Stock-Flow-Consistent Modeling
Lecture 9: The Eurozone and Greece

Gennaro Zezza

The international monetary system

- Bretton Woods agreements
- 1971: end of US dollar convertibility
- 1972: the *snake in the tunnel*
- 1979: European Monetary System
  - Introduction of the European Currency Unit
- 1999: Euro (as accounting currency)
  - Greece admitted in 2001
  - Jan 2002: circulation of Euro banknotes

Optimal currency areas (OCAs)

- Free mobility of resources
  - Labor
  - Capital
- Synchronized business cycles
- Some authomatic fiscal transfer mechanisms
- Market efficiency (price flexibility)

Was the Eurozone an OCA?

- Free mobility of resources
  - Labor — Harmonization of labor market; Language barriers
  - Capital
- Synchronized business cycles — In part
- Some authomatic fiscal transfer mechanisms — Insufficient
- Market efficiency (price flexibility) — Labor market rigidity

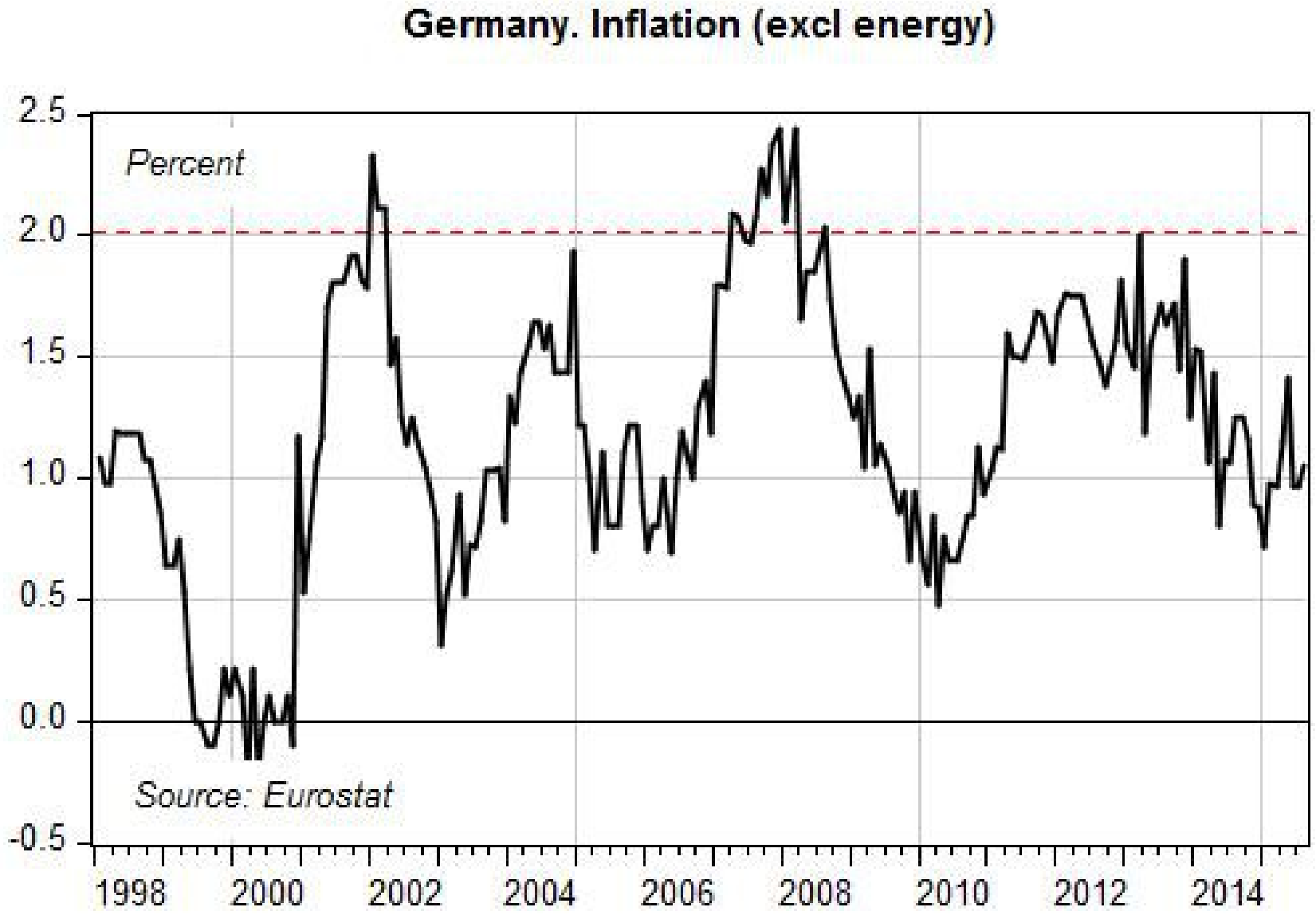
Faith in the creation of a Dynamic Optimal Currency Area

Maastricht Treaty

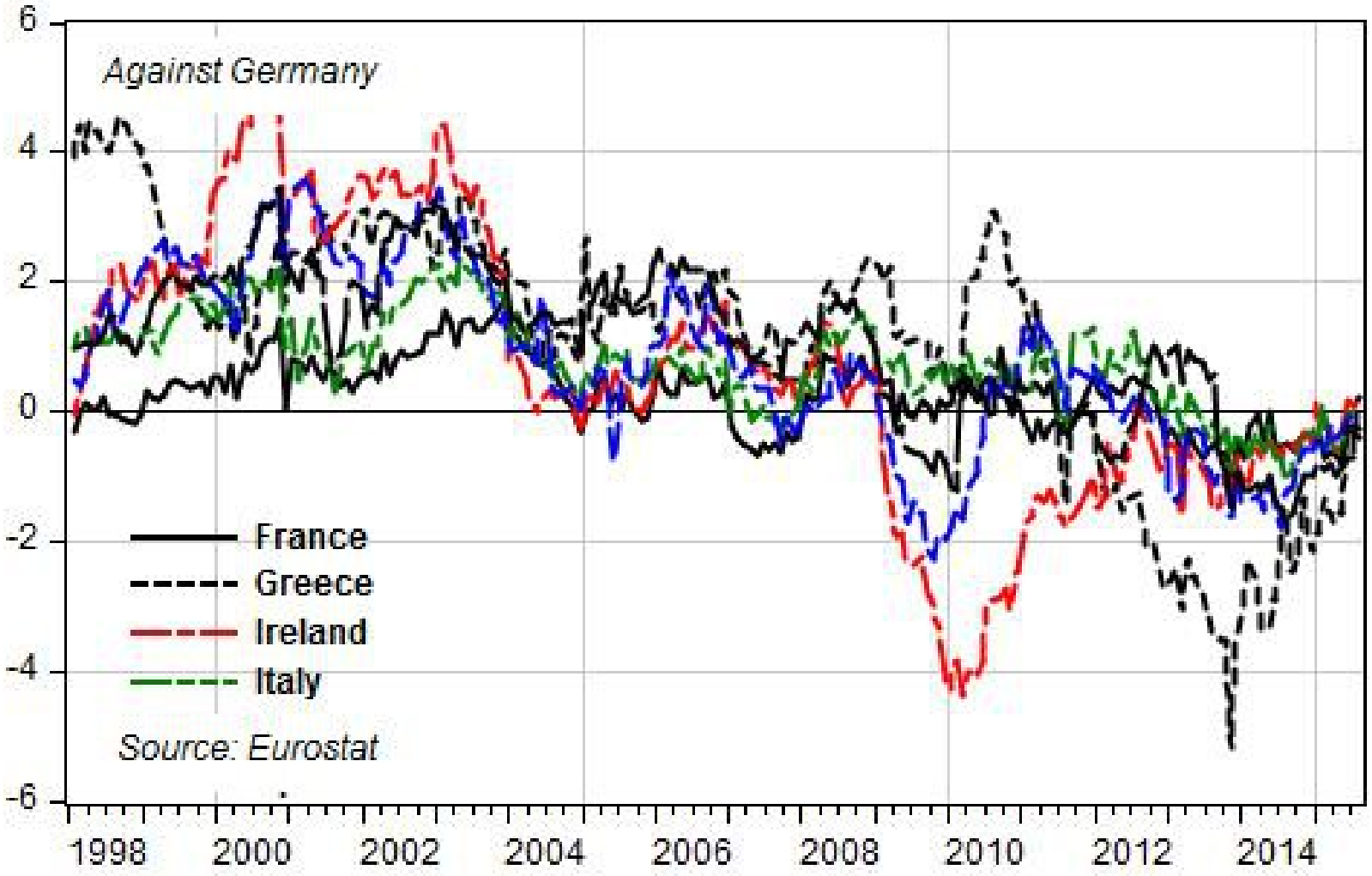
The Maastricht Treaty was based on an *ordoliberal* approach, where markets are believed to be self-adjusting, the government should not interfere with the economy, and the only role of the Central bank is to keep price stability (a target inflation rate at 2%)

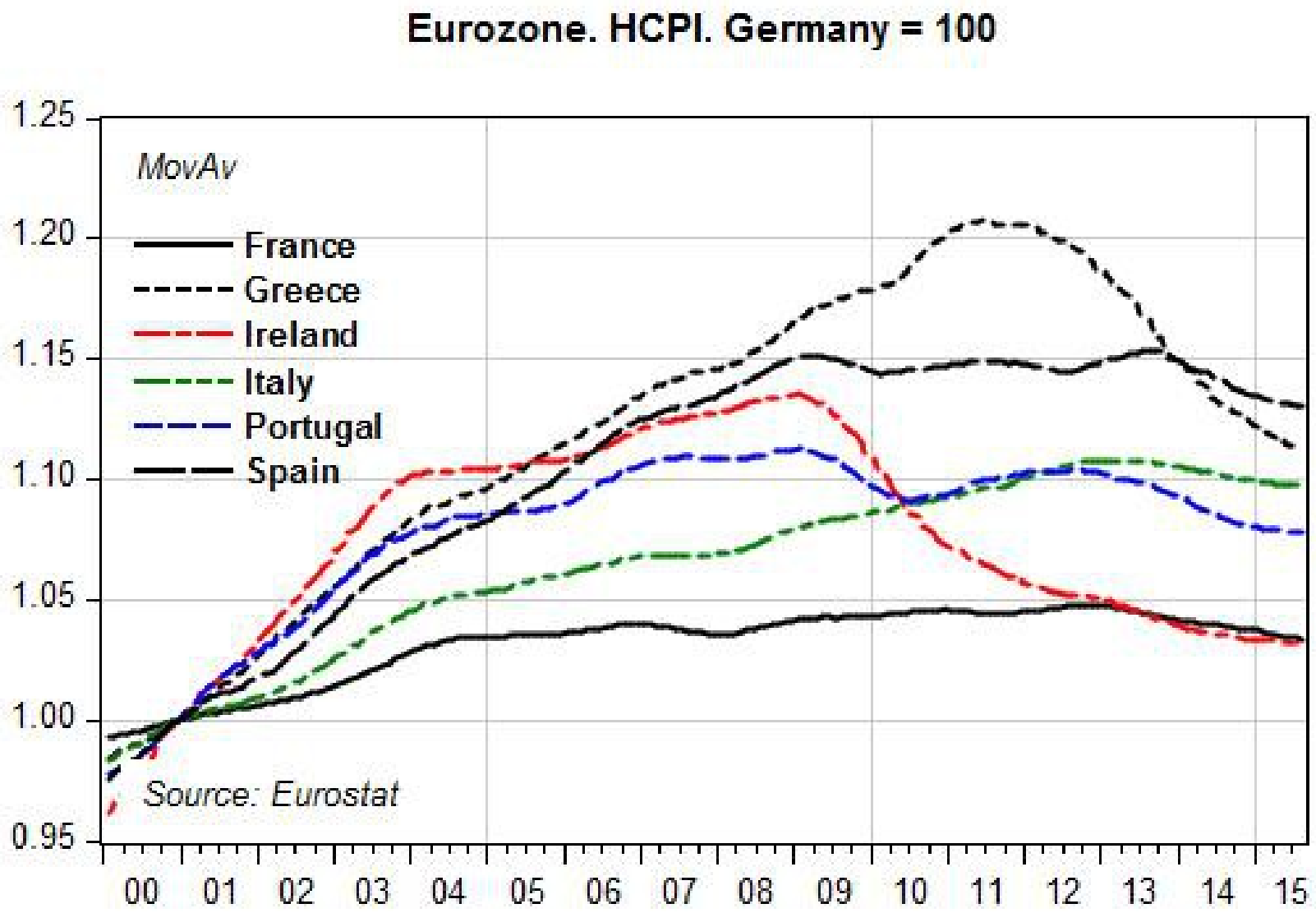
Maastricht criteria (among others)

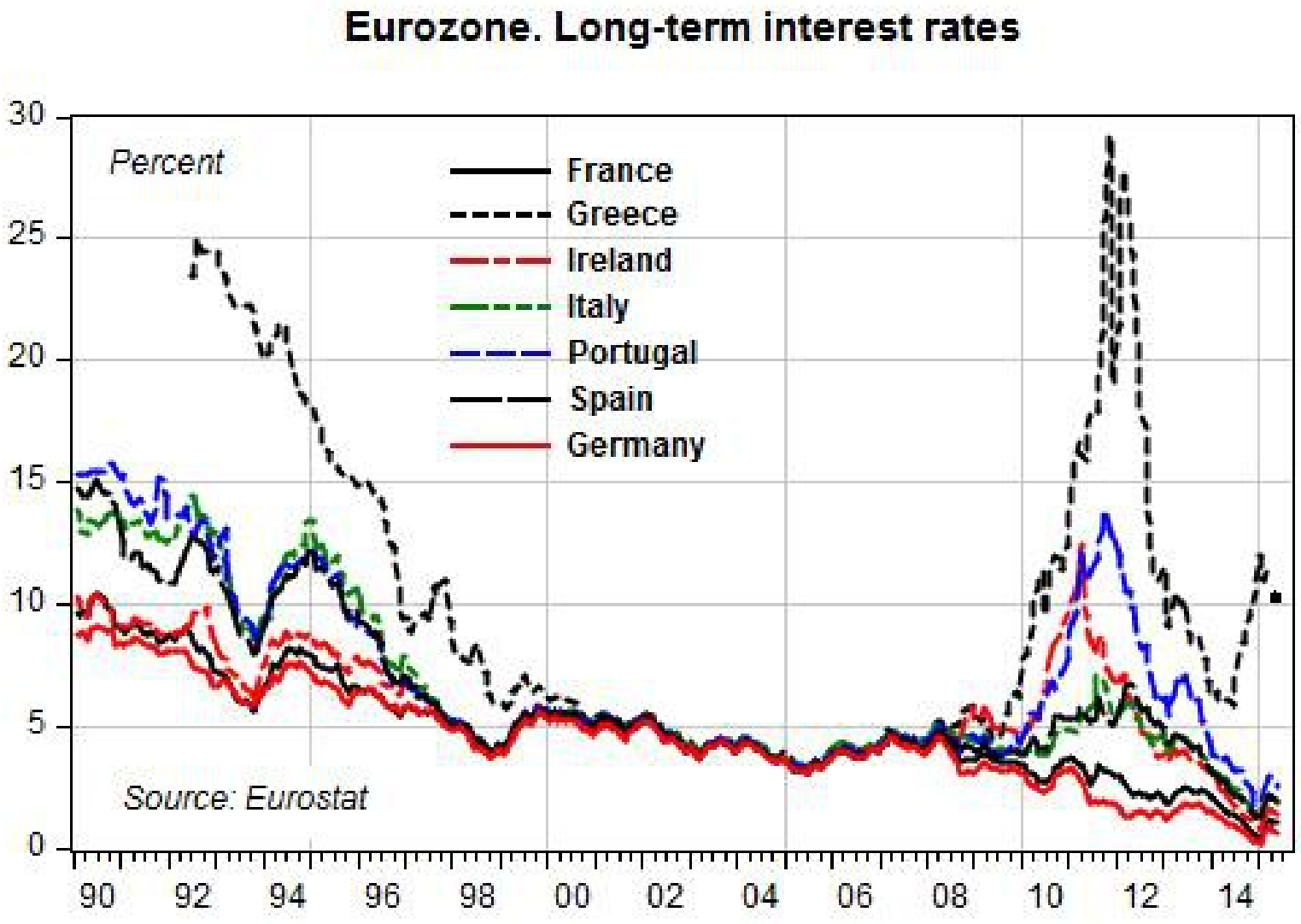
- Convergence in inflation > and therefore in interest rates
- A government deficit/GDP ratio below 3%
- A government debt/GDP ratio below 60%

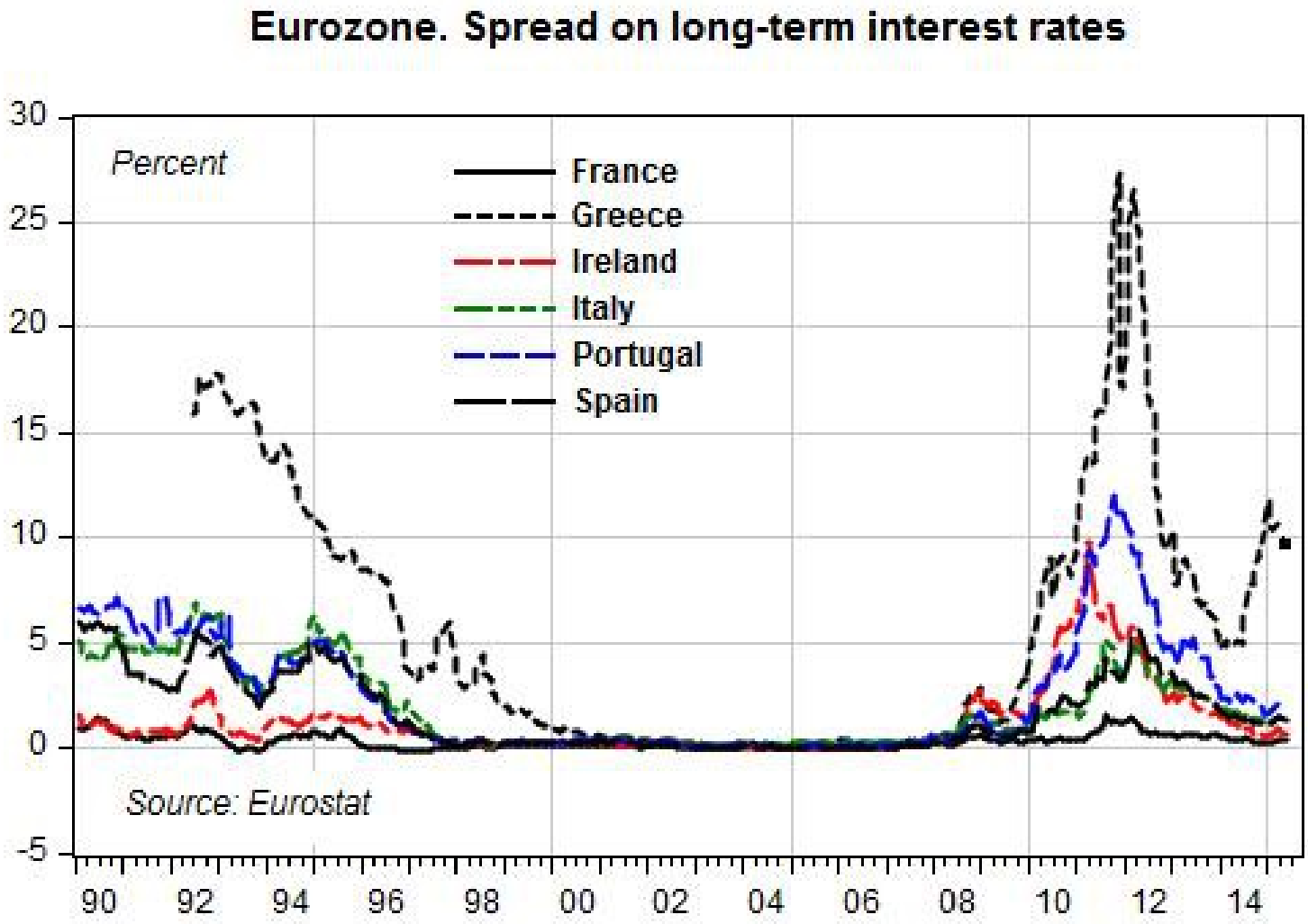

Germany. Inflation (excl energy)
Percent
Source: Eurostat
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
1998
2000
2002
2004
2006
2008
2010
2012
2014

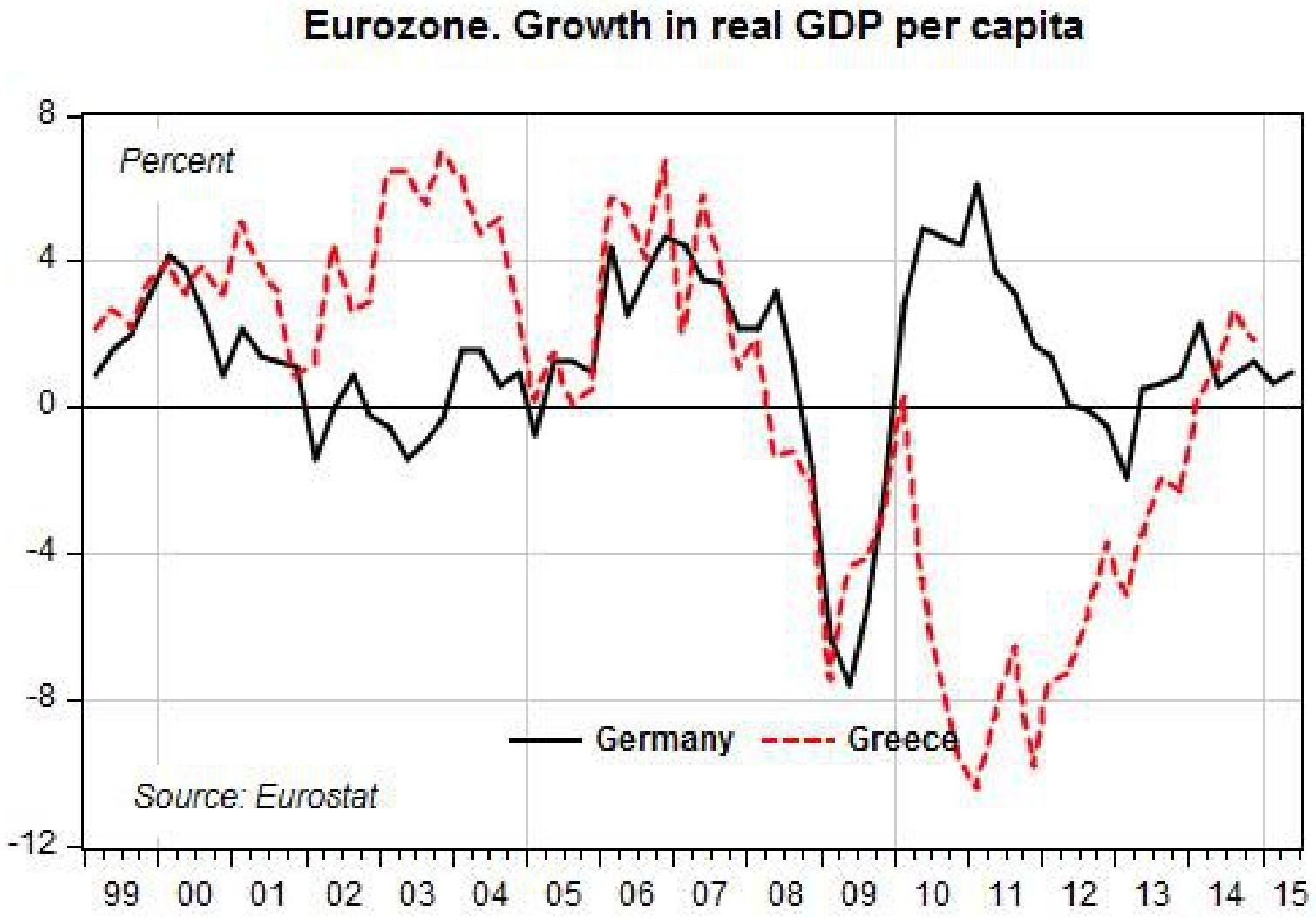
Eurozone. Inflation differentials

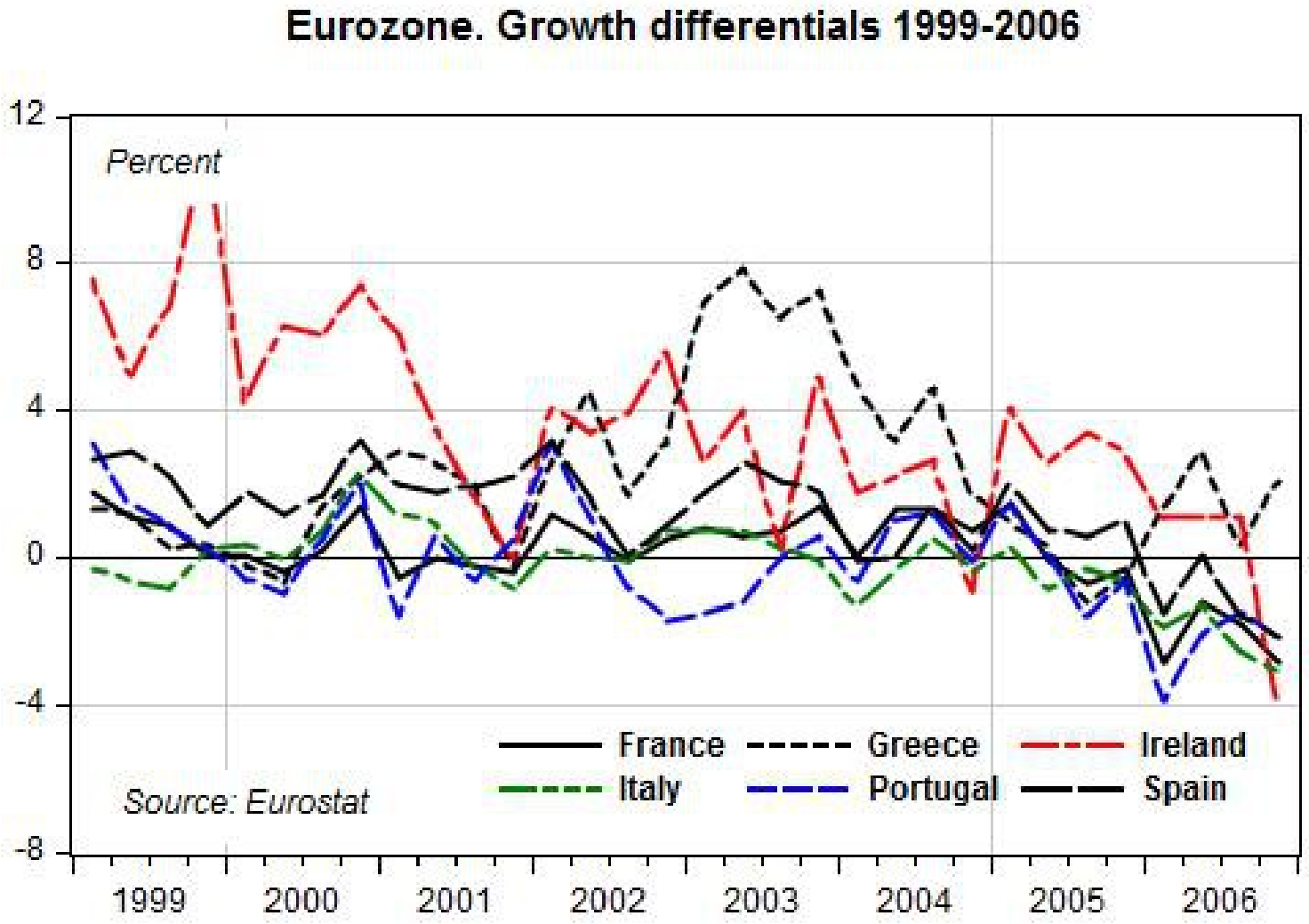


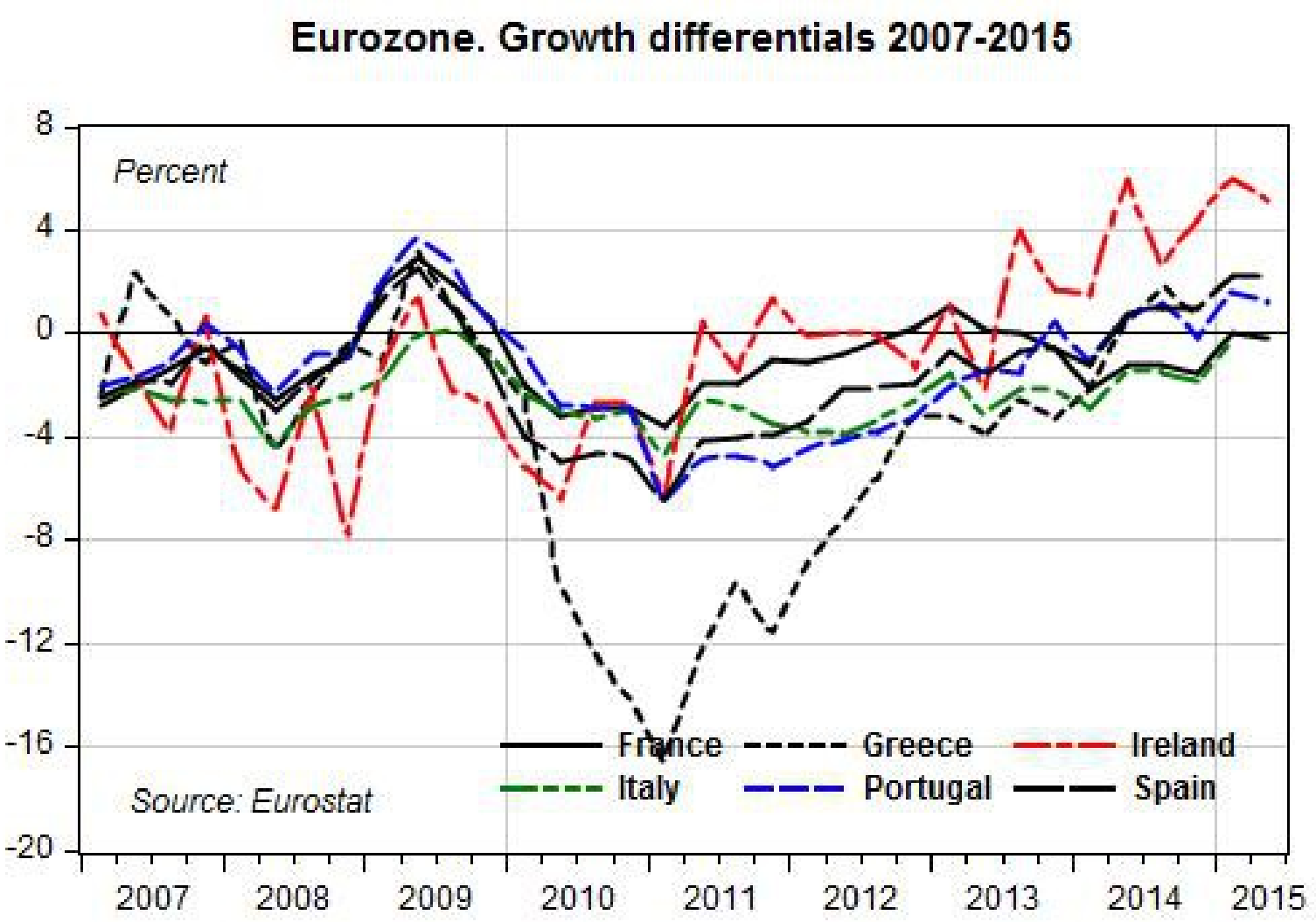

Eurozone. HCPI. Germany = 100
MovAv
France
Greece
Ireland
Italy
Portugal
Spain
Source: Eurostat
1.25
1.20
1.15
1.10
1.05
1.00
0.95
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15


Eurozone. Long-term interest rates
Percent
France
Greece
Ireland
Italy
Portugal
Spain
Germany
Source: Eurostat
30
25
20
15
10
5
0
90
92
94
96
98
00
02
04
06
08
10
12
14


Eurozone. Spread on long-term interest rates
Percent
France
Greece
Ireland
Italy
Portugal
Spain
30
25
20
15
10
5
0
-5
90
92
94
96
98
00
02
04
06
08
10
12
14
Source: Eurostat


Eurozone. Growth in real GDP per capita
Percent
8
4
0
-4
-8
-12
Germany
Greece
Source: Eurostat
99
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15


Eurozone. Growth differentials 1999-2006
Percent
12
8
4
0
-4
-8
1999
2000
2001
2002
2003
2004
2005
2006
France
Greece
Ireland
Italy
Portugal
Spain
Source: Eurostat


Eurozone. Growth differentials 2007-2015
Percent
8
4
0
-4
-8
-12
-16
-20
2007
2008
2009
2010
2011
2012
2013
2014
2015
France
Greece
Ireland
Italy
Portugal
Spain
Source: Eurostat

Summing up

The adoption of the Euro lowered the cost of borrowing for the EZ periphery.

The common nominal interest rate implies a lower real rate the higher the inflation rate.

This facilitated the expansion of credit (and debt), and allowed the EZ periphery to grow more rapidly than the core (Germany)

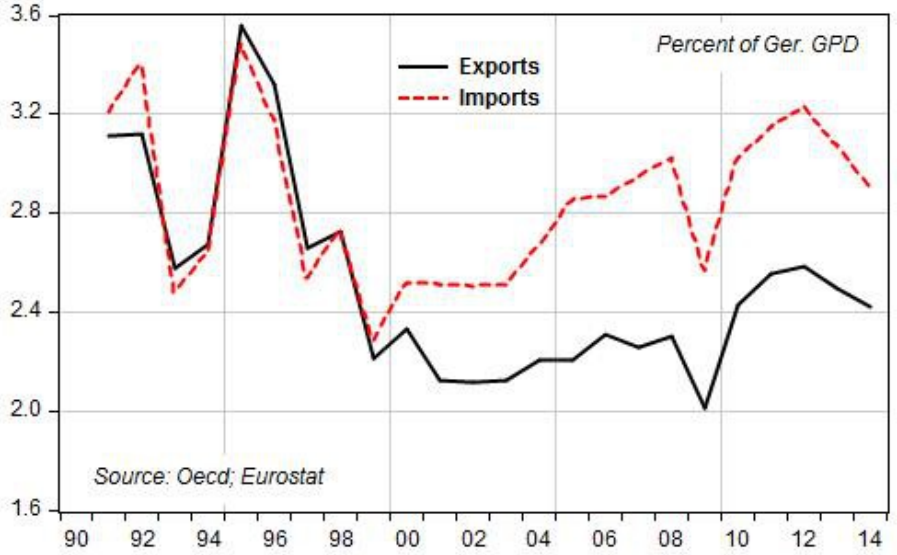
The common currency also implied a weak exchange rate for low inflation countries, and a high exchange rate for the periphery

Summing up #2

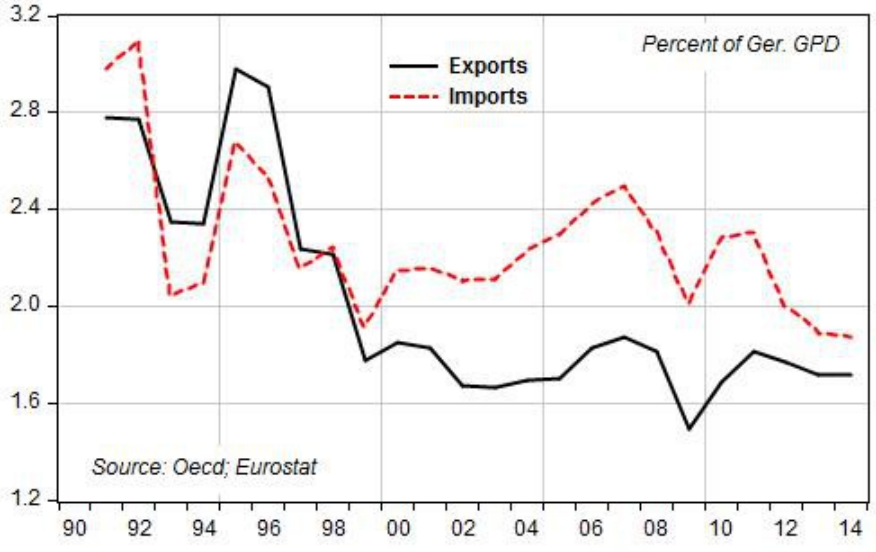
The Dynamic OCA requirements (keep wage and price inflation as low as in Germany) were not followed.

As a consequence, trade imbalances emerged, with matching financial imbalances

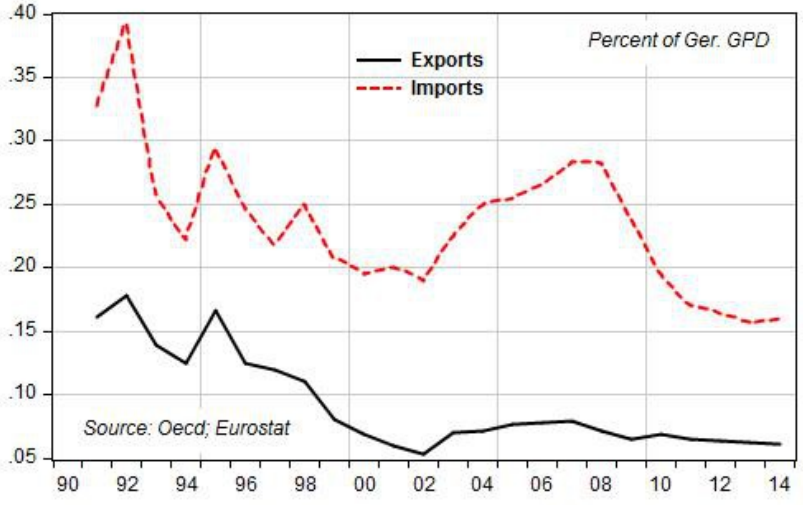
France. Bilateral trade with Germany



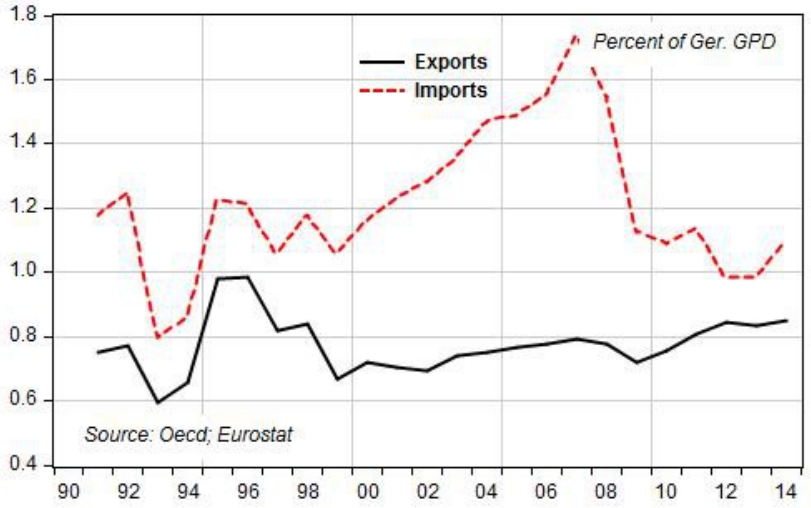
Italy. Bilateral trade with Germany

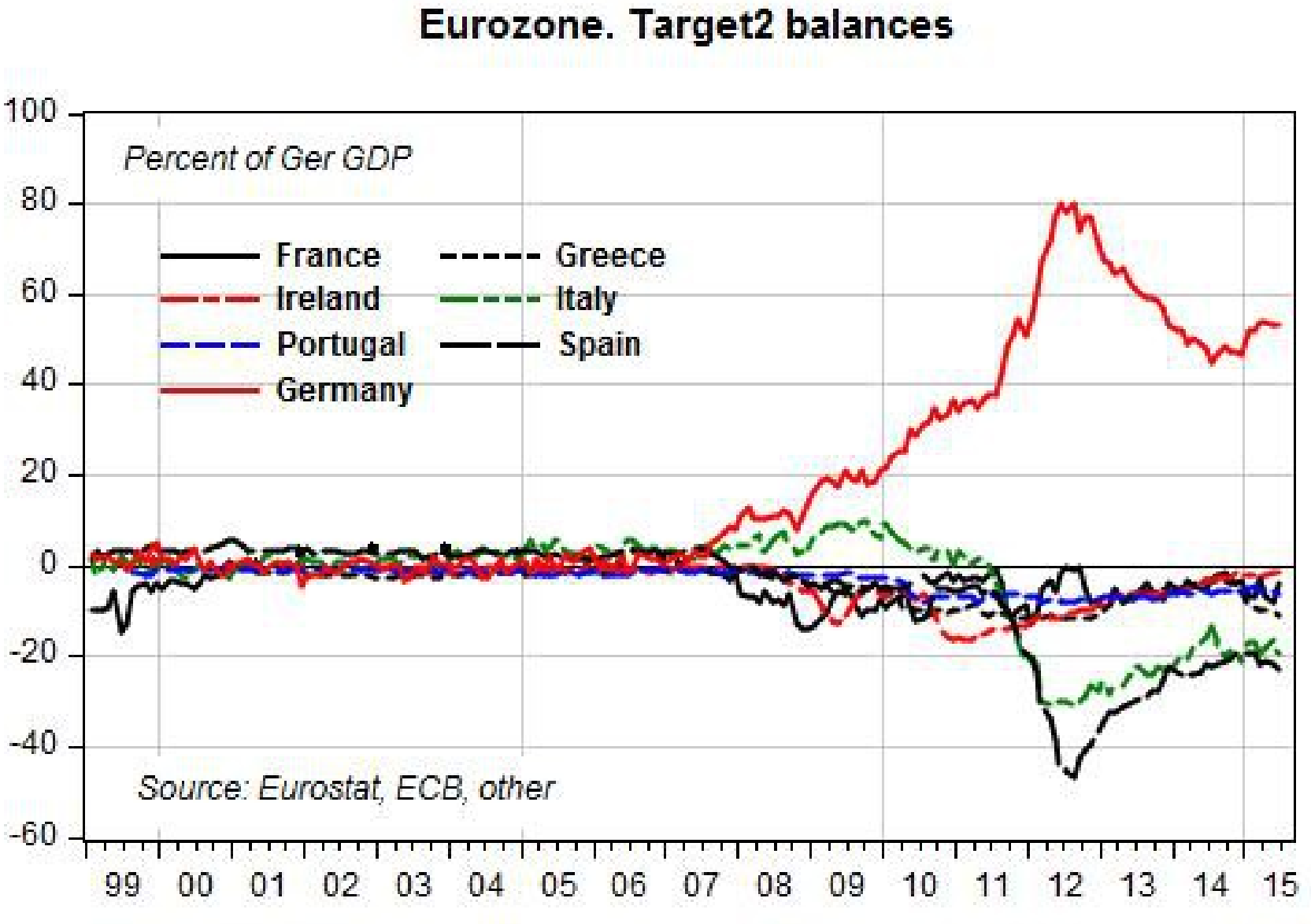


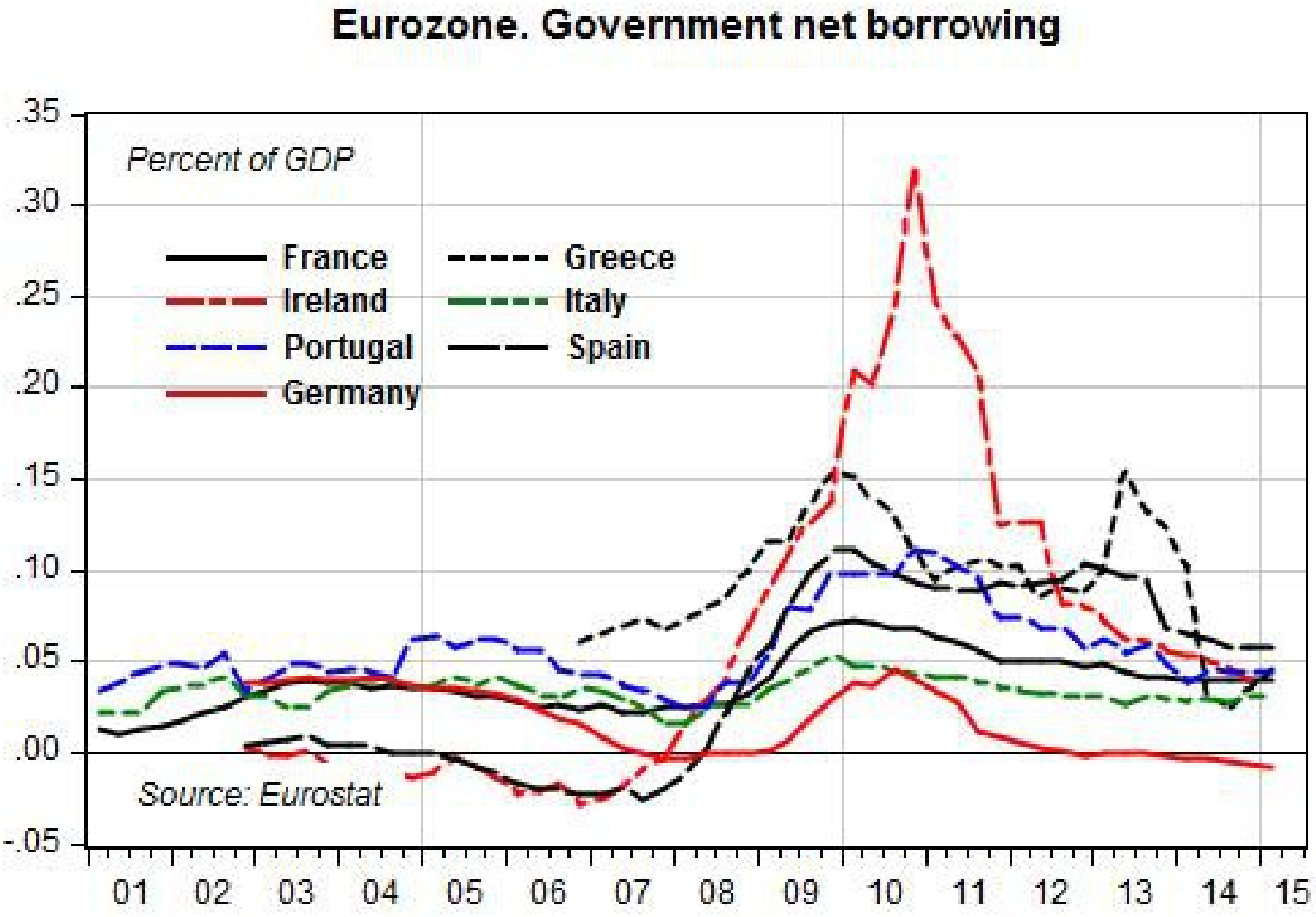
Greece. Bilateral trade with Germany

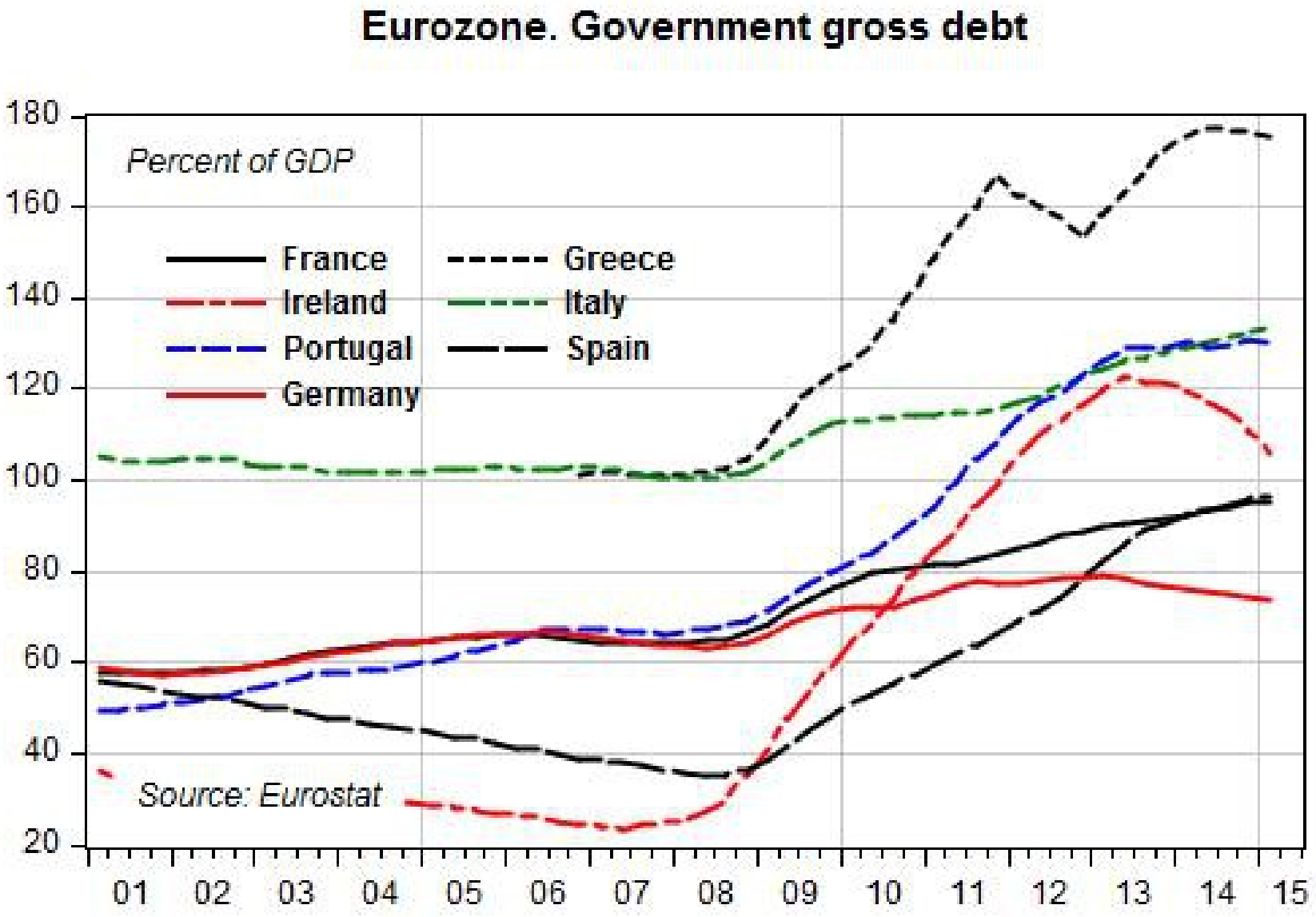


Spain. Bilateral trade with Germany




Eurozone. Target2 balances
Percent of Ger GDP
France
Greece
Ireland
Italy
Portugal
Spain
Germany
Source: Eurostat, ECB, other
100
80
60
40
20
0
-20
-40
-60
99
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15


Eurozone. Government net borrowing
Percent of GDP
France
Greece
Ireland
Italy
Portugal
Spain
Germany
Source: Eurostat
.35
.30
.25
.20
.15
.10
.05
.00
-.05
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15


Eurozone. Government gross debt
Percent of GDP
France
Greece
Ireland
Italy
Portugal
Spain
Germany
Source: Eurostat
180
160
140
120
100
80
60
40
20
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15

Greece

A short history

- 2006-2007: subprime markets crisis in the US
- September 2008: Lehman Brothers
  - Greek stock market collapses, with bank equity values falling more than 60%
  - Interest rate on Greek public debt increases
- October 2009: Papandreou government
  - Papandreou unveils real figures for gov deficit and debt
  - The Greek stock market collapses again
- April 2010: first liquidity problem


Greece. Stock market and Housing price indexes
2006=100
140
120
100
80
60
40
20
0
Housing
Stock market
Source: Bank of Greece
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15

A short history #2

- February 2010: Papandreou announces austerity package
- April 2010: Public debt downgraded
- May 2010: First bailout package
- July 2011: Second bailout (*haircut*)
- November 2011: Papandreou steps down
- June 2012: Samaras leads a coalition government
- 2014: austerity measures more stringently implemented

A short history #3

- January 2015: Tsipras government
- July 2015: Bailout referendum – banks close
- New MOA and new Tsipras government
- 2018: end of program, new MOU

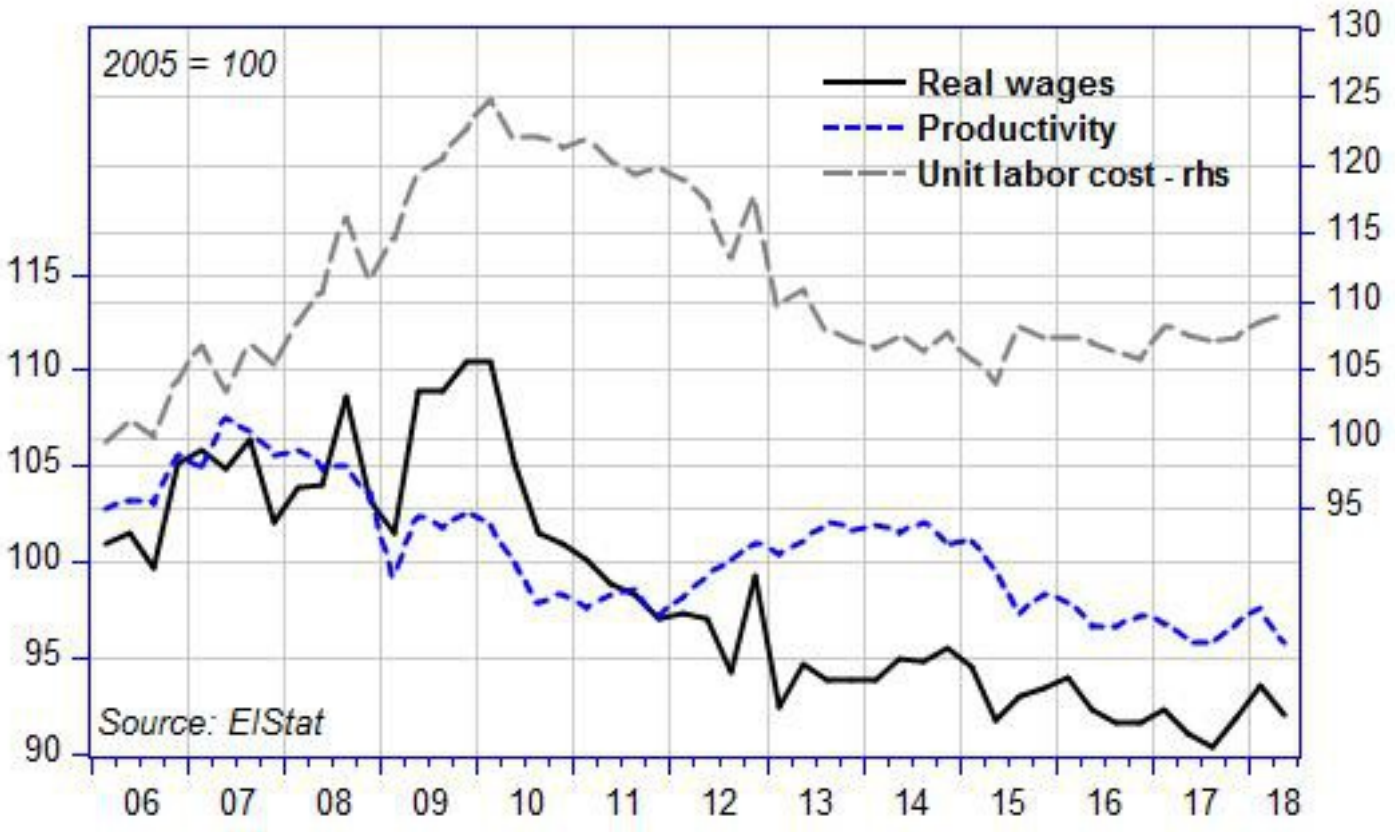
Fiscal austerity

	2010	2011	2012	2013	2014	2015*
Gov. Expenditure	24.5	21.9	21.3	19.4	19.2	-18.3
Social transfers in kind	24.5	22.1	19.5	17.1	16.0	-31.2
Other social benefits	40.3	40.1	38.5	33.8	33.8	-12.8
Indirect taxes	26.6	25.6	23.2	22.1	22.1	-16.3
Direct taxes	18.5	19.0	20.5	18.7	16.8	-10.8
Social contributions	29.7	27.3	26.4	24.3	24.0	-19.8

* 1q2015. Percent change against 1q2011 (4q moving average)

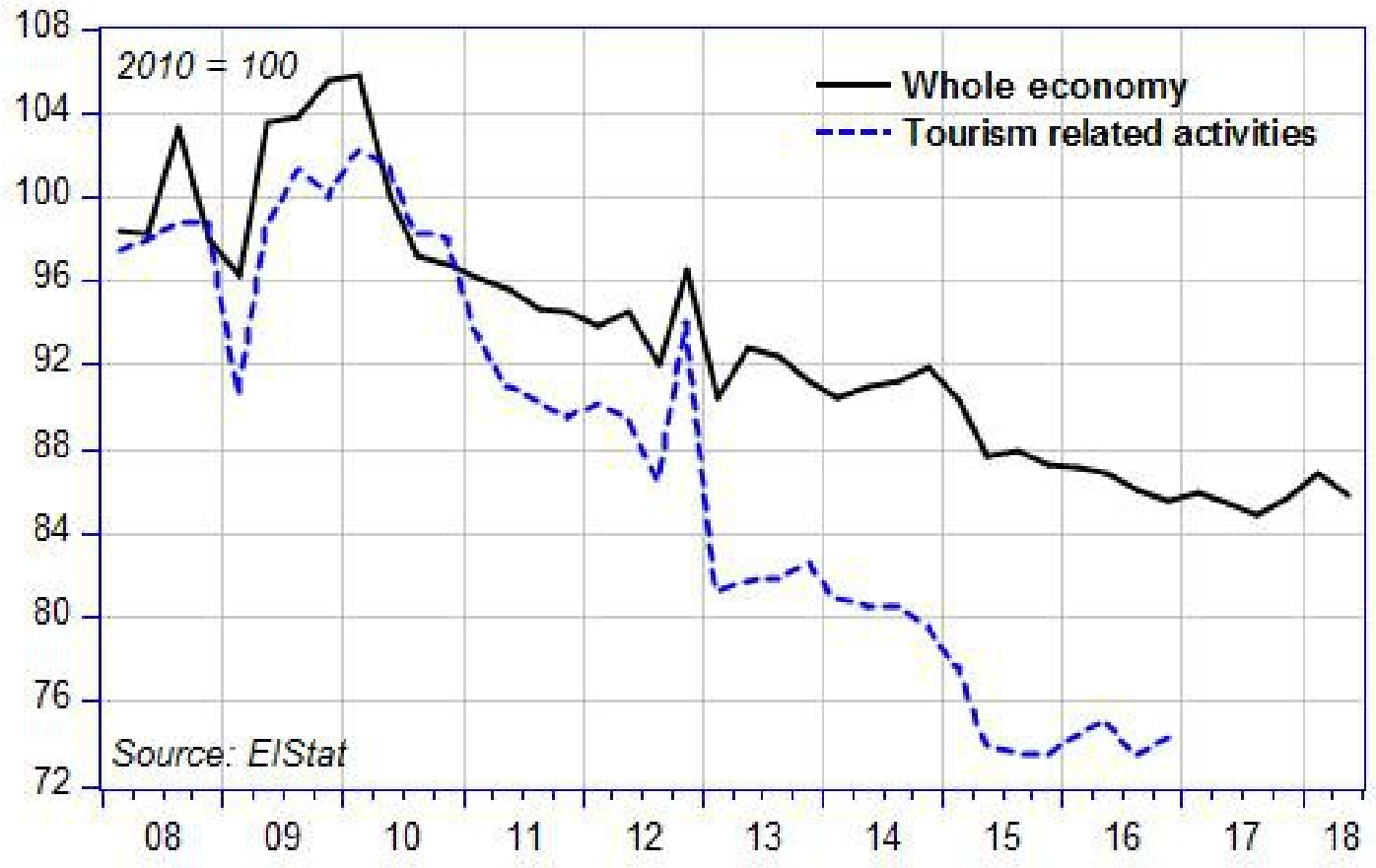
Labor market austerity

Figure 16. Greece. Labor costs



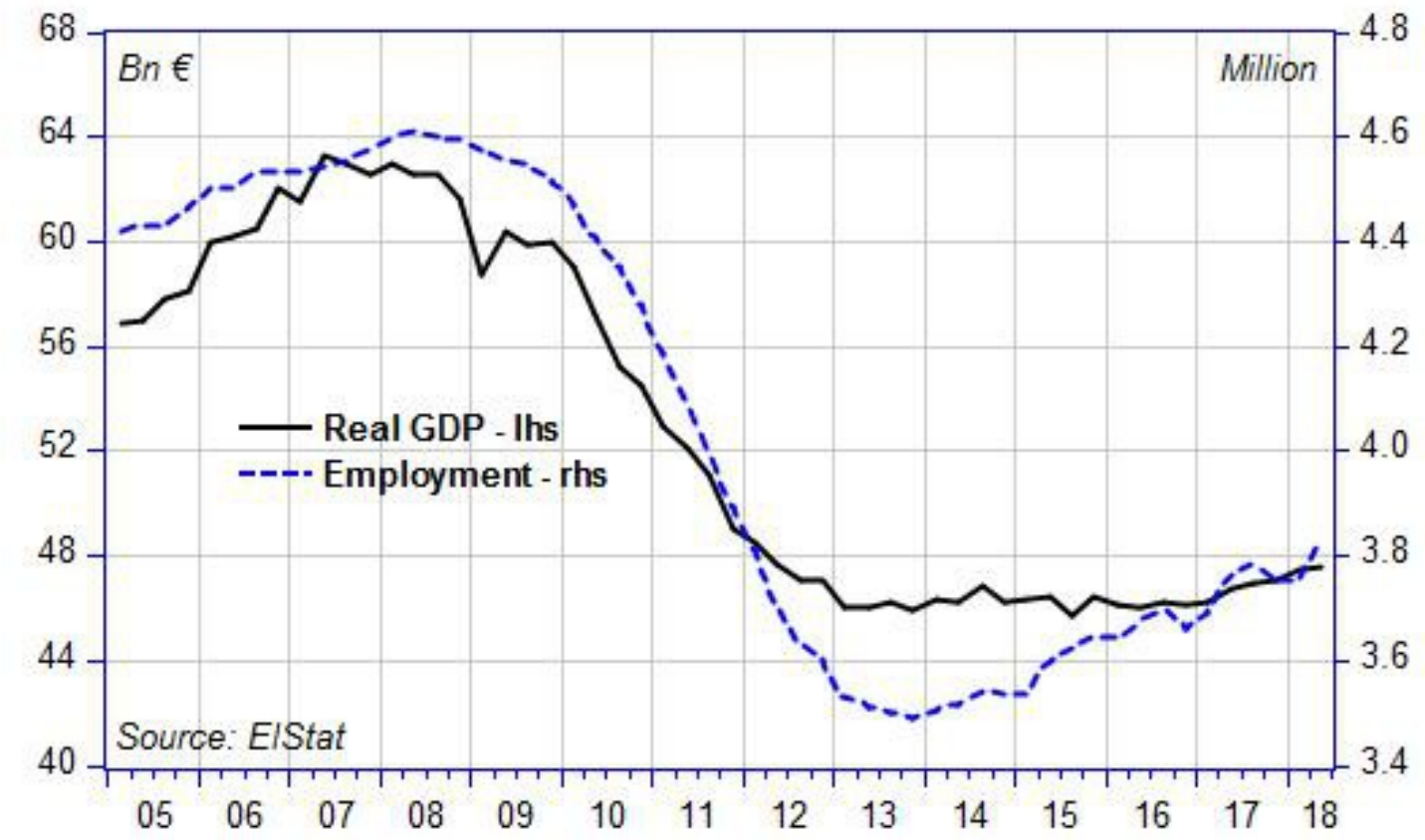
Labor market austerity #2

Figure 4. Greece. Real average wages



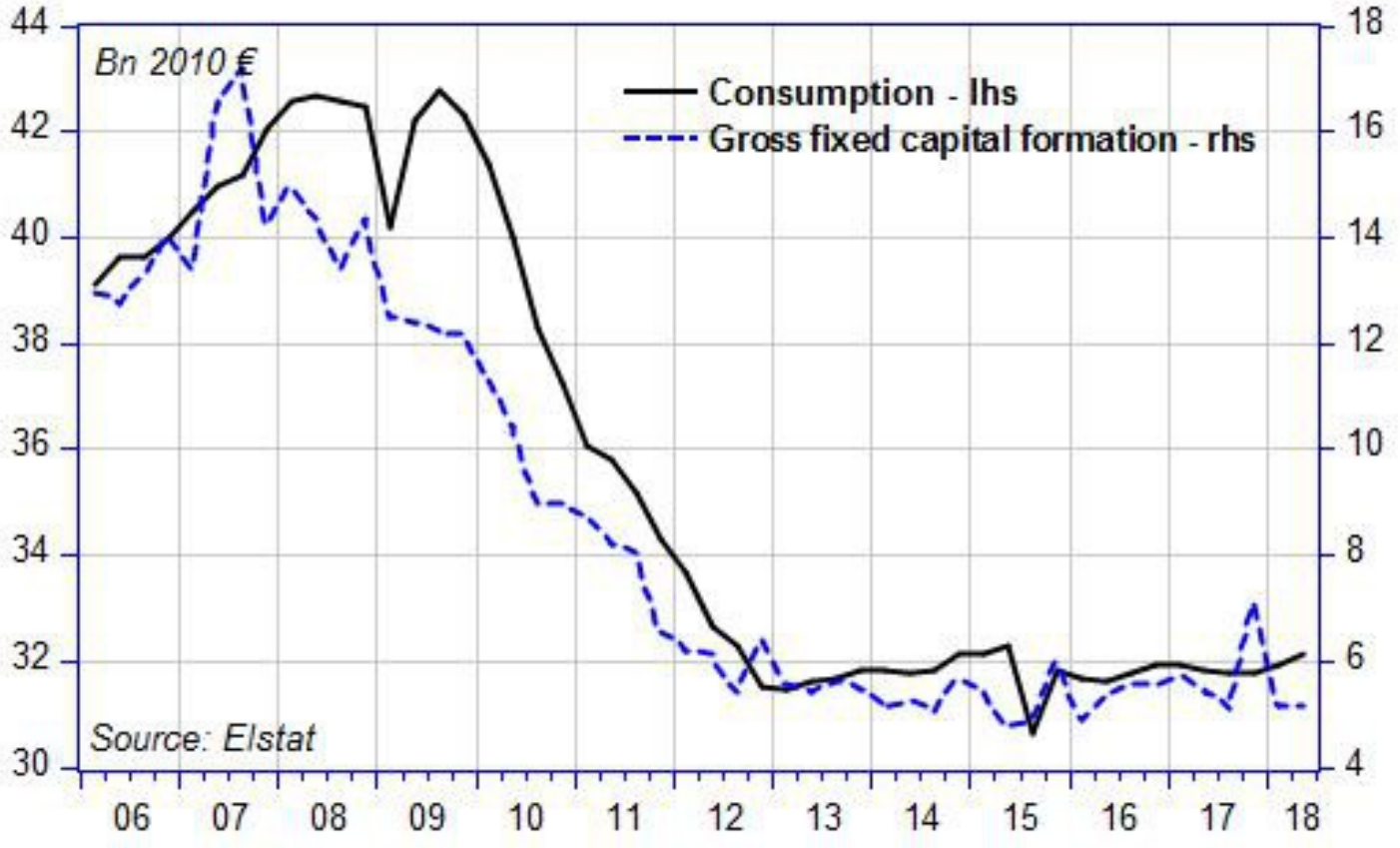
The depth of the crisis

Figure 1. Greece. Real GDP and employment

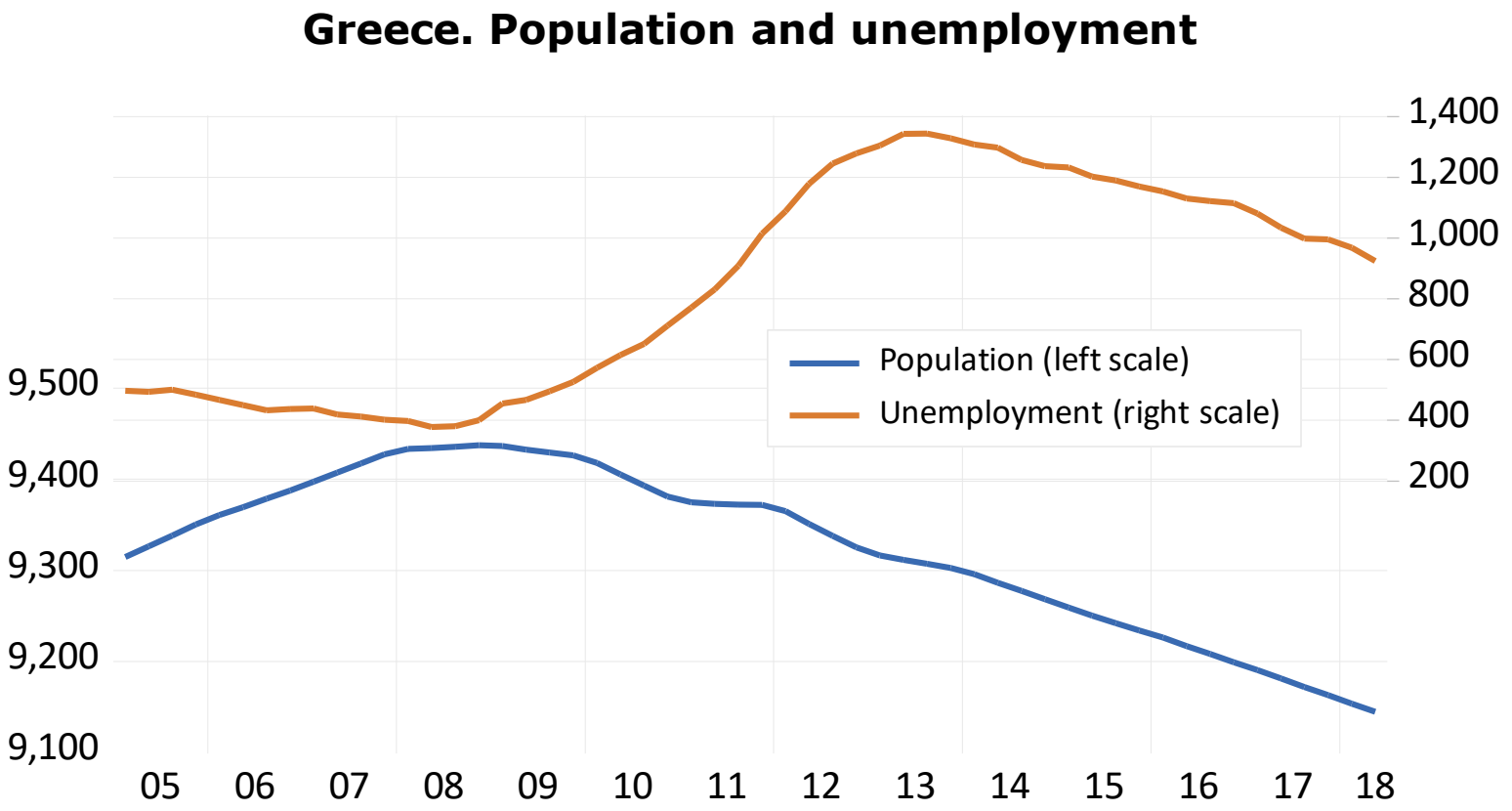


Private demand

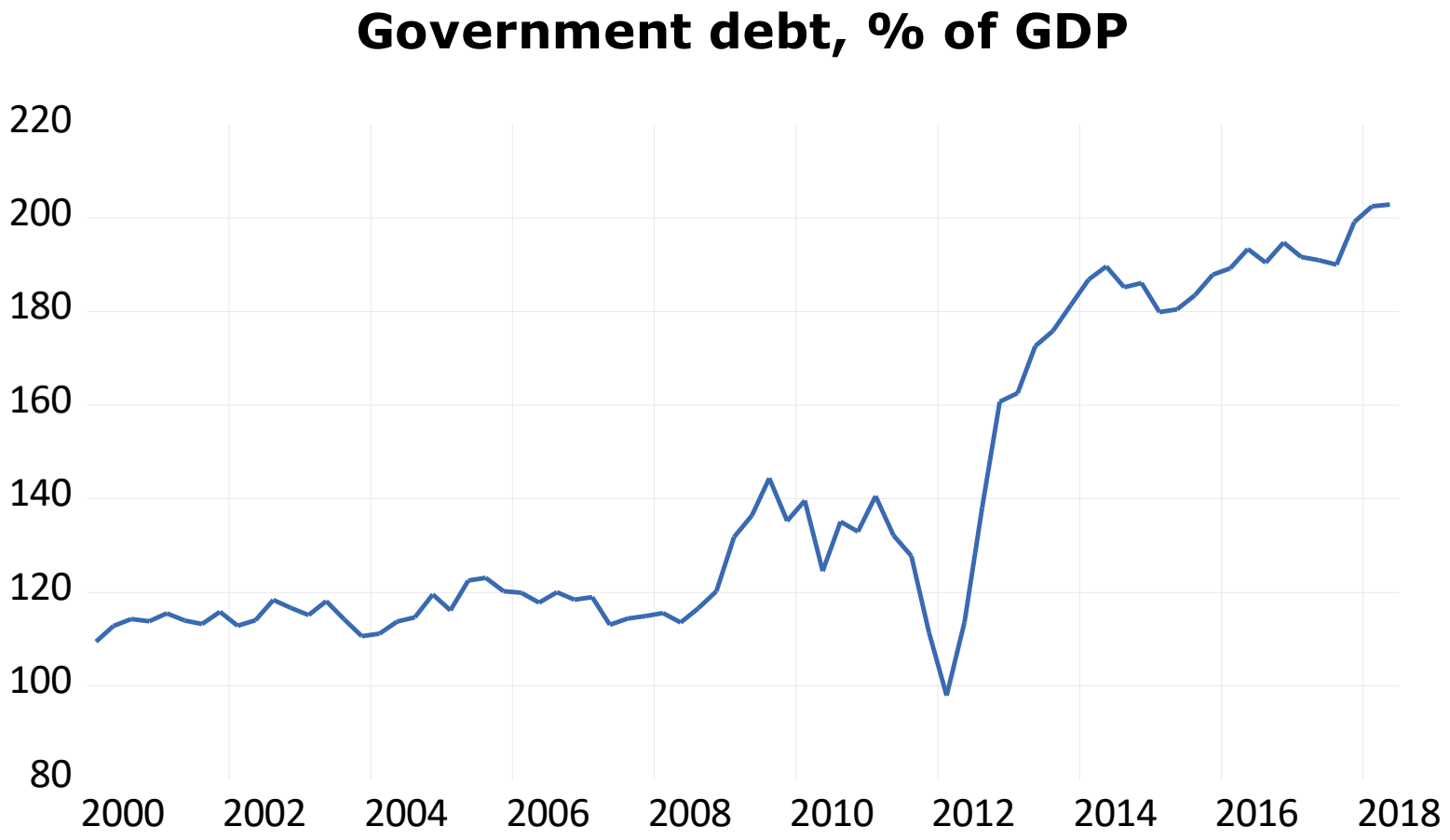
Figure 2. Greece. Consumption and investment



Migration


Greece. Population and unemployment
1,400
1,200
1,000
800
600
400
200
9,500
9,400
9,300
9,200
9,100
Population (left scale)
Unemployment (right scale)
05
06
07
08
09
10
11
12
13
14
15
16
17
18

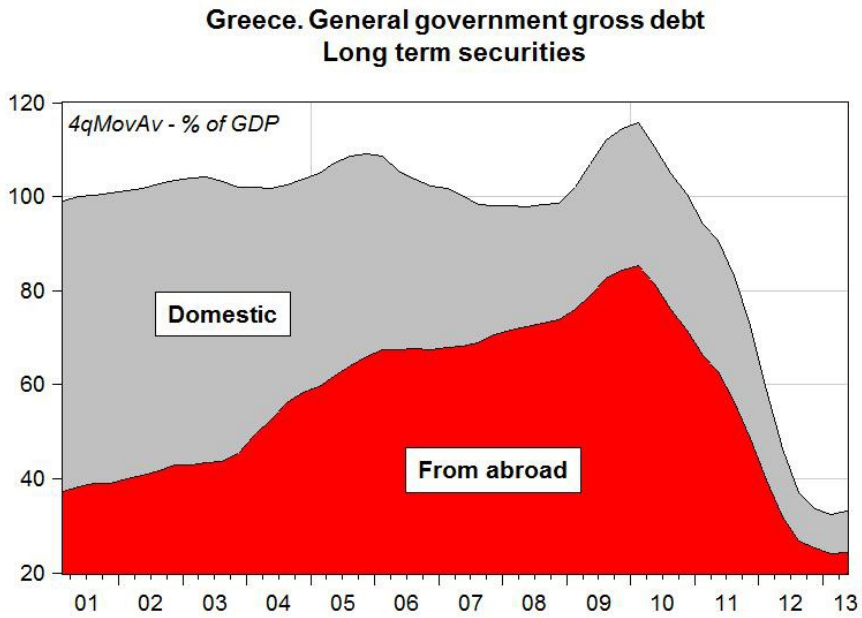
Did austerity work on debt?

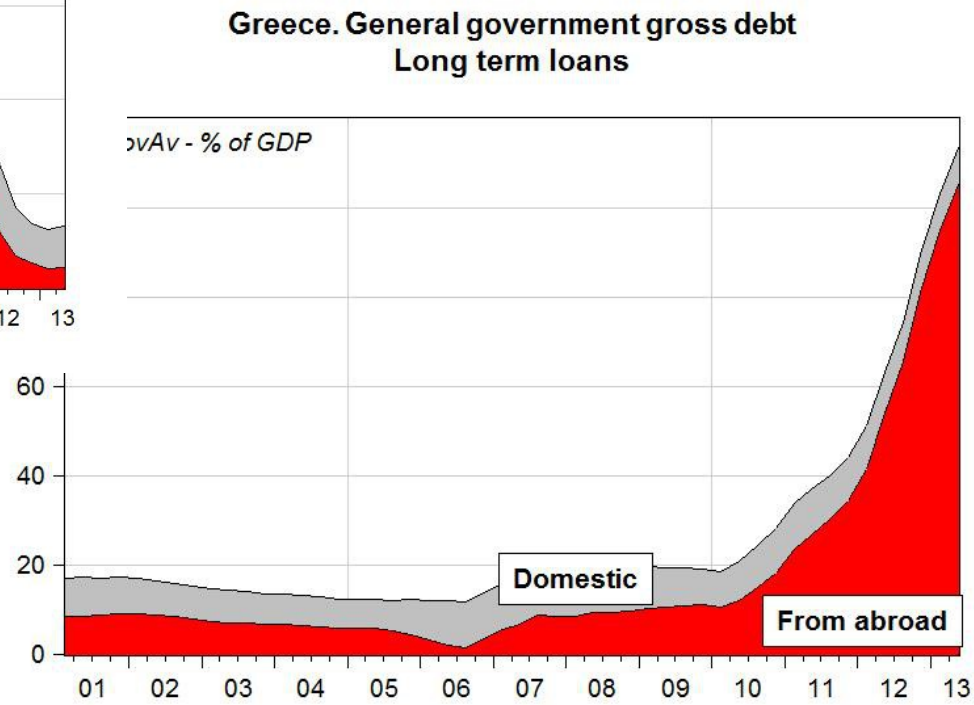


Austerity in exchange for bailout?

	2010	2011	2012	2013	2014	Σ
Long-term loans from abroad	**24.3**	**30.0**	**110.0**	**30.8**	**5.6**	**200.8**
Net reduction in securities held abroad	**19.9**	**24.4**	**44.3**	**8.0**	**7.8**	**104.5**
Purchases of financial sector equities	**0.2**	**0.9**	**0.0**	**19.0**	**0.0**	**20.2**
Net capital transfers	**3.7**	**3.8**	**8.6**	**23.4**	**1.9**	**41.4**
Interest payments	**13.2**	**15.1**	**9.7**	**7.3**	**7.0**	**52.3**
Residual	**-12.7**	**-14.2**	**47.3**	**-26.9**	**-11.1**	**-17.7**

The composition of Greek public debt





The theory behind the Troika plan

The economic theory of austerity

Austerity was discredited after the Great Depression, and disappeared with Keynesian economics after WW2

With the RE counter-revolution, austerity theory has come back

Expansionary austerity, based on research from Bocconi (Giavazzi, Pagano, Alesina, Ardagna)

Expansionary austerity

Assuming rational, forward-looking behaviour, austerity will stimulate consumption and investment

Why? The underlying assumption is that the government needs to pay back its debt, sooner or later.

The implication is that deficit expenses today imply higher taxes in the future, and lower deficit today (austerity) imply lower taxes in the future.

Anticipating a reduction in future taxes, household save less and spend more.

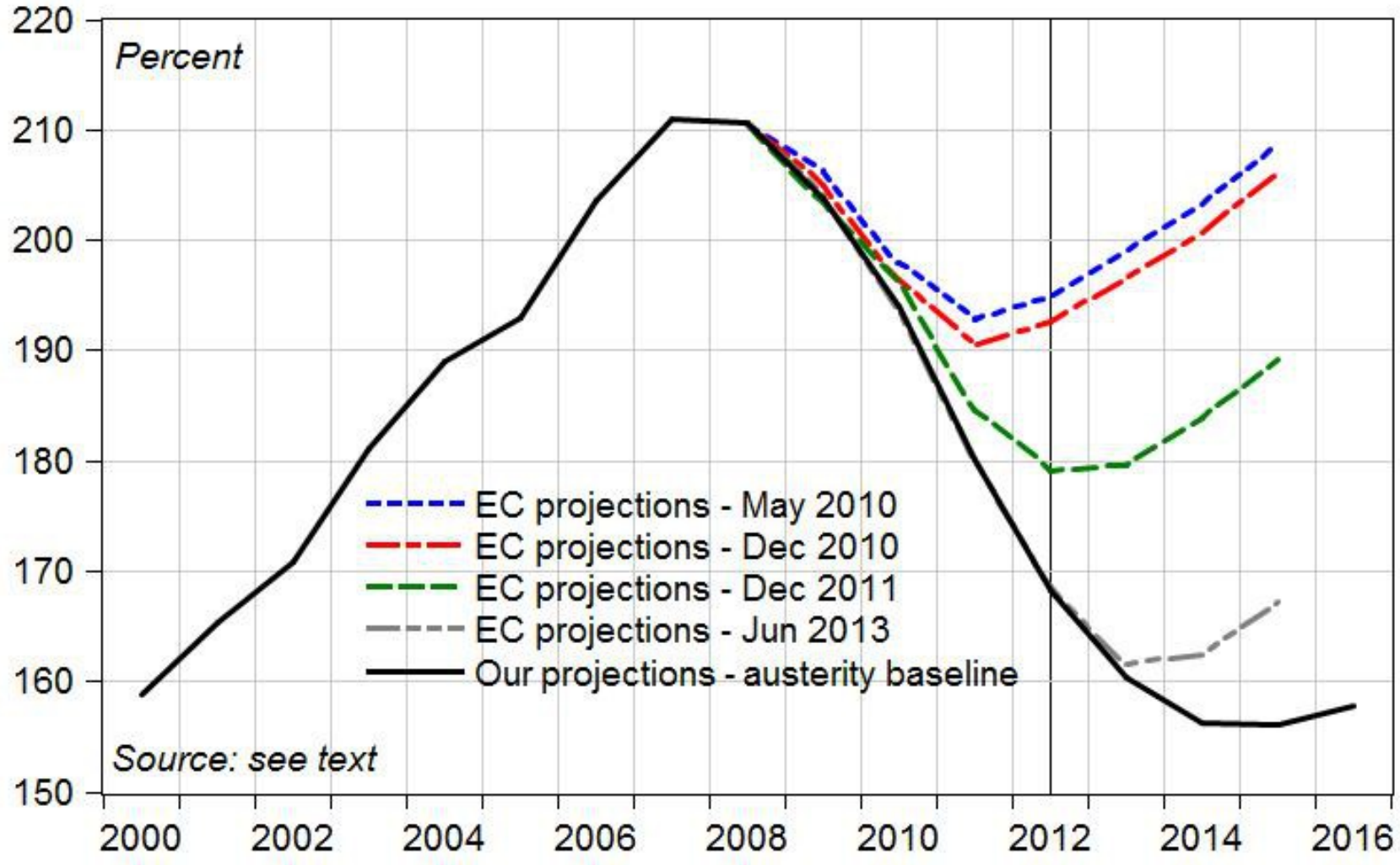
Assuming that the business community does not like government expenditure, austerity will also improve the expected profitability of investment

The multiplier

Expansionary austerity implies that the multiplier of public expenditure is zero, maybe negative, and small in any case.

Projections of how Greek GDP would react to the austerity plans are revealing

The failure of EC/IMF projections



The multiplier #2

As the Greek crisis developed, even the IMF recognized that the fiscal multiplier is much larger than one, especially at the ZLB (zero-lower-bound for interest rates) and in a recession.

Usually, these economists believe that the multiplier would fall again below one as the economy recovers, so that fiscal stimulus should be temporary.

Does austerity work?

According to Mark Blyth *Austerity: The history of a dangerous idea*, austerity never worked.

Not even in those countries identified in early papers by Giavazzi and Pagano.

Some of the Bocconi crowd have admitted the failure.

So, why insisting on austerity?

Austerity may save banks

As we have seen for the case of Greece, priority has been given to avoiding losses on the balance sheets of Greek creditors.

Austerity may save the Euro

As the previous chart reveals, the strategy followed to *save Greece* was such to minimize the risk of losses to foreign banks.

Had Papandreou chosen to exit the Euro, the consequences for financial markets and the Euro would have been limited. But if Italy or Spain followed, the consequences would have been much more dramatic.

Draghi's QE has been designed to place an increasing burden of (eventual) euro exit on national central banks.

Austerity temporary fixes major problems

- As the economy contracts, imports fall, and a country running a Current Account deficit will reduce its need for further borrowing from abroad
- The same results should be obtained through *Labor market austerity*
- But these *fixes* disappear if the economy is stimulated again
- And the impact of austerity on the CA is limited if trade partners are also implementing austerity > need for an importing country

Austerity has an uneven impact

- There is a growing concern that the concentration in income and wealth is one of the reasons behind the Great Recession of 2007-2009
- Austerity seems to contribute to the concentration of income and wealth
- Austerity is also helping the acquisition of small-medium size firms in the periphery from larger firms in the core
- Privatization is part of the process

Plans A or Plans B?

- The current debate in the Eurozone – among those who no longer want austerity – is between reforming the EZ institutions (plans A) or adopting national alternatives (plans B)
- Meanwhile, anti-European parties are gaining consensus

Plans A

- Creating a fiscal union
  - But larger transfers across borders are vetoed
- Allowing the ECB to act as a lender of last resort for governments
  - Strong resistance
- Weakening the conditions for government deficits
  - Allowing public investment to be taken out of the Maastricht measure
- But recent agreements point to keeping austerity

Plans B

- Keeping the Euro
  - Issuing a domestic currency, which is not legal tender, but is accepted by the government in tax payments
  - Issuing other forms of government IOUs
  - In any case, such policies should be aimed at funding job creation

Parallel currencies

- A “proper” currency? Backed by what?
- Convertible into Euro?

Following MMT (?) most proposals are based on a fiscal currency, backed by future tax receipts

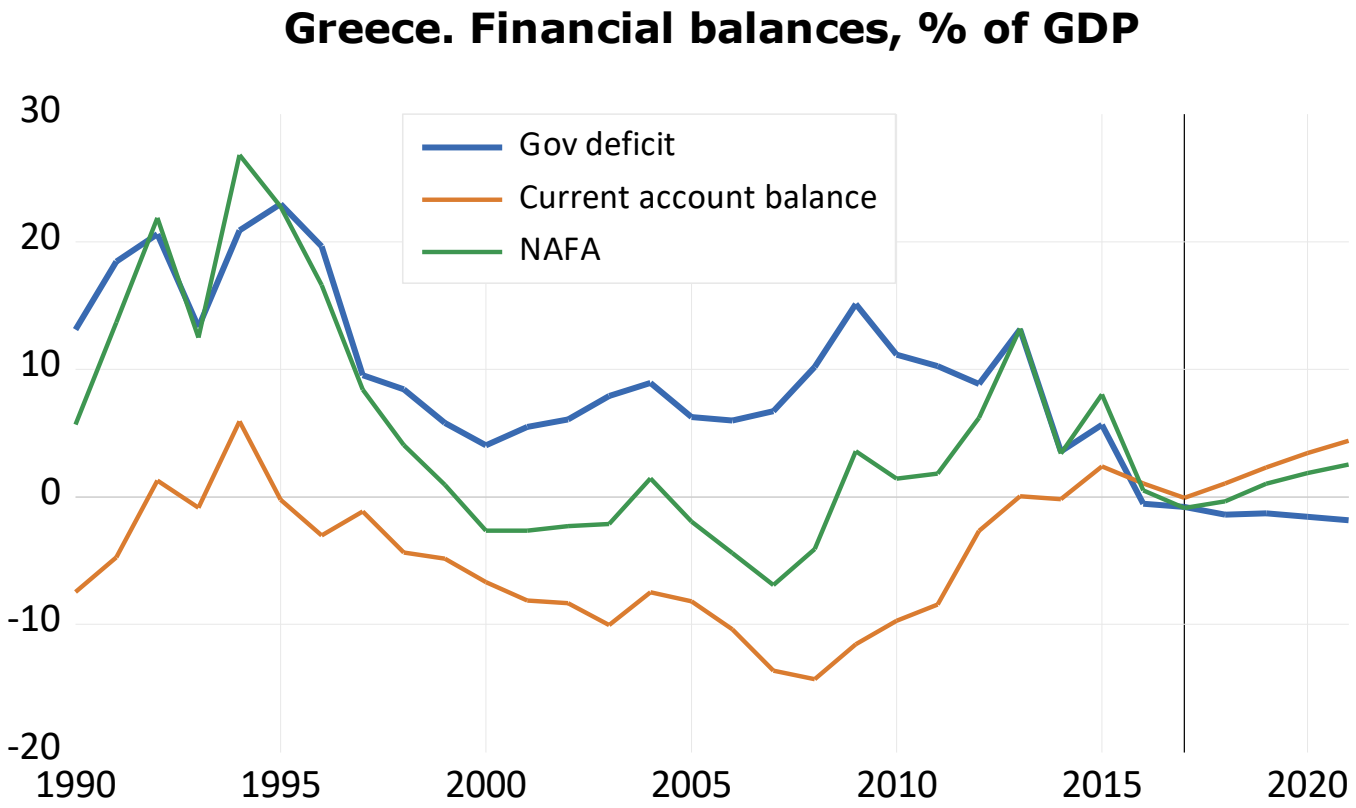
Proposals for Italy

- Fiscal certificates
- Public debt in the form of banknotes
- A currency that can be used for tax payments
-
- Issuing a fiscal currency to do what??
-
- Constraint: the CA balance

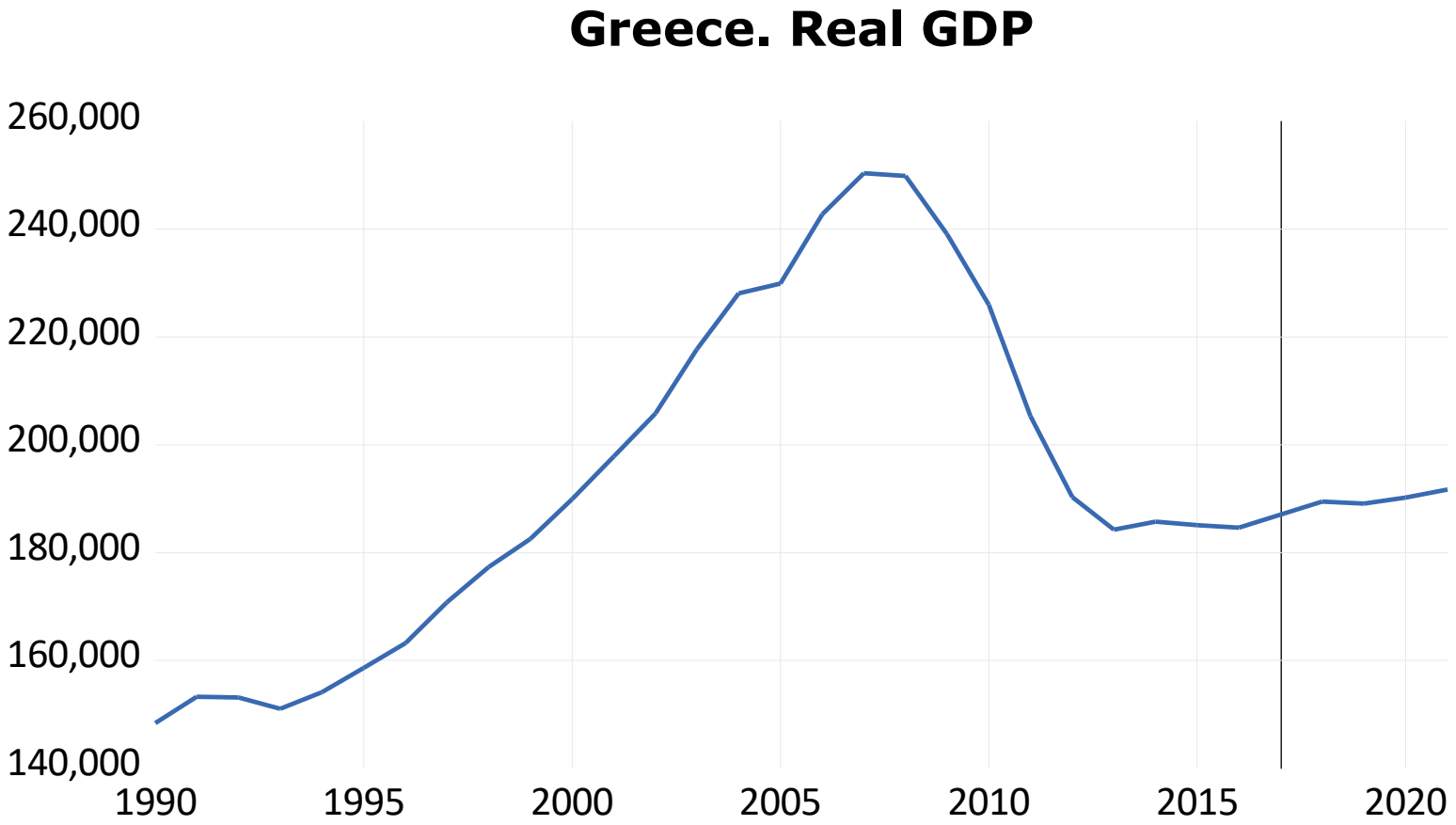
Plans B #2

- Exiting the Euro
  - While staying in the EC?
  - What about financial markets?
  - What about intra-EU trade?

Austerity worked?



A growing economy...!



Italy

Figure 9. Italy. Financial balances