

SPECIAL ISSUE - UPDATE

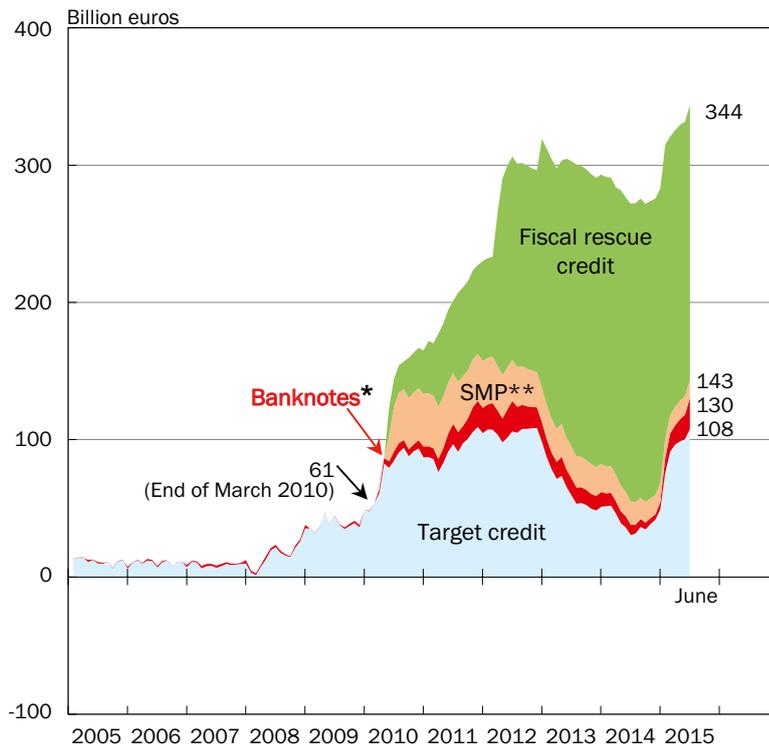


THE GREEK TRAGEDY

Hans-Werner Sinn

This document contains updated graphs and figures from H.-W. Sinn, The Greek Tragedy, CESifo Forum Special Issue, Munich 2015, as of June 2015 which contains a detailed discussion of the issue. (<http://www.cesifo-group.de/sinn-2015-greek-tragedy-pdf>) The original data extended to March 2015.

Figure 1
Public credit given to Greece by other euro countries



* Liabilities of the Greek national central bank to the Eurosystem due to over-proportionate banknote issuance.

** Greek government bonds purchased from other Eurosystem national central banks (NCBs) under the framework of the Securities Markets Programme (SMP), minus the government bonds of other euro countries bought by the Greek central bank under that programme. These are book values. The monthly values were estimated through interpolation of the yearly stocks adjusted to the overall stock of government bonds held in the books. A corresponding flow of government bonds across borders is assumed.

Note: The fiscal rescue credit is calculated as a net value; it includes the financial help disbursed by the end of each month by the rescue programmes of the euro countries and the IMF. The repayments made to date have been subtracted, as well as the Greek contributions to the rescue programmes. These include Greece's share in the European Financial Stabilisation Mechanism, financed by the EU budget, and also the capital subscription to the European Stability Mechanism. See also Table 1.

Sources: Bank of Greece, *Financial Statements*; European Central Bank, *Weekly Financial Statements*; same institution, *Capital Subscription*; European Financial Stability Facility, *Lending operations*; International Monetary Fund, *Financial Activities*; also IMF, *SDR Exchange Rate Archives by Month*; European Commission, *The Economic Adjustment Programme for Greece: Fifth Revue*; same institution, *EU Budget 2011*; European Stability Mechanism, *Governance, Shareholders*.

Table 1

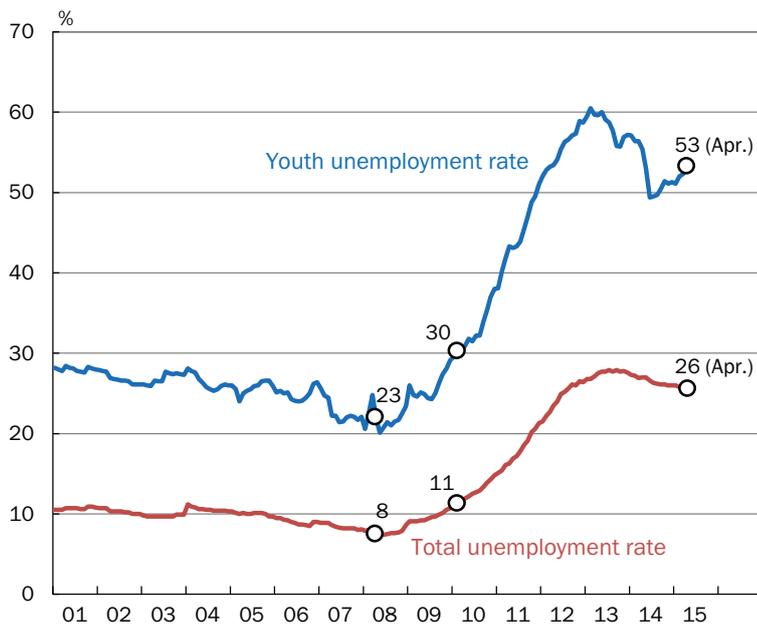
Public credit given to Greece by June 2015 – Gross vs. net (bn. euros)

	Sum authorised originally ¹⁾	Sum effectively provided ²⁾	Sum disbursed/ stock ³⁾	Notional: IMF help calculated at exchange rate of 30 June 2015
A) Funding for Greece				
First rescue package	110.0	73.2	73.2	
Euro countries' share	80.0	52.9	52.9	
IMF share ⁴⁾	30.0	20.3	20.3	22.0
Second rescue package	172.7	158.9	142.6	
EFSF share	144.7	130.9	130.9	
IMF share ⁴⁾	28.0	28.0	11.7	12.9
Fiscal rescue credit (gross)	282.7	232.1	215.8	218.7
Purchases of Greek government bonds ⁵⁾			16.4	
Target liabilities of the Greek central bank to the Eurosystem			107.7	
Liabilities of the Greek central bank to the Eurosystem due to over-proportionate banknote issuance			22.8	
A) Total international help, gross			362.7	365.6
B) Payments effected by Greece				
Repayment of IMF credit instalments from the first rescue package ⁶⁾			12.6	13.7
Capital contribution to the ESM ⁷⁾			2.3	
Contribution to EFSM help for Ireland and Portugal ⁸⁾			0.7	
Contribution of the Greek central bank to the purchases of Irish, Portuguese, Spanish and Italian government bonds ⁹⁾			3.4	
B) Total payments effected by Greece			19.0	20.1
Net balance of rescue funds (= A - B)			343.7	345.5

1) According to the programme. 2) First rescue package: Disbursed sums at the time of the programme's early termination. Second rescue package, EFSF share: amount disbursed when programme expired on 30 June 2015. 3) Sums effectively disbursed as of 31 March 2015. 4) The sums defined in units of IMF drawing rights were converted into euros at the exchange rate of the corresponding date. 5) Excluding Greek central bank share; own extrapolation of the stock at 31 December 2014. 6) The same exchange rate was used for repayments as for the corresponding disbursement. 7) According to the ESM treaty. 8) In accordance with Greece's contribution to the EU budget. 9) Own extrapolation of the status at 31 December 2014.

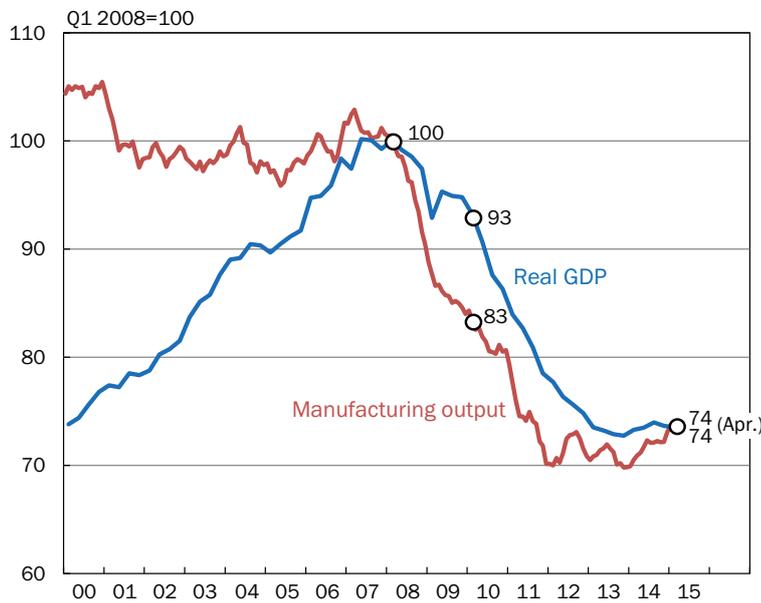
Sources: Bank of Greece, *Financial Statements*; European Central Bank, *Weekly Financial Statements*; same institution, *Capital Subscription*; same institution, *Financial statements of the ECB for 2014*, Press release, 19 February 2015; European Financial Stability Facility, *Lending Operations*; International Monetary Fund, *IMF Country Report No. 12/57*; also IMF, *Financial Activities*; same institution, *SDR Exchange Rate Archives by Month*; European Commission, *The Economic Adjustment Programme for Greece*; same institution, *The Economic Adjustment Programme for Greece: Fifth Revue*; same institution, *The Second Economic Adjustment Programme for Greece*; same institution, *EU Budget 2011*; European Stability Mechanism, *Governance, Shareholders*.

Figure 2
The evolution of unemployment in Greece



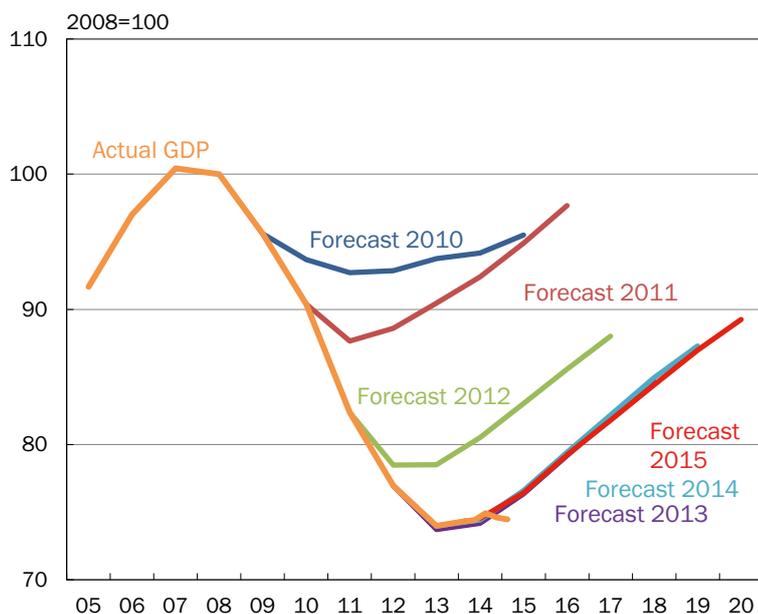
Source: Eurostat, Database, *Population and Social Conditions*, Labour Market, Employment and Unemployment.

Figure 3
The Greek economic slump



Sources: Eurostat, Database, *Industry, Trade and Services*, Short-term business statistics, Industry; same institution, *Economy and Finance*, National Accounts (ESA 2010), *Quarterly Accounts*, Main GDP aggregates; same institution; Production: Moving 5-month average.

Figure 4
Greece's Real GDP: Comparison of the real evolution^{a)} with the IMF^{b)} forecasts



Actual evolution from 2005 until first quarter 2015 and comparison with the IMF spring forecasts from 2010 to 2015.

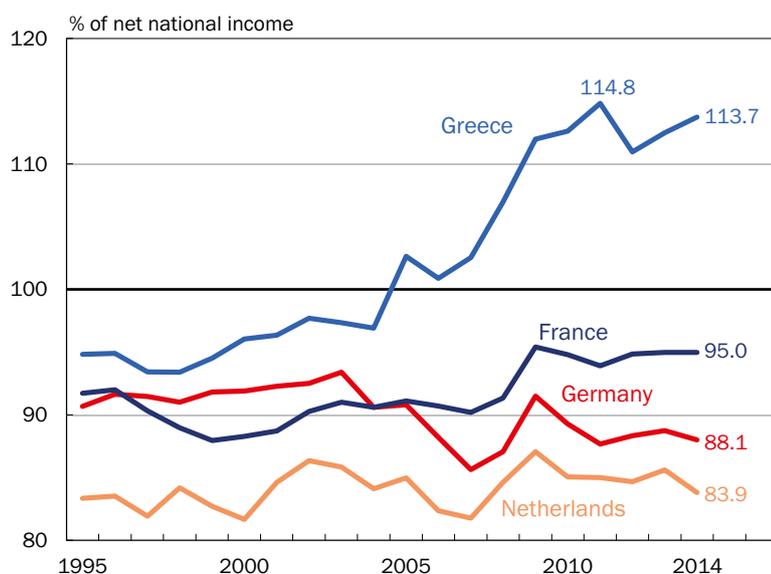
a) Actual GDP; 2005 - 2013, yearly data; quarterly data starting first quarter 2014. Status: May 2015.

b) Respective spring forecasts.

Sources: International Monetary Fund, *World Economic Outlook Database*, April 2010 to April 2015;

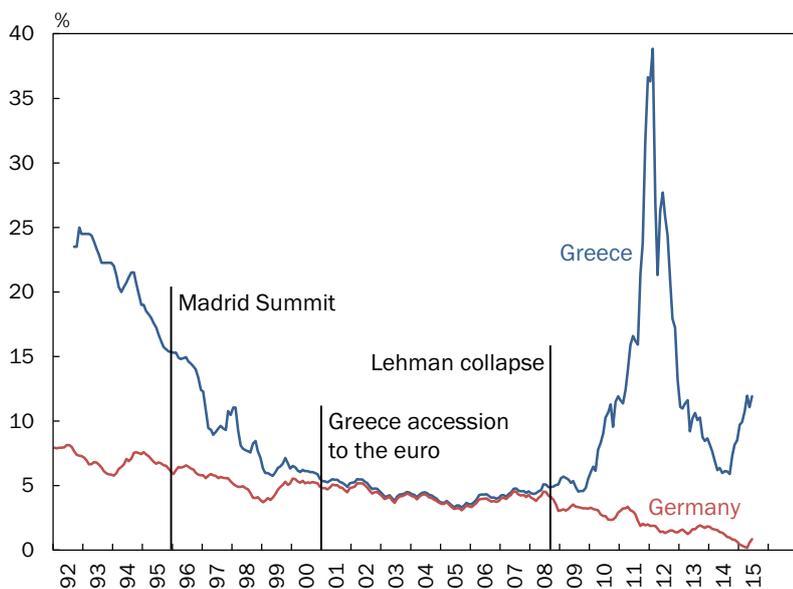
Eurostat, Database, Economy and Finance, *National Accounts (ESA 2010)*, *Quarterly Accounts*, *Main GDP aggregates*.

Figure 5
Public and private consumption relative to net national income



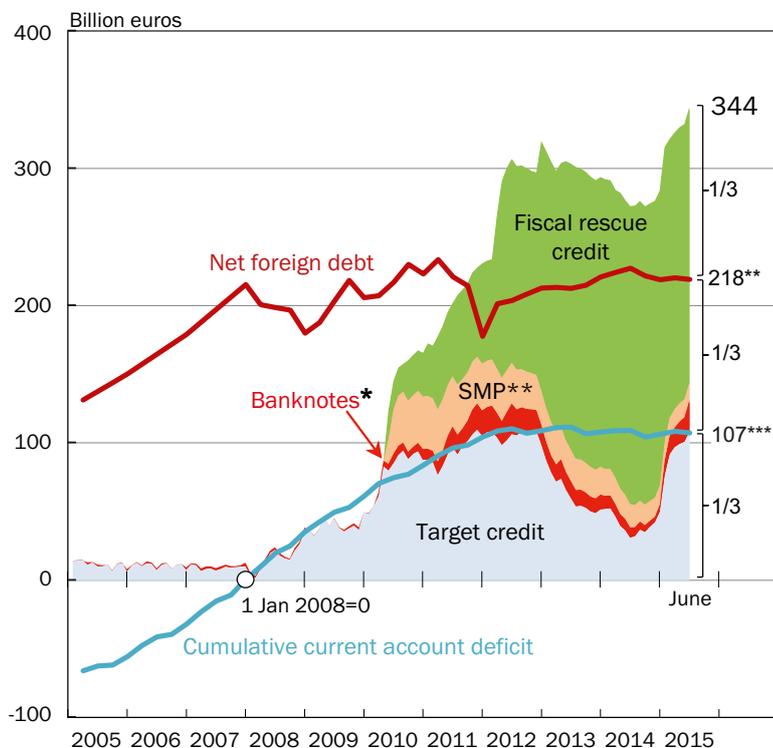
Source: Eurostat, Database, *Economy and Finance, National Accounts (including GDP), GDP and Main Components - Current Prices, Final Consumption Expenditures; and Income, Saving and Net Lending/Borrowing, Gross National Income at Market Prices*; European Commission, Economic and Financial Affairs, *Economic Databases and Indicators, AMECO - the annual macro-economic database, National Income*.

Figure 6
Effective yield of 10-year government bonds



Source: Thomson Reuters Datastream, Germany: BDBRYLD, Greece GRBRYLD (as from 04/1999), GRESEFIGR (since 09/1992 until 03/1999).

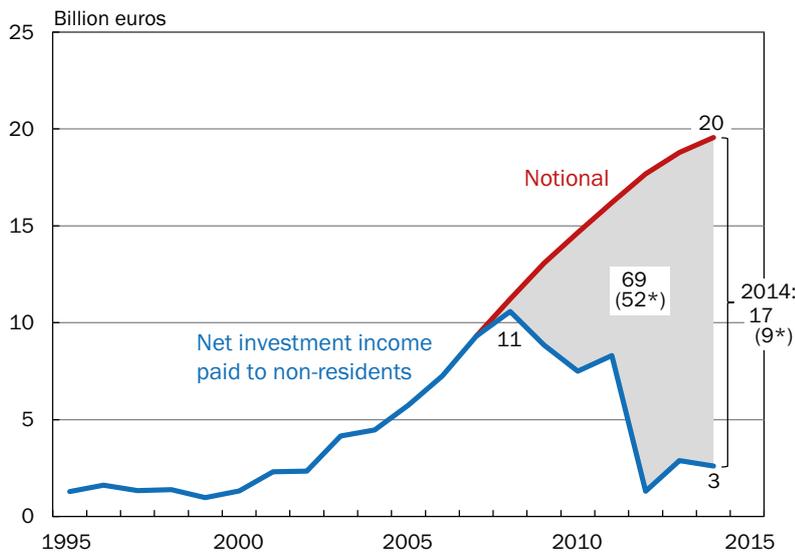
Figure 7
Public credit, cumulative current account deficits, and foreign debt



* Liabilities of the Greek central bank to the Eurosystem due to over-proportionate banknote issuance.
 ** Greek government bonds bought by other Eurosystem NCBs within the framework of the Securities Markets Programme (SMP) minus the government bonds of other countries bought by the Greek central bank under the SMP.
 *** Estimate: January to June 2015.

Sources: See Figure 1, and also: Eurostat, *Database, Economy and Finance, Balance of Payments – International Transactions*.

Figure 8
Greece's interest gains



* In real terms

Key: The notional yardstick values used for the comparison are calculated on the basis of the 2007 overall rate of interest for Greece, defined as the ratio between the actual net investment income Greece paid to foreigners in that year (9.32 billion euros) and the country's net foreign debt (negative net investment position) at the beginning of the year (178.2 billion euros). This interest rate was 5.2%. In a first (nominal) variant of the notional yardstick calculation, the thus-defined 2007 rate of interest was applied to the fictitious net foreign debt that in the following years would have resulted from an accumulation of current-account deficits. Account was taken of the fact that in the hypothetical case of constant interest rates the current account deficits themselves would have been larger than they actually were, given that net interest payments to foreigners are part of the current-account deficits. Alternatively, a variant of the notional yardstick calculations was carried out where the 2007 real rate of interest was kept constant, the real rate of interest being defined as the nominal rate minus the annual rate of increase in the harmonised consumer price index for the Eurozone. The numbers in brackets give the respective results. Note that balance-of-payments statistics as of 2014 are calculated internationally according to a new method (Balance of Payments and International Investment Position Manual, Sixth Edition: BPM6). Since the results for Greece according to the new system are only available as of 2009, data produced on the basis of the old standard are used up to and including 2008. Preliminary calculations showed that this had only a negligible impact on the results.

Source: Eurostat, Database, *Economy and Finance, Balance of Payments – International Transactions (BOP)* (up to 2008); Eurostat, *Economy and Finance, Balance of Payments – International Transactions (BPM6)* (as of 2009).

Table 2

Maximum potential losses of other euro countries if the Greek government and Greek commercial banks declared insolvency and the collateral pledged for refinancing credit loses its value (end of June 2015; billions of euros)

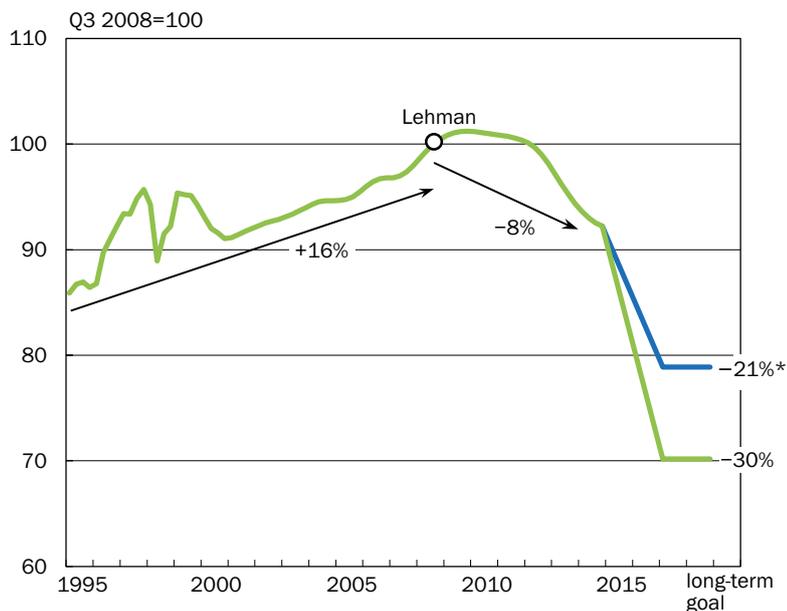
	DE	FR	IT	ES	NL	BE	AT	FI	PT	SK	IE	SI
First Eurozone rescue package (concluded)	15.2	11.4	10.0	6.7	3.2	1.9	1.6	1.0	1.1	0.0	0.3	0.2
First IMF rescue package (concluded; includes repayments until March 2015)	0.5	0.3	0.3	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Second Eurozone rescue package (EFSF)	38.1	28.6	25.2	16.7	8.0	4.9	3.9	2.5	0.0	1.4	0.0	0.7
Second IMF rescue package	0.7	0.5	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.0
ECB purchases of Greek government bonds*	4.3	3.4	3.0	2.1	1.0	0.6	0.5	0.3	0.4	0.2	0.3	0.1
Target liabilities and liabilities due to over-proportionate issuance of banknotes minus Greek Central Bank equity	-1.1	-0.9	-0.8	-0.5	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	0.0
Total	92.0	70.5	61.5	42.2	20.0	12.4	9.7	6.3	4.8	3.0	2.9	1.6

* Greek government bonds acquired by the Eurosystem's other NCBs as part of the Securities Markets Programme (SMP); own extrapolation of the stock as of the end of 2014.

Note: The shares of individual countries in the individual items of financial assistance are as follows: first Eurozone bail-out package: funding actually granted. First and second IMF packages: share in IMF capital. Second Eurozone package: new contribution key after opting out of Greece, Ireland, Portugal and Cyprus. Capital contribution to ESM: it is assumed here that Greece's capital contribution accrues to the other contributing countries according to their capital key. Purchases of Greek government bonds by other NCBs, Target liabilities, the over-proportionate issuance of banknotes, as well as the Greek central bank's claims on the Greek banking system: allocation according to the euro countries' respective current capital key in the ECB's equity excluding Greece.

Sources: See Figure 1 as well as IMF, *IMF Members' Quotas and Voting Power, and IMF Board of Governors*; European Commission, *The Second Economic Adjustment Programme for Greece*; European Financial Stability Facility, *EFSF Investor Presentation*; European Stability Mechanism, *ESM Treaty, consolidated version following Lithuania's accession to the ESM*; European Central Bank, *Capital Subscription*.

Figure 9
Price level of goods produced in Greece in relation to the rest of the Eurozone
(index values)

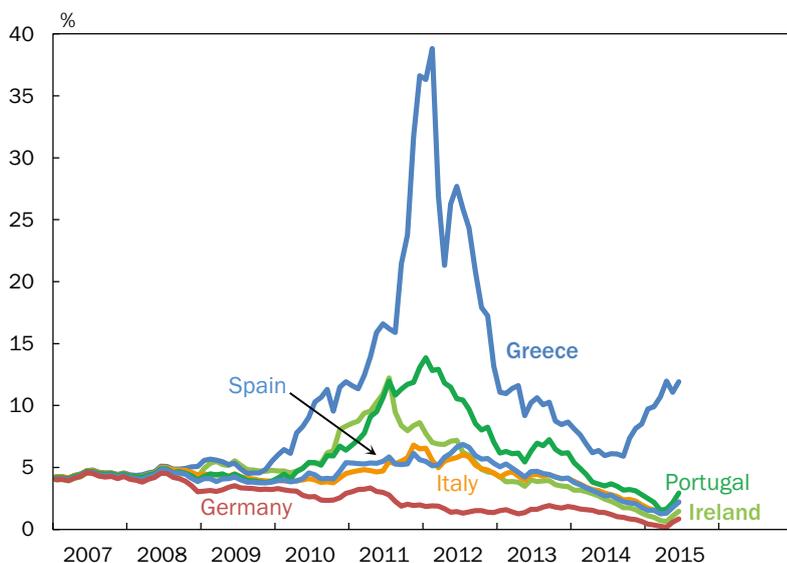


* Revised calculation after the spring 2012 haircut.

Sources: European Commission, Economic and Financial Affairs, *Economic Databases and Indicators*, Price and Cost Competitiveness, Quarterly Real Effective Exchange Rates Compared to the (Rest of) Euro Area, Price Deflator GDP, Market Prices; L. H. W. Nielsen, Goldman Sachs Global Economics, "Achieving Fiscal and External Balance (Part 1): The Price Adjustment Required for External Sustainability", *European Economics Analyst*, Issue No. 12/01, 15 March 2012; and in the same publication, "External Rebalancing: Progress, but a Sizeable Challenge Remains", *European Economics Analyst*, Issue No. 13/03, 17 January 2013.

Note: The chart shows the original values of the real effective exchange rates, as published by the European Commission. These figures basically measure the relation of the price level of domestically produced goods (GDP deflator) relative to the trade-weighted average of the price level of Eurozone trade partners, whereby open exchange rate fluctuations before the introduction of the euro are included. The last data point in the chart corresponds to the 4th quarter of 2014.

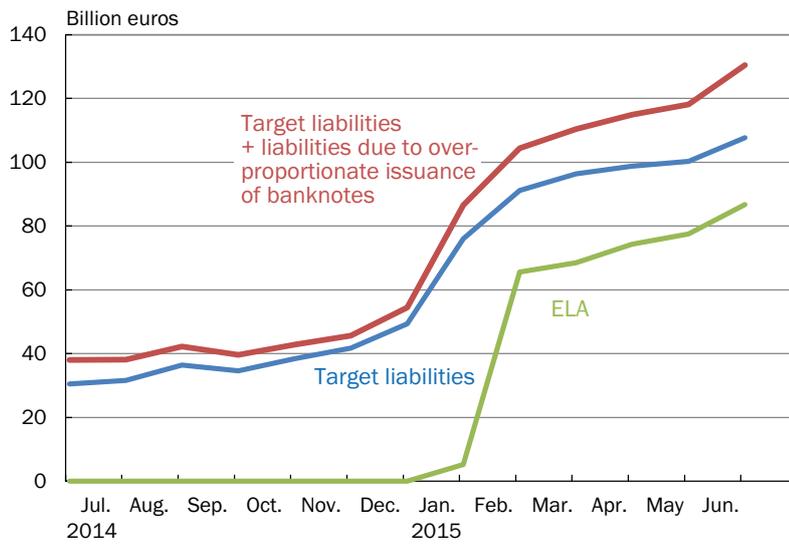
Figure 10
Yields* on crisis-country and German government bonds



*Effective interest rate for 10-year government bonds.

Source: Datastream.

Figure 11
 Greek Target liabilities, over-proportionate banknote issuance and ELA credit



Source: Bank of Greece, Financial Statements.