter Europe: innovation, digital development ⇒ digitalisation of public and corporate administrations
2. Greener, carbon-free Europe: investing in energy transition
3. More connected Europe: transport and digital networks ⇒ Alps tunnels, railways etc
4. More social Europe: supporting social inclusion
5. Europe closer to citizens: supporting locally-led development strategies

Economics, Brexit, and Nationalism in the EU

what we have observed at least in the last 8 years, a **revival of nationalism in western democracies**.

⇒ EX. USA, elections Trump vs Clinton: a huge polarisation between the two alternatives. Clinton: Radical Social Globalism, at the time there was a process to have a FTA with the

East Asian countries, to reduce barriers and increase global integration, increase taxes, reduce border barriers to favour immigration, in favour of Obamacare.

Trump: anti trans-pacific partnership, bilateral agreements bad for the US, global integration is negative for the US, against Obamacare ⇒ focus on taking back control and reduce integration, quite new at the time

How to explain this?

1. Inglehart and Norris 2017; Mutz 2018: increased tensions between people that encourage **cultural change** (**Cultural Factors** such as pro LGBT+ movement, rights of women etc)
2. Guiso, Herrera, Morelli, and Sonno 2017: Some other economists believe that **Economic Factors** ⇒ more economic insecurities and fear, impact of global markets leaves some people exposed to risks and the protection of the national government becomes insufficient.
3. Colantone and Stanig (2019): The most important driver is Economic insecurity, which is driven by **globalisation and technological change** as key structural factors.

⇒ **Simple intuition**: globalisation and technological progress generate distributional consequences, i.e., winners and losers, and this leads to political repercussions.

Within each county we have winners and losers: in developed countries the losers are blue collar, low skilled workers since production is moved to developing countries and wages are not increased.

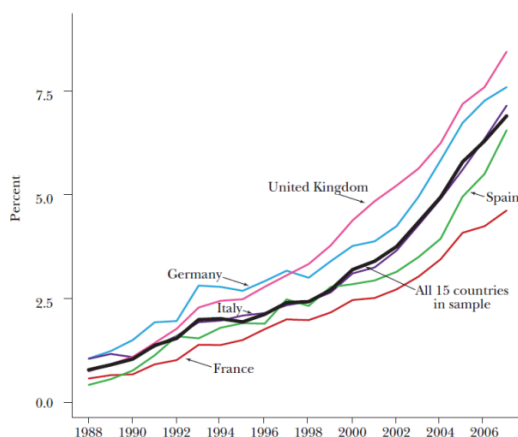
white collar workers experienced the best effects of globalisation, increasing income, increase in life standards.

The China Shock - Colantone and Stanig (2018-APSR)

from 2001 China entered WTO, possibility to grow through export to developed countries with MFN tariff, opportunity of relocation of firms making use of the lower cost of labour.

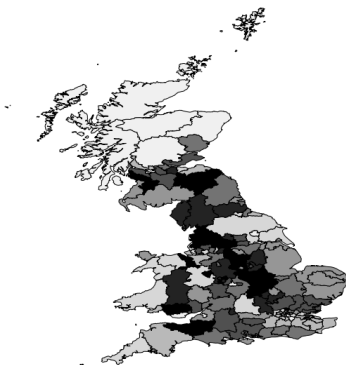
Chinese imports grow from about 1% to around 8.6% of total.

Today, this percentage is 20%. 20% of all external imports of the EU come from China. This has been a global phenomenon.



Brexit:

The regional impact of the China Shock in the UK. Heterogeneity in import shock across NUTS-3 regions.



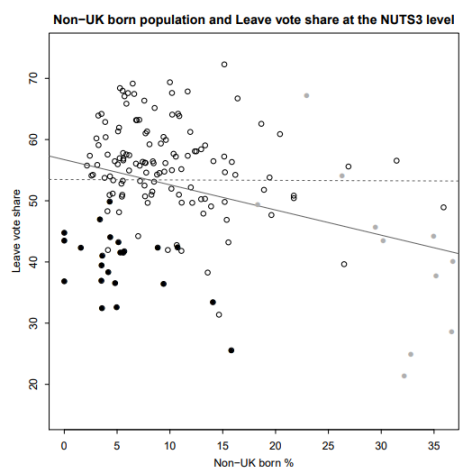
Note: Strength of shock: 5-year changes, avg. 1990-2007. Mean: 0.32. Range from 0.06 (Camden and City of London) to 0.75 (Leicester). Darker shades, stronger shock

At the national level, trade theory shows that it is advantageous for both UK and China to trade, but regionally the figures are different. Many manufacturers went bankrupt or displaced production due to cheap competition coming from China.

Import shock, immigration, and Leave vote share.

1. One of the claims of Brexit was immigration, the UK wanted to close the border to workers. But there is an opposite correlation between the percentage of immigrants and the percentage of “leave” vote in each region. Greater London Area (grey) percentage of immigrants very high, but “leave” vote low.

Black dots are NUTS3 regions of Scotland, grey dots are the NUTS3 of London, and the hollow dots are the remaining NUTS3 of England and Wales. The grey solid lines are least-squares fits on the whole sample, the dashed grey line is the least-squares fit excluding London.

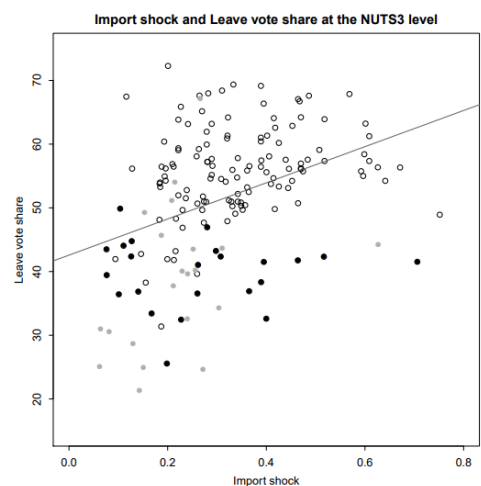


2. **The China Shock:** if it had been milder, the result would have likely been “remain”
It is not only the workers that directly suffered, but also people living in regions affected, but working in different sectors, have a higher “leave” percentage.

Results - Colantone and Stanig (2018- APSR)

Sociotropic Response: answer to shock driven by the impact on the community.

- At the regional level, a stronger import shock from China leads to higher support for Leave:



⇒ a milder shock (first quartile) would have reversed the overall outcome (48.5% Leave).

- Findings confirmed with individual-level vote choices.
- Effect reaches beyond directly exposed manufacturing workers, i.e. 'sociotropic' response.

Interpretation

Globalisation imposes higher costs in some areas.

- Regions hit harder and fall behind in terms of GDP per capita.
- People respond by voting more for the Leave option.

Three non-mutually exclusive mechanisms:

1. **Vote against the incumbent: political elites and business establishment, even as “blind retrospection”;** ⇒ it is a vote of protest, you believe that elites are the sole cause of the negative situation, you don't analyse actual responsibilities but go into a defensive position.
2. **Vote against international integration,** to take-back-control; ⇒ believe that national sovereignty has been hurt to a point where the country has no power
3. **Vote against immigration** (there is the general idea that immigrants decreased the job opportunities for local workers and hindered the national functioning of health system and public administration, as scapegoats), linked to Chinese shock due to:
 - scarcity of job opportunities;
 - congestion on welfare services;
 - scapegoating.

⇒ This reasoning applies more broadly to understanding how economic shocks fuel nationalism in the EU. understanding how the evolution of the economic environment influences the polarisation of political opinions in western countries.