Eurocrisis

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Main objective of EU is to achieve economic convergence across member states

- Global financial crisis 2008 (Great Recession)
- Eurocrisis 2009 (sovereign debt crisis)

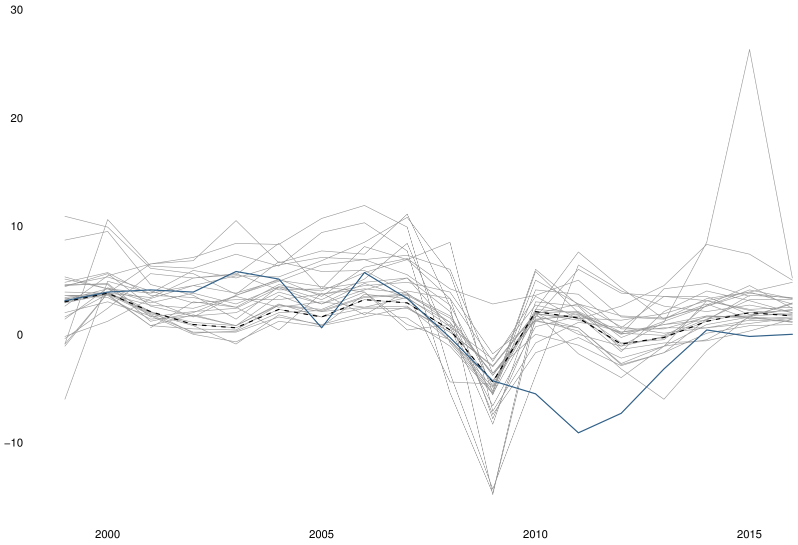
Number of countries unable to repay/refinance their sovereign debt

Couple of member states hard hit

- Portugal
- Ireland
- Greece
- Spain
- Cyprus

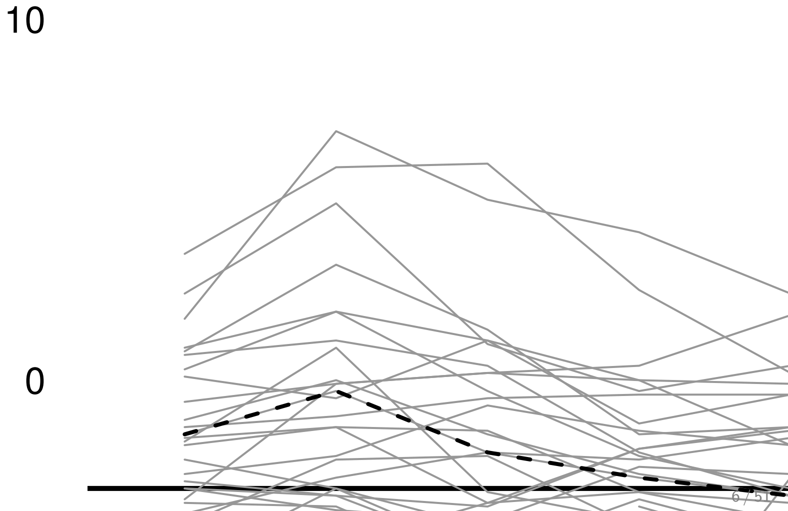
Countries had limited abilities to conduct countercyclical policies.

GDP growth



30

25


10
0

200

150

Eurocrisis made two things very clear

1. Euro design faults
2. Political inertia

Euro design faults

Euro is currency union with common monetary but not fiscal policy

- Complicates matters in terms of crisis response
- Even with EU coordination on fiscal policy (discrepancies in debt levels)

Since ECB sets monetary policy, countries cannot devalue their currency to regain competitiveness

Inflation differences

Optimum currency area theory emphasised risk of asymmetric shocks

- Certainly the effects of the Great Recession has had very divergent effects across the Eurozone

One issue here is the inflation rate

- Countries such as Greece and Italy have had persistently higher inflation rates compared to for instance Germany

With common currency problem is that a country with high inflation rates will see a loss in competitiveness as the real exchange rate appreciates.

Consider one good which is sold in two countries

1. Italy
2. Germany

Price in Italy is

$$p \tag{1}$$

For Germany

$$p^* \tag{2}$$

Prior to euro could compare price using exchange rate E; real exchange rate given by

$$\frac{Ep}{p^*} \tag{3}$$

With euro E is fixed; inflation will cause increase in

$$\frac{p}{p^*} \tag{4}$$

Appreciation in

$$\frac{Ep}{p^*} \tag{5}$$

Some explanations for the divergence in inflation rates include

- Balassa-Samuelson effect, i.e. inflation rates sign of increase in competitiveness
- ECU fixed at wrong rates
- Autonomous wage and price setting
  - Wage increases caused by factors other than labour productivity decreases competitiveness
  - e.g. raising minimum wage, bargaining by sectors that don't face much competition such as civil servants, administered prices in transport and energy
- Mistakes in policy
  - Government could increase prices and wages through for instance expansionary fiscal policies
- Different preferences
  - A country poor at collecting taxes might prefer inflation tax or seigniorage
  - Variation in consumption baskets can cause different inflations across countries with same monetary policy

Political inertia

Number of negotiation rounds which led to kicking the can further down the road

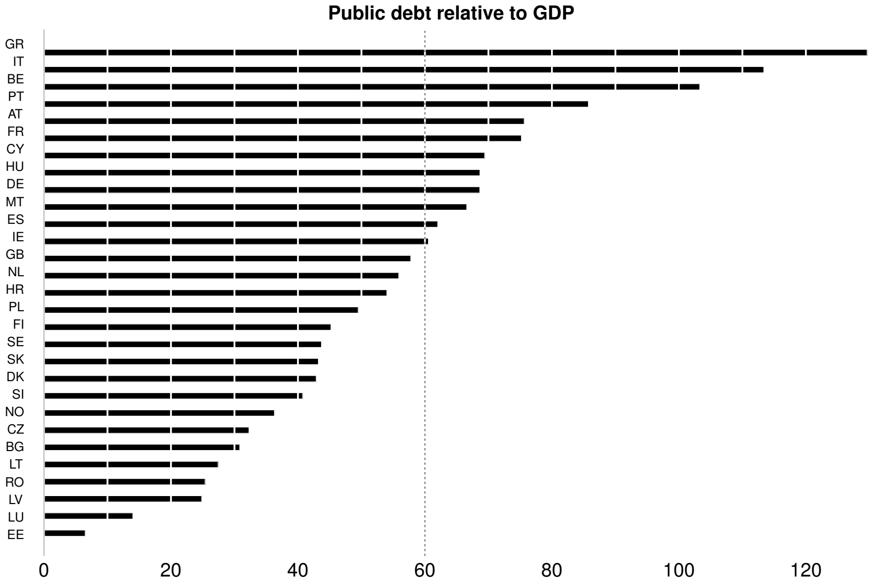
- Bail outs granted but no structural reforms implemented
- Recall no fiscal transfers?

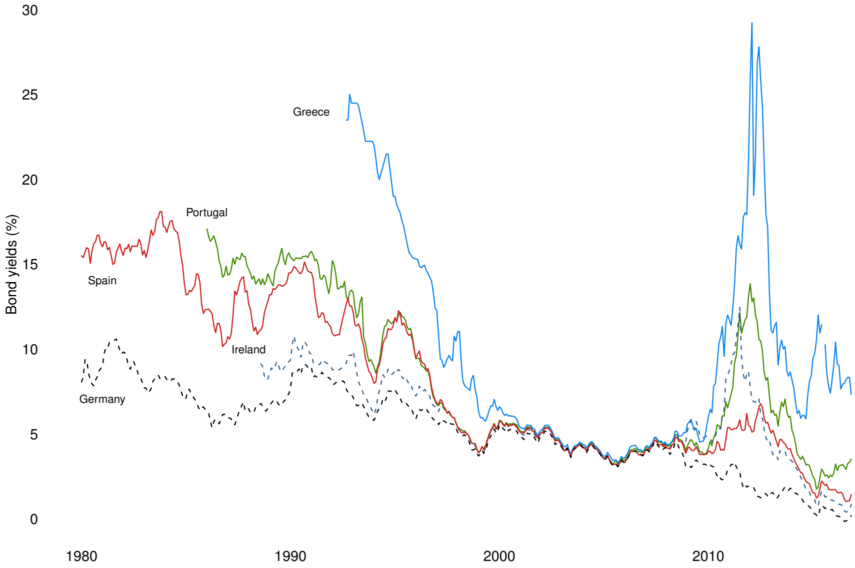
Symmetric shock led to asymmetric effects

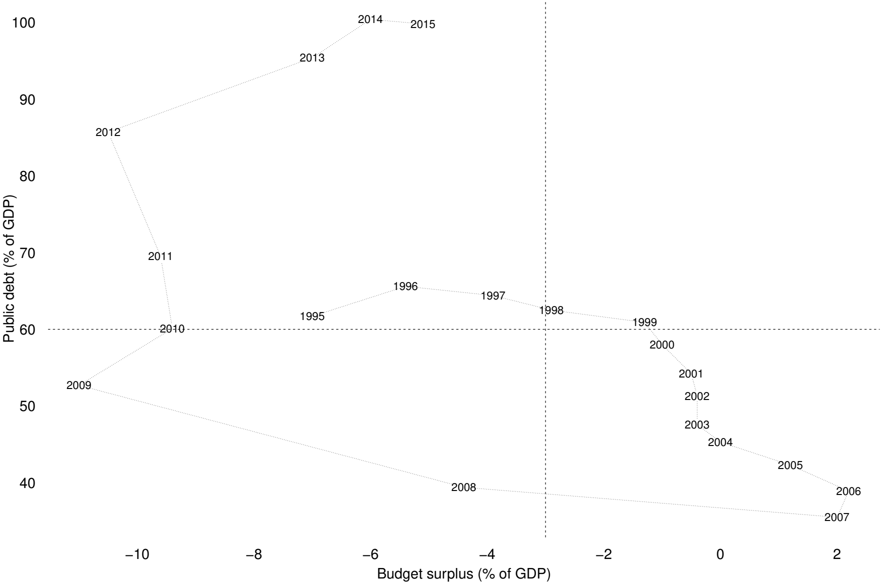
- Differences across countries on desired approach to deal with problem

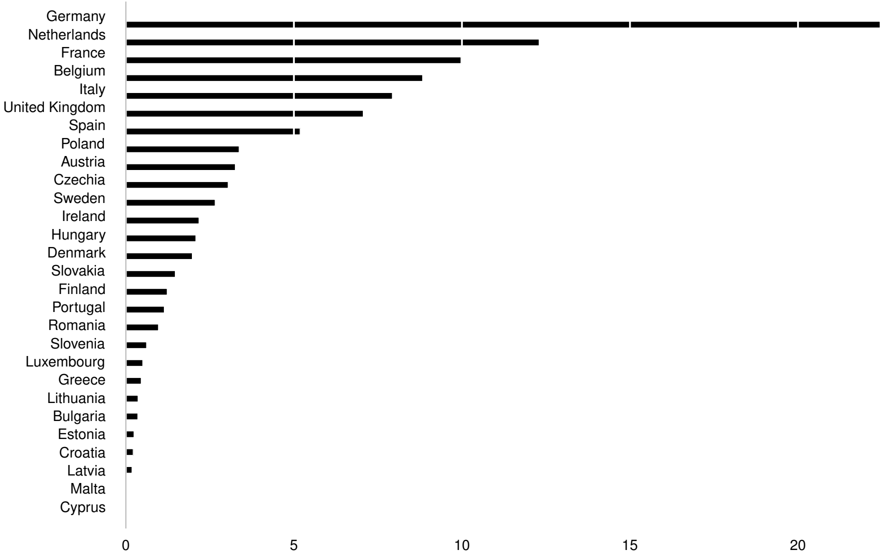
Number of factors that worsened the Great Recession in Europe

1. Level of public debt
2. Trade imbalances
3. Financial integration


Public debt relative to GDP
GR
IT
BE
PT
AT
FR
CY
HU
DE
MT
ES
IE
GB
NL
HR
PL
FI
SE
SK
DK
SI
NO
CZ
BG
LT
RO
LV
LU
EE
0
20
40
60
80
100
120


30
25
20
15
10
5
0
Bond yields (%)
Greece
Portugal
Spain
Ireland
Germany
1980
1990
2000
2010


Public debt (% of GDP)
100
90
80
70
60
50
40
Budget surplus (% of GDP)
−10
−8
−6
−4
−2
0
2
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015



Germany
Netherlands
France
Belgium
Italy
United Kingdom
Spain
Poland
Austria
Czechia
Sweden
Ireland
Hungary
Denmark
Slovakia
Finland
Portugal
Romania
Slovenia
Luxembourg
Greece
Lithuania
Bulgaria
Estonia
Croatia
Latvia
Malta
Cyprus
0
5
10
15
20

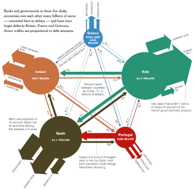
Trade imbalances

Cheap credit allowed countries to buy on loans

- Germany increase in trade surplus
- Italy, Spain, etc. increase in trade deficit

Eurocrisis in this sense is that the peripheral areas of the Eurozone have racked up large debts buying German goods, while now they don't have the money to pay for these goods

- Germany could export relatively cheaply because euro kept prices artificially low since it didn't appreciate


Banks and governments in these five shaky economies owe each other many billions of euros — converted here to dollars — and have even larger debts to Britain, France and Germany. Arrow widths are proportional to debt amounts.
Greece
TOTAL DEBT
$236
BILLION
Ireland
$867 BILLION
Italy
$1.4 TRILLION
Spain
$1.1 TRILLION
Portugal
$286 BILLION
Amount owed between countries as of Dec. 31, in billions of dollars.
Italy owes France $511 billion, or nearly 20 percent of the French gross domestic product.
With unemployment at 20 percent, Spain has an economy among the weakest in Europe.
Nearly one-third of Portugal's debt is held by Spain, and both countries' credit ratings have been dropping.
GERMANY $190
FRANCE $511
BRITAIN $77
BRITAIN $188
FRANCE $60
$46
$18
$86
$28
$47
$31

Debt & deficit

Straightforward that debt is caused by budget deficits, but how does this work in relation to GDP?

Let B_t bed debt at end of year t in nominal terms; D_t is deficit and will equal

$$B_t - B_{t-1} = D_t \tag{6}$$

Let GDP be Y
debt/GDP b_t
deficit/GDP d_t, we get

$$\begin{aligned} \frac{B_t - B_{t-1}}{Y_t} &= \frac{D_t}{Y_t} \\ b_t - \frac{B_{t-1}}{Y_t} &= d_t \end{aligned} \tag{7}$$

Given

$$g_t = \frac{Y_t - Y_{t-1}}{Y_t} = \frac{Y_t}{Y_{t-1}} - 1 \tag{8}$$

Can rewrite

$$b_t - \frac{B_{t-1}}{Y_t} = d_t \tag{9}$$

as

$$\frac{B_{t-1}}{Y_t} = \frac{B_{t-1}}{Y_{t-1}} \frac{Y_{t-1}}{Y_t} = \frac{b_{t-1}}{1 + g_t} \tag{10}$$

$$b_t - \frac{b_{t-1}}{1+g_t} = d_t \tag{11}$$

$$b_t - b_{t-1} = (1+g_t)d_t - g_t b_t \tag{12}$$

For a constant debt-to-GDP ratio we need b_t to equal b_{t-1} which implies that the deficit-to-GDP ratio equals

$$(1+g_t)d_t - g_t b_t = 0 \tag{13}$$

$$dt = \frac{g_t b_t}{1+g_t} = \frac{g_t}{1+g_t} b_t \tag{14}$$

Maastricht Treaty has set convergence criteria to

$$b_t = 60\% \tag{15}$$

$$d_t = 3\% \tag{16}$$

(X) would be satisfied when growth rate is about 5.3%

- implicit assumption is that real GDP growth is 3% and inflation is 2%, equaling a nominal growth rate of 5%.

If a country is able to keep the debt level constant then naturally the debt-to-GDP ratio will decrease due to GDP growth.

- This also implies that the deficit becomes larger at high nominal growth rates.

EU response

Economic problem required solution with political backing

- Not easy given break down in confidence between member states
- Specifically North vs. South

Some solutions that didn't make it

1. Eurobonds
2. Fiscal transfers
3. Kick Greece out of eurozone
4. Quantitative easing

Eurobonds

- Allowed governments to refinance debts as high-yield countries benefit from creditworthiness of low-yield countries
- Creates a moral hazard problem as it is possible subject to free riding

Fiscal transfers

-
- Basically rich eurozone countries compensating poor eurozone countries for their losses
- No system in place to do this, and would need political backing which is unlikely to be popular with population of richer countries

Greece

- Return to drachme, Greece would be able to set own monetary policy and regain competitiveness
- Would still costs a lot of money to Greece because the debt has to be repaid
- Would create undesired precedent and risk stability of the whole euro project

QE

- Can help boost economic activity
- Germany is not a fan of QE
- although the ECB did engage in some form of QE eventually

EU took following measures (2010)

- European Financial Stability Facility (EFSF)
- European Financial Stabilisation Mechanism (EFSM)

These more or less temporary measures were followed up by a more formalised structure to assist eurozone member states under the European Stability Mechanism (ESM) in 2012.

European Financial Stability Facility

Temporary crisis resolution mechanism for euro area member states financed through the issuance of bonds and other debt instruments

- On international capital markets
- Capacity of 500B EU
- Guaranteed by other eurozone member states (so sort of eurobonds)

Assistance was used to provide loans, recapitalise banks, or buy sovereign debt

- To Ireland, Portugal, Greece

European Financial Stabilisation Mechanism
Provides financial assistance to any EU member state which is facing severe financial disturbances

- Country can get up to 60B EUR in assistance from the European Commission
- The fund is financed through bond sales, using EU budget as collateral
- Provided assistance to Ireland and Portugal, and a short term loan to Greece

European Stability Mechanism
Aimed to help overcome the problem for countries facing a debt crisis that they couldn't get credit from international financial markets or at unfavourable rates

- Basically extension of EFSF

Budget of 700B EUR Between 2012-2016, the programme disbursed about 250B EUR to five countries

- Ireland, Portugal, Greece (2x), Spain, Cyprus February 2011 (part of EFSF)

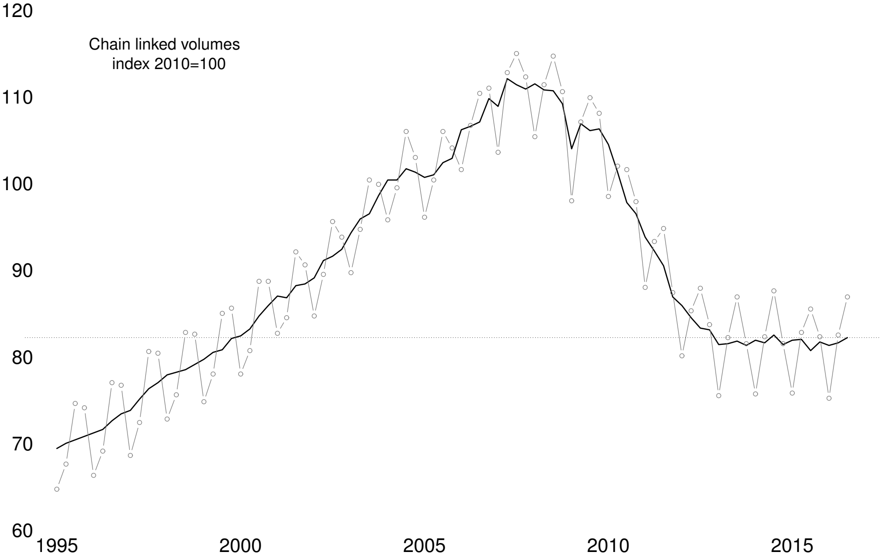
Within the Maastricht Treaty there is actually a provision against these types of financial assistance as it could lead to lapses in fiscal discipline.

The Greek Depression

Focal point of eurocrisis when it emerged in late 2009 that they had been understating their debt figures

- misreported their numbers at Eurostat which the EU uses
- led to serious doubts about the state of the Greek economy and government finances in particular leading to high yields on its bonds, effectively barring the country from lending money on the international market.

Although the country experienced a substantial period of growth from 1995 onwards, the crisis destroyed much of the progress made over the years with current GDP being at the level of 2000.


Chain linked volumes
index 2010=100
120
110
100
90
80
70
60
1995
2000
2005
2010
2015


Contraction Greek economy
100
95
90
85
80
75
2008
2010
2012
2014
2016

Debt reduction schemes

1. Unilateral debt forgiveness
2. Third party buy-backs
3. Debt restructuring (haircut)
4. Debt swaps
5. Default (nuclear option)

Greek debt reduction scheme

- **21 Jan. 2010** Greek-German spread for 10-y debt reaches 300 basis points
  - Default only option without outside help
- **2 May 2010** Troika agree to 140B EUR bail-out package
  - Guarantee Greek public debt: debt swap
- **27 Oct. 2011** Major private bond holders agree on haircut
  - 50%, 83.5% of Greek bond holders participate
- **2012-2014** Arrangement becomes third party buy-back: ECB buys out large fraction and lowers interest rates
- **Feb. 2014** Greek debt/GDP >170%: Greece hopes for debt forgiveness from Troika
- **2015** Greece defaults on IMF loan

Sovereign defaults, how does that happen?

Imagine the following for a country

1. 10% chance of a default over the next year
2. Default over 50% of outstanding debt

Country has to pay a 5% premium on debt relative to safe assets.

- Extra premium will place an additional burden on the government
- Interest costs could rise above the funds that country can access to pay off the interest payments
- Alternatively the country's GDP could expand in order to keep debt stable

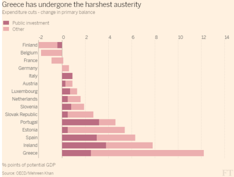
Market for government bonds might cease to operate as the country is deemed not credit-worthy, which means an increase in the risk of default going from unlikely to likely.

- It is important to note that the closing of a bond market is an rare and abrupt events.
- Sovereign defaults are pretty rare as most developed economies are relatively stable.

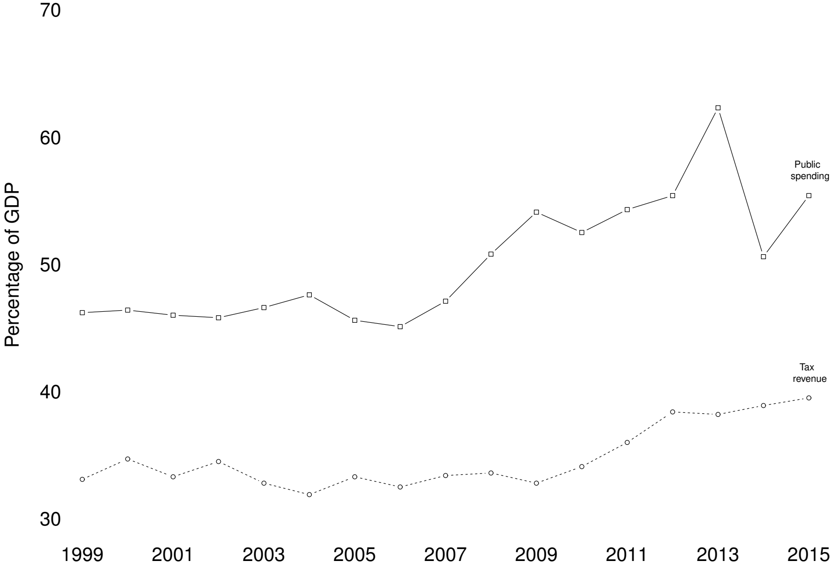
After a default a country needs to restructure it debt which often involves writing off part of it, in order to restore the debt level to a

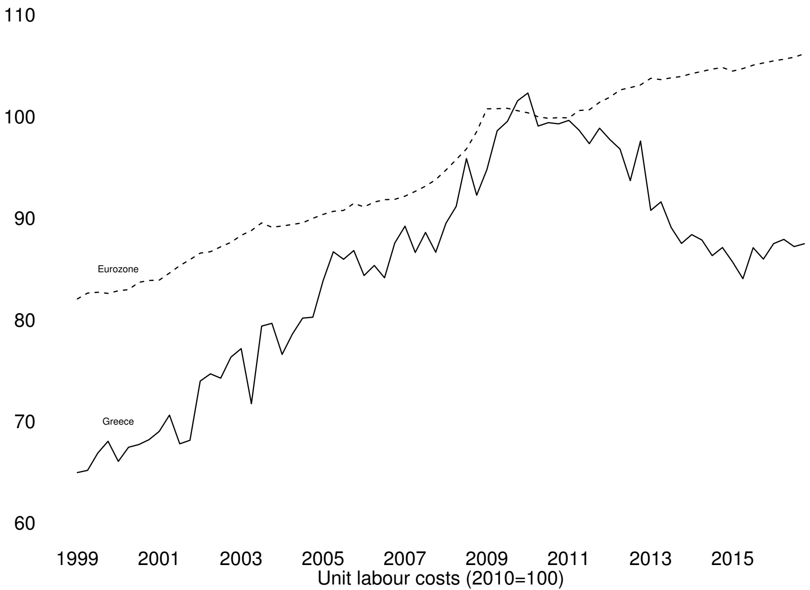
Terms and conditions apply

- Harsh austerity terms
  - Cuts in public spending such as investments
  - Tax increases
- Government overhaul
  - Reducing size of the government apparatus
  - Cutting back on pensions
  - Importantly there were no cuts to defense spending in terms of percentage GDP
- Ending tax evasion by its citizens
- Making business in Greece easier

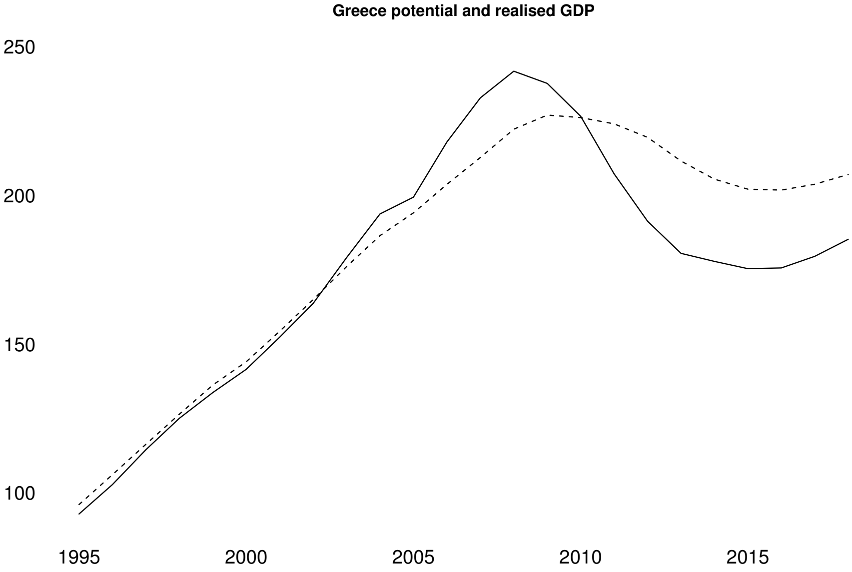


Greece has undergone the harshest austerity
Expenditure cuts - change in primary balance
Public investment
Other
-2
0
2
4
6
8
10
12
14
Finland
Belgium
France
Germany
Italy
Austria
Luxembourg
Netherlands
Slovenia
Slovak Republic
Portugal
Estonia
Spain
Ireland
Greece
% points of potential GDP
Source: OECD/Mehreen Khan
FT


Percentage of GDP
70
60
50
40
30
1999
2001
2003
2005
2007
2009
2011
2013
2015
Public spending
Tax revenue



110
100
90
80
70
60
Eurozone
Greece
1999
2001
2003
2005
2007
2009
2011
2013
2015
Unit labour costs (2010=100)



Greece potential and realised GDP
250
200
150
100
1995
2000
2005
2010
2015

ECB response to eurocrisis

Given its original mandate, the ECB's preferred course of action is to do nothing at all, and let governments sort out the mess.

- Recall that the ECB is independent, in order to limit government interference in its policy

However, as the crisis progressed and got worse they had to come into action at some point.

- A main fear was the risk of contagion from smaller, peripheral economies, such as Greece and Portugal, to larger central ones such as Italy and possibly France.
- Risk of contagion was a serious issue as for instance Italy owed France about 20% of French GDP

ECB took two measures

1. Standard
   - Adjusting the key interest rates downwards
   - Taken due to the macroeconomic circumstances and the risk for price stability
   - Short-term interest rates are close to zero at the moment
2. Non-Standard
   - Measures include fixed rate lending, providing longer maturity liquidity, expanding set of assets that can serve as collateral
   - Taken because the banking system wasn't functioning properly
   - ECB wanted to have a proper transmission of their monetary policy

ECB took a number of unconventional steps to show the commitment of the bank to guaranteeing the stability of the Eurozone

- Long Term Refinancing Operations (LTRO)
  - ECB committed itself to refinancing operations for multiple years, rather than couple of months which is common
  - ECB serves as lender of first resort to troubled banks, these banks could then help struggling governments by purchasing debt
- Securities Market Program (SMP)
  - Purchasing government and private debt, from countries facing problems
  - Similar to QE, main difference is that ECB keeps the books balanced; offsetting the purchases by offering the banks interest-bearing deposits
- Outright Money Transactions (OMT)
  - Under certain circumstances a state could request the ECB to buy bonds
  - OMTs haven't been used yet as none of the candidate countries met the criteria

The process of economic and monetary integration in the EU is all about convergence of economic performance; raising living standards. For a time this process seemed to have paid off during the boom years in the first decade of the 21st century, but it unravelled quickly in the years after the crisis. Again focusing on a number of macroeconomic indicators we can illustrate how the crisis led to a divided Europe.