# Chapter 7
# Europe's Crisis, Coordination Failure, and International Effects

**Stefan Collignon**

**Abstract** This chapter gives an overview of the causes of the European crisis and the consequences for external relations. The euro crisis was triggered by a policy shock in Greece, but occurred on the background of a financial system that had been destabilized by the global financial crisis earlier. Two alternative models are frequently used to explain the crisis: irresponsible fiscal policies by autonomous member states and financial instability that paralyzes the banking system. The chapter finds little evidence for excessive public borrowing and unsustainable public debt. By contrast, the financial crisis in 2008–2009 after the Lehman Brothers' bankruptcy has weakened the balance sheets of banks and the new sovereign debt shock has re-enforced liquidity concerns. Collective action problems and political mishandling by member states have further increased uncertainty, which has spilled over into the real economy. The loss of confidence in European capacity to handle the crisis has contributed to a tendency for the euro to become weaker. Thus, Europe's debt crisis is in reality a political crisis. Either Europe will move forward and deepen its political integration, or it will disappear as a global player and sink into irrelevance.

**Keywords** Debt crisis • Financial crisis • Financial integration • Financial safety net • Fiscal union

S. Collignon (✉)
Sant'Anna School of Advanced Studies, Pisa, Italy

London School of Economics, London, United Kingdom
e-mail: S.Collignon@lse.ac.uk

## 7.1 Introduction

After the Lehman Brothers' bankruptcy in 2008 and the ensuing global financial crisis, the euro crisis began as a local policy shock in Greece when newly elected Prime Minister Papandreou revealed in 2009 that his predecessor had violated the fiscal rules under Europe's Stability and Growth Pact. Due to severe coordination failures and policy mistakes, the Greek problem subsequently developed into a full-blown crisis of the euro that on several occasions threatened the survival of the European currency. Only in 2012 when the president of the European Central Bank (ECB) Mario Draghi declared that the ECB will do "whatever it takes to preserve the euro as a stable currency" and then set up the outright monetary transactions (OMT) program under which the ECB would buy bonds of distressed member states provided they accept serious adjustment programs, did stability return to financial markets (Collignon 2012b). Yet, the real economy keeps stagnating with high unemployment and social turmoil. Fundamental problems of Europe's economic governance remain unsolved.

One of the paradoxes of the euro crisis is that, despite its difficulties, the currency has remained relatively firm in its internal (inflation) and external value (exchange rate). Financial markets may be concerned with some parts of the euro area, mainly in the south (Greece, Cyprus, Italy, Spain, Portugal, and Ireland), but as long as they have no reasons to doubt the political commitment to continue it, the fundamentals behind the exchange rate seem to be stable. However, in the medium to long run the euro will only maintain this role as a global currency if the euro area returns to a reasonable rate of growth. Whatever the ultimate conclusion of the drama, the crisis has shown that Europe needs a much tighter form of economic governance if it wants to live up to the ambition of providing the world's alternative reserve currency. While a series of events has progressively deepened the European crisis, it is important to distinguish between sudden shocks—some economic, some political—and underlying structural problems in Europe's economic governance.

The interactions between shocks and structures have been the specific flavor of this crisis. Remarkable changes have been made to the architecture of the euro area since 2008 (Collignon 2013b). The most important reforms are:

- Setting up the "European semester" of integrated multilateral economic and budgetary surveillance.
- Reforming the Stability and Growth Pact (as part of the "six-pack" set of legislation).
- Setting up a stabilization mechanism consisting of the European Financial Stabilization Mechanism (EFSM), the European Financial Stability Facility (EFSF), both of which were supplanted by a permanent rescue mechanism for member states—the European Stability Mechanism (ESM).
- Introducing a new procedure for macroeconomic surveillance, the Macroeconomic Imbalance Procedure (as part of the "six-pack" set of legislation).
- Introducing two regulations to enhance economic surveillance, coordination, integration, and convergence amongst member states (two-pack).

- Establishing the Treaty for Stability, Coordination, and Governance and the Euro Plus Pact to strengthen budgetary discipline and economic governance among 25 member states.

These reforms were done in an *ad hoc* manner rather than by design. Some may be useful, some harmful, but they are making Europe's economic architecture more complex. They were largely driven by the underlying political analysis of the crisis.

Two explanations for the European crisis are predominant. To "fundamentalists" it was caused by excessive public and private debt and the lack of discipline in sticking to the principles of "a sound and competitive macroeconomic base and solid public finance" (Weidmann 2011). While some observers, many in Germany, have seen the remedy in the implementation of "painful reforms" and harsh fiscal consolidation necessary to rebuild trust and confidence in financial markets, others have emphasized macroeconomic imbalances between member states. In line with this thinking, the European Commission and the European Parliament have set up new European laws to "avoid excessive macroeconomic imbalances."[1] This new set of legislation has been an important step forward in the macroeconomic management of the euro area, but it has not helped to overcome the crisis. To "monetarists," on the other side, the European debt crisis is a liquidity crisis. According to their explanation, a small local liquidity shock can cause a sudden deterioration in a specific class of asset values, which may translate into a global systemic financial crisis. The need for liquidity spills over to banks that will get distressed because the deteriorating asset prices put their balance sheets into difficulties and reduce bank capital (Chacko et al. 2011). This is what happened after the Lehman Brothers' collapse and was then aggravated by the Greek shock. If this is correct, a crisis must be stopped by a lender of last resort that provides the necessary liquidity and stops the crisis from turning into a default avalanche.

These two views resemble the debate in the 1980s regarding the preconditions of monetary union. The economists, as the precursors of today's fundamentalists were then called, claimed that a monetary union was only possible between similar economies, while the monetarists argued that convergence would follow from the new institutions. At that time the conflict was overcome by the Delors Committee that proposed the creation of an independent centralized monetary institution, the ECB, and defined so-called convergence criteria that needed to be met in order to participate in the currency union. This proposal was subsequently enshrined in the Maastricht Treaty (Collignon and Schwarzer 2003). The solution of Europe's debt crisis requires a similar policy compromise between long-term fiscal consolidation objectives and short-term liquidity management. However, a coherent policy approach to Europe's macroeconomic policy mix is unlikely without a proper European economic government.

From a fundamentalist view, Europe's fiscal framework—the Stability and Growth Pact (SGP)—has failed to provide the fiscal discipline required to ensure

---

[1] The legislation was called Six-Pack. (European Commission. EU response to the crisis. http://ec.europa.eu/economy_finance/focuson/crisis/index_en.htm.)

financial stability. For this reason, 25 member states have concluded the Treaty for Stability, Coordination and Governance (the so-called Euro Plus Pact), by which they have committed to introduce a "debt brake" into their national constitutions to strengthen budgetary discipline. They have also agreed on new procedures for fiscal coordination during the so-called European Semester[2] and tighter surveillance by the European Commission.

However, in some member states, most notably in Ireland and Spain, the crisis was driven by private debt generated during an unsustainable property bubble. Excessive private borrowing was financed by current account surpluses in the north, most importantly in Germany. When the bubble burst, governments had to bail out local banks and this also caused an explosion of public debt. As a consequence, fundamentalists argued that, even in a monetary union, national current accounts must be balanced, and the new Macroeconomic Imbalance Procedure[3] served this purpose. Again, these policies can be questioned on theoretical and empirical grounds. Within a monetary union, current account deficits are financed by monetary flows in domestic currencies that are facilitated by the banking system, and not by foreign currency transfers that require earning foreign exchange. Balancing current accounts by imposing severe austerity increased the risks of debt default and further destabilized the banking system in the euro area as a whole. In recent years, current account deficits have fallen in the south because austerity has reduced import demand, but this is not the solution to economic instability in the euro area.

Nevertheless, despite the institutional fragility, the euro crisis started as a genuine liquidity crisis that pushed the banking system to the brink. Trouble began in 2008 when the Lehman Brothers' collapse caused a banking crisis and plunged the world into a deep recession. As a consequence of the resulting output and revenue losses, concerns about the debt position of member states in the euro area arose, but a second shock made things worse in 2009 when European policymakers discovered that the Greek government had violated the rules of the SGP for years. This disclosure immediately destabilized financial markets. The situation worsened further when the German government refused bailout packages, and talked about expelling Greece from the euro area. Risk-averse markets became reluctant to hold bonds from Greece, Ireland, and Portugal and soon bond yields shot up for Spain, and later for Italy and France as well.

---

[2] The European Semester represents a yearly cycle of European Union (EU) economic policy guidance and country-specific surveillance. Each year the European Commission undertakes a detailed analysis of EU member states' programs of economic and structural reforms and provides them with recommendations for the next 12–18 months. (The European Semester. http://ec.europa.eu/economy_finance/economic_governance/the_european_semester/index_en.htm.)

[3] The Macroeconomic Imbalance Procedure is a surveillance mechanism that aims to identify potential risks early on, prevent the emergence of harmful macroeconomic imbalances, and correct the imbalances that are already in place. (Macroeconomic Imbalance Procedure. http://ec.europa.eu/economy_finance/economic_governance/macroeconomic_imbalance_procedure/index_en.htm.)

These developments reflected a lack of trust in the European Union's (EU) institutional and political capacity to handle the crisis.

In May 2010 the crisis had attained systemic proportions. The European Council was forced to create the European Financial Stability Facility (EFSF) by which euro member states provided a mainly credit-funded facility to lend to small countries that had lost access to capital markets.[4] For financial markets the EFSF offered too little too late. When financial crisis contagion spilled over into large member states, especially into Italy, it became obvious that the original EFSF bailout fund was insufficient and the European Council had to increase the fund's resources from the initial amount of €440 billion to €780 billion in July 2011. Yet again, this was not enough. Given that Italy had to refinance approximately €350 billion in 2012 and there were large liquidity risks for lenders, the European Council in October 2011 agreed to leverage the EFSF up to €1 trillion, although by mid-November it became clear that this had failed again to calm the markets. At that point, the prime ministers of Italy and Greece, Berlusconi and Papandreou, resigned, and the European Central Bank recurred to unconventional monetary policies by conducting long-term refinancing operations amounting to nearly €1 trillion with a maturity of 36 months (ECB 2011). Thereafter, a temporary reprieve was gained until markets again started to doubt the political commitment to sustain the euro.

No doubt, fundamental factors played a role too. Highly indebted member states faced important structural problems. Contrary to the situation in Germany, their governments had not undertaken structural reforms during the years of the euro area boom.[5] One problem was that, as a consequence of falling and low interest rates in the 1990s and early 2000s, the capital productivity in southern member states had started to slow down. This caused them to lose competitive advantages and they became more vulnerable to large shocks. These structural handicaps did require—and still do require—deep reforms, although it will take time before tangible results are visible. In the meantime, governments could either finance deficits until the reforms have improved economic performance, or they could implement austerity measures that would reduce demand. Fundamentalists were critical of the first option because it carried the risk of excessive deficits and unsustainable debt. Monetarists criticized the second option, because it could bring the reform process to a halt, when excessive austerity was becoming socially unsustainable. The EU tried to steer a middle path. To accommodate the fundamentalists, the ECB liquidity-providing measures were subject to severe conditions of fiscal consolidation in borrowing countries. Yet, the severe budget consolidation programs did not bring down public debt. In Greece, economic growth has consistently been negative

---

[4] In October 2012, this temporary facility was transformed into a permanent European Stabilization Mechanism (ESM). The ESM issues debt instruments in order to finance loans and other forms of financial assistance to euro area member states. (European Stabilization Mechanism. http://www.esm.europa.eu/index.htm.)

[5] There are doubts whether governments will ever undertake structural reforms without crises. German reforms of the labor market were certainly a response to the decade of economic stagnation that followed unification.

and the deficit stabilized in 2011 at rates close to 6 % of gross domestic product (GDP), although Greece is expected to achieve primary balance in 2013 (European Commission 2013). The ratio of public debt to GDP in 2012 was 156.9 %, down from 170.3 % in 2011, a reduction mainly driven by the debt buy back completed on 11 December 2012. Nevertheless, large deficits persist everywhere, because the lack of domestic demand in the highly indebted countries is reducing revenue and low growth is undermining the confidence of financial markets. Monetarists have therefore argued that there was an increasing need for bailing out member states that had lost access to capital markets. But this was also problematic, as a general bailout commitment could have generated moral hazard, while the volumes of financial bailouts were becoming increasingly more awesome. While the EU could bail out Greece, for larger member states like Italy this is impossible. Thus, the uncertainty about policy commitments by member state governments has fuelled high volatility in European financial markets. By mid-2012, there was a real danger that the euro area could fall apart. At that point, ECB President Mario Draghi did what governments had failed to do by creating the outright monetary transaction (OMT) program. Financial markets were appeased and since then the euro crisis has abated.

The diverging opinions about policy options may be normal in a pluralist society, but in Europe they create fault lines between member states. There is no doubt that the fragility of Europe's governance structures has at least contributed to, if not been the cause, of the euro crisis. The system seemed to have worked well during the benign first decade of the European Monetary Unit (EMU), but it seems it was no longer able to cope with the policy requirements in the crisis.

## 7.2 Economic Fragility of the Euro Area

### Market Worries and Liquidity

When the Maastricht Treaty was established, it centralized monetary policy in a new institution, the ECB; fiscal policy remained decentralized with member states retaining control over their budgets. Nevertheless, the treaty[6] set up a loose policy framework for avoiding excessive deficits. A surveillance procedure was set up where the European Commission would check that budget deficits of member states would remain below 3 % of GDP and debt would not stay persistently above 60 %. The excessive deficit procedure (EDP) in the European Treaties was operationalized in the SGP through European secondary legislation by setting up "preventive" and "corrective" arms that assure member states avoid excessive

---

[6] Initially the Maastricht Treaty, now the Treaty on the Functioning of the European Union (TFEU), article 126.

deficits, and, if they arise, they adopt appropriate policy responses to them.[7] If a member state violated these criteria, the European Council could impose penalties, although this has never happened.

The Treaty on the Functioning of the European Union (TFEU) (or Lisbon Treaty) article 125 was interpreted as stipulating that national governments ought not to be bailed out by other member states or the EU, so that markets had to shoulder the full risk of a default and carefully assess the creditworthiness of borrowers. It was believed that yield spreads would reflect differences in credit standings, because the SGP and the European fiscal framework were insufficient to ensure that all member states have the same creditworthiness. Yield differentials would then signal market perceptions of fiscal vulnerability and, since higher bond yields imply higher debt service costs, they would impose market discipline on national governments' fiscal policies. The impact of even small differentials could be substantial in countries like Greece, Italy, and Belgium, where debt exceeded GDP, and even a tenth of a percent spread (ten basis points) increases government outlays by more than 0.1 % of GDP (Codogno et al. 2003).

However, it is now clear that this mechanism has failed. Markets first underpriced the default risk with only about 20 basis points above German debt, and then overshot after the Greek elections revealed the breakdown of the SGP. Figure 7.1 shows that before the crisis in 2008–2009, government bonds of all member states in the EU traded at similar returns as those in Germany. Yields increased moderately after the Lehman Brothers' collapse, but quickly came down again. The game changed in 2009 with the Greek shock that raised questions about how sustainable the Greek debt actually was. Yield spreads shot up and soon risk considerations spilled over to other southern debtors.

Clearly, markets became weary about sovereign defaults. This is also evident from the prices for credit default swaps, an insurance premium that is paid to protect against defaults (Fig. 7.2). The price of credit default swaps rose everywhere after the Lehman Brothers' crash, and then fell again in 2009. But the default risk reflected in credit default swaps increased steadily in all euro area member states after the election of Greek Prime Minister Papandreou in late 2009. However, the risk assessment clearly diverged between states. In Germany the price for credit default swaps did not reach $200, while in Greece it climbed to $4,617 in Greece on 16 September 2011. Even in Japan, where the debt to GDP ratio is 220 %, credit default swaps never cost more than in France. The creation of the EFSF in May 2010 provided temporary relief, although market confidence deteriorated further soon after. The increase of funds in July 2011 also had only a very short-term effect. However, there is not an obvious correlation between debt or deficit ratios and yield spreads. Spreads have increased for governments with high (Greece and Italy) and low (Spain and Ireland) debt *levels*; they have remained low in member states with

---

[7] The Stability and Growth Pact is secondary legislation in the form of two Council Regulations (EC Council Regulation 1466/97 and 1467/97). The Council Regulations were amended by the reform of the SGP in 2005 (EC Council Regulations 1055/2005 and 1056/2005).
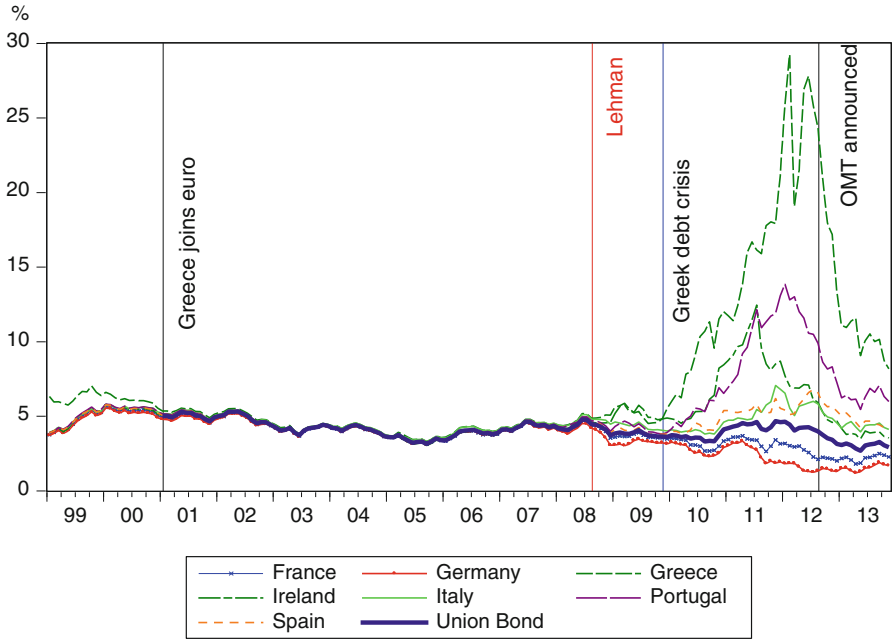
**Fig. 7.1** 10-year government bond yields. *Note*: Union Bonds are the weighted average of all euro area yields (see below). *OMT* outright monetary transactions. *Source*: Bloomberg. www.bloomberg.com (accessed January 2014)
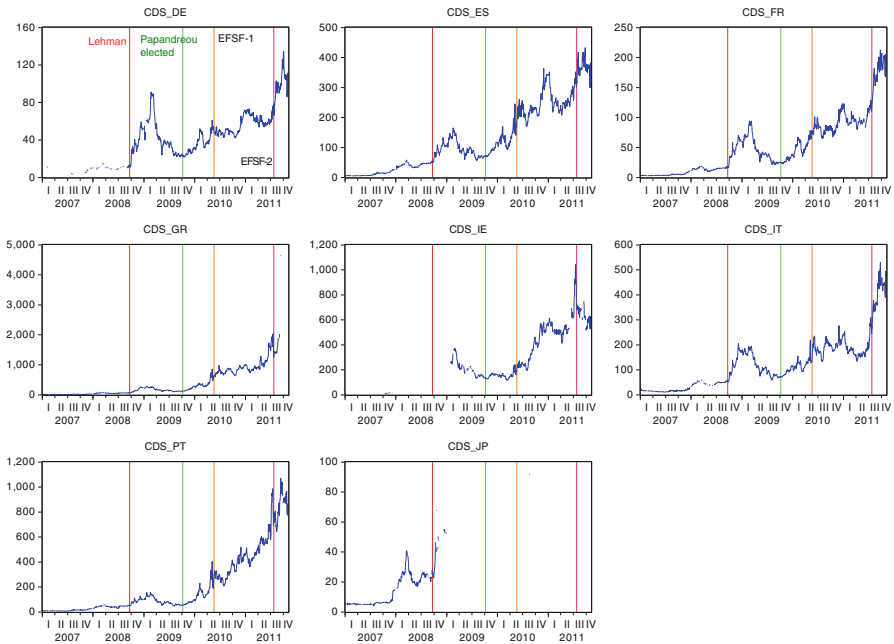


**Fig. 7.2** Prices for credit default swaps. *CDS* credit default swap, *DE* Germany, *ES* Spain, *FR* France, *GR* Greece, *IE* Ireland, *IT* Italy, *JP* Japan, *PT* Portugal. *Source*: Bloomberg. www.bloomberg.com (accessed February 2012)
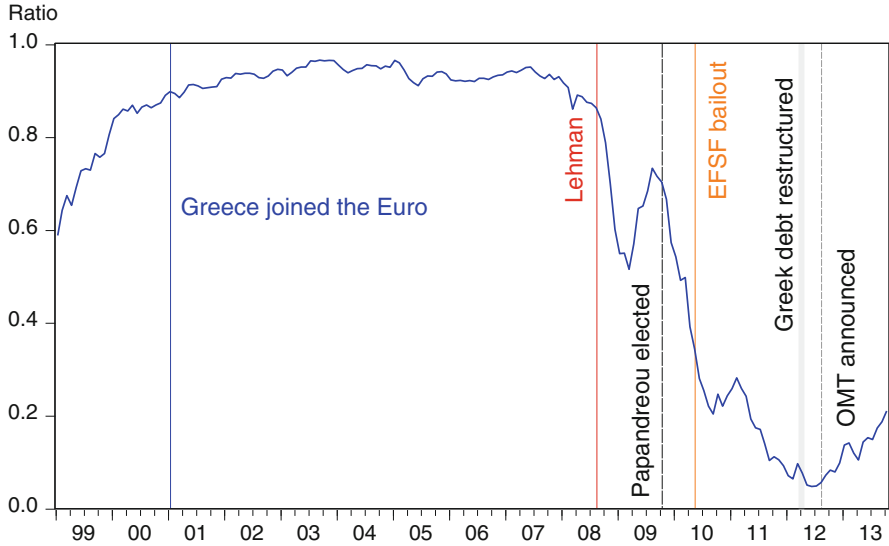
Ratio



**Fig. 7.3** Greek 10-year government bond prices relative to German bund. *EFSF* European Financial Stability Facility, *OMT* outright monetary transactions. *Source*: Bloomberg. www.bloomberg.com (accessed January 2014); author's calculations

relatively high *deficits* (Germany and France), but also risen in member states with low deficits (Italy). This is puzzling, for it looks as if neither the level nor the dynamics of the debt ratio can explain why markets were nervous. This must mean that economic fundamentals were only one of many reasons for the European crisis. The other reason was the liquidity shock, which was enlarged by the political mishandling of the crisis.

The explosion of yield spreads was a consequence of a market run which reflected the expected rising probability of a sovereign default. Bondholders sought to realize liquidity before prices fell further. The herding effect in markets then generated a self-fulfilling prophecy. Figure 7.3 shows the deterioration of Greek bond prices relative to German bond prices implicit in the yield spread. From 2002 to 2007, yields on 10-year government bonds in Greece and Germany were stable and nearly identical. After Papandreou's revelation of the true deficit, Greek bond prices fell, and Germany became the safe reserve asset, which pushed German bond prices up and yields down. Thus, the relative price of Greek bonds fell to an absolute low of 5 % of German bonds, before the Greek debt was restructured in March–April 2012. Prices started to improve thereafter, and especially after the ECB announcement of the OMT program. Such price developments must have caused a massive reallocation of resources and potentially important distortions in banks' balance sheets. To prevent a further collapse of asset prices, and then of banks, European governments or the ECB had to bail out Greece, and later Ireland and Portugal. Having first argued wrongly that the Lisbon Treaty prohibited

sovereign bailouts, policymakers now discovered correctly that the wording of the TFEU article 125 only barred the "assumption" of debt, but did not prevent the EU from making loans.[8] This new interpretation made it possible to set up the EFSF and establish the ESM although bailouts undertaken under these programs were conditional on very strict and harsh austerity measures.

## *European Debt in Context*

Markets feared that sovereign debtors in Greece and elsewhere would default, because their debt levels were possibly unsustainable. This raises the question how much debt is sustainable and where the danger zone begins. According to the standard fundamentalist argument, distressed southern European member states in the euro area got into trouble because they had accumulated excessive debt by irresponsible behavior. Hence, accelerated fiscal consolidation and harsh austerity measures were needed to bring affairs back in order. Sometimes it was added that the debt problems were generated by lack of competitiveness and current account imbalances that required painful macroeconomic adjustment. However, the evidence supporting these arguments is not clear-cut.

Figure 7.4 shows the evolution of debt to GDP ratios for the euro area as a whole and for the United States (US) and Japan. In Europe, government debt fell from 74 % in 1996 to 67 % in 2007; since then it has jumped to 89 %. In the US it fell during the Clinton years (1992–2000) from 77 % to 55 %, and then rose again under Bush (2000–2007) to reach 85 %. However, following the 2008–2009 global financial crisis, the US debt ratio climbed to 99 %. This is still far below the Japanese debt ratio, which stood at 67 % in 1991 and is now 220 %. The relative importance of public debt in absolute terms is clear from Table 7.1, which also shows the share of euro area member states in the total outstanding public debt of €9 trillion. Japan carries a debt stock of nearly the same size, but in the US it is €13.2 trillion, more than 45 % higher. Public debt per person is lower in Europe (with the exception of Ireland) than in the US and Japan. However, with respect to deficits, the situation is different. In 2013, the euro area borrowed €290.9 billion, while the US deficit was 2.8 times as much and Japan's deficit 23 % higher.

---

[8] TFEU, article 125.1 says: "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." Hence, the prohibition concerns assuming liabilities by another state, which means one country's liability becomes another country's liability. By contrast, making loans increases liabilities for the borrower and generates assets for the lender. The argument that the EFSF breaks the treaty provision of "no bailout" confuses assets and liabilities. The Maastricht Treaty prohibits, rightly or wrongly, a "federalization" of member state debt of the kind that took place in the United States in 1792, when Alexander Hamilton assumed state debt by the federal government in order to stabilize financial markets, but it does not prevent governments from making loans to other governments.
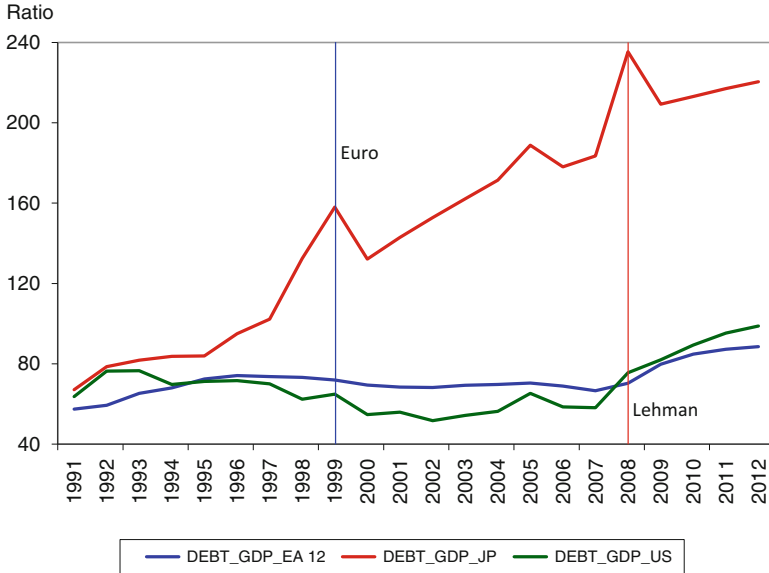
**Fig. 7.4** Debt to GDP ratios. *EA* euro area, *GDP* gross domestic product, *JP* Japan, *US* United States. *Source*: Eurostat. http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/ (accessed December 2013)

Thus, the euro area's overall debt performance should be more sustainable than in the US or in Japan.

However, Europe's problems do not emerge from the aggregate, but from particular member states. Given the different size of member states, the relative weight of debtors is unequally distributed. Germany is Europe's biggest sovereign debtor with €2.1 trillion in outstanding debt and a share of 24.0 %, followed by Italy (22.8 %) and France (21.3 %). Greece's public debt of €322 billion represents only 3.5 % of total debt in the euro area (Table 7.1). With respect to new borrowing, France exceeds all others, followed by Spain and Italy; while Germany's net borrowing has nearly stopped. The annual deficit for 2013 was estimated to be €85.8 billion in France, nearly twice as much as Italy. Greece was still borrowing €24.8 billion, which represented a share in new borrowing well above its share in the outstanding debt stock. This was also true for Spain, Ireland, and Portugal. Among the non-euro member states, the United Kingdom (UK) borrowed far more than any other euro member, with €120.1 billion, which amounts to 41 % of the euro area's new borrowing.

Table 7.1 also shows the changes of the debt ratio since 2007. Debt levels have increased everywhere, but least in Sweden and Bulgaria. The highest increases relative to initial levels have been, not surprisingly, in Ireland, Spain, Portugal and Greece (where debt was restructured). Yet, debt has increased in relative terms at least as much in the non-euro countries of Romania, Lithuania, Latvia, and the

**Table 7.1** Public debt and deficits of euro area member states and other countries

| | Debt in 2013 € billion | Country share (%) | Debt per head € thousands | Debt to GDP level in 2007 | Absolute change 2007–2013 | Relative change 2007–2013 (%) | Deficit in 2013 € billion | Country share (%) |
|---|---|---|---|---|---|---|---|---|
| **Euro area 12** | 9086.7 | 100.0 | 28.2 | 66.6 | 29.7 | 44.5 | −290.9 | 100.0 |
| Germany | 2177.7 | 24.0 | 26.5 | 64.9 | 14.7 | 22.6 | −1.0 | 0.3 |
| **Italy** | 2073.1 | 22.8 | 34.7 | 103.6 | 29.4 | 28.4 | −44.3 | 15.2 |
| France | 1932 | 21.3 | 29.4 | 63.8 | 29.7 | 46.5 | −85.8 | 29.5 |
| **Spain** | 966.6 | 10.6 | 21.0 | 36.1 | 58.7 | 162.5 | −69.1 | 23.8 |
| Netherlands | 451.3 | 5.0 | 26.9 | 45.3 | 29.5 | 65.2 | −19.8 | 6.8 |
| Belgium | 385.7 | 4.2 | 34.4 | 84.2 | 16.2 | 19.3 | −11.1 | 3.8 |
| **Greece** | 322.2 | 3.5 | 28.5 | 105 | 71.2 | 67.8 | −24.8 | 8.5 |
| Austria | 235.4 | 2.6 | 27.7 | 59.3 | 15.5 | 26.2 | −7.8 | 2.7 |
| **Ireland** | 206 | 2.3 | 44.5 | 25 | 99.4 | 397.5 | −11.9 | 4.1 |
| **Portugal** | 211.3 | 2.3 | 20.2 | 62.7 | 65.1 | 103.9 | −9.8 | 3.4 |
| Finland | 114.3 | 1.3 | 21.0 | 35.2 | 23.2 | 65.9 | −5.1 | 1.8 |
| Slovakia | 39.56 | 0.4 | 7.3 | 29.6 | 24.7 | 83.6 | −2.2 | 0.8 |
| Slovenia | 22.08 | 0.2 | 10.7 | 23.4 | 39.8 | 169.9 | −2.0 | 0.7 |
| Cyprus | 18.87 | 0.2 | 21.6 | 58.3 | 57.7 | 99.0 | −1.3 | 0.5 |
| Malta | 5.16 | 0.1 | 12.2 | 61.7 | 10.9 | 17.6 | −0.2 | 0.1 |
| Estonia | 1.846 | 0.0 | 1.4 | 3.7 | 6.3 | 169.8 | −0.1 | 0.0 |

|  |  | *relative to EA* |  |  |  |  | *relative to EA* |
| --- | --- | --- | --- | --- | --- | --- | --- |
| United Kingdom | 1779.6 | 19.6 | 27.8 | 44.5 | *49.8* | *111.9* | −120.1 | 41.3 |
| Poland | 226.1 | 2.5 | 5.9 | 45.0 | *13.2* | *29.3* | −18.8 | 6.5 |
| Sweden | 174.3 | 1.9 | 18.1 | 40.0 | *1.3* | *3.3* | −4.5 | 1.6 |
| Denmark | 110.1 | 1.2 | 19.7 | 27.3 | *17.0* | *62.2* | −4.7 | 1.6 |
| Hungary | 79.15 | 0.9 | 8.0 | 66.1 | *14.6* | *22.1* | −3.1 | 1.1 |
| Czech Republic | 73.49 | 0.8 | 7.0 | 29.0 | *20.0* | *69.1* | −4.3 | 1.5 |
| Romania | 54.56 | 0.6 | 2.6 | 12.6 | *25.9* | *205.9* | −3.5 | 1.2 |
| Lithuania | 13.85 | 0.2 | 4.7 | 16.9 | *23.0* | *136.2* | −1.0 | 0.4 |
| Latvia | 9.9 | 0.1 | 4.9 | 9.0 | *33.5* | *371.7* | −0.3 | 0.1 |
| Bulgaria | 7.97 | 0.1 | 1.1 | 17.2 | *2.2* | *13.0* | −0.8 | 0.3 |
| United States | 13201.9 | 145.3 | 41.8 | 62.4 | *42.3* | *67.8* | −806.4 | 277.2 |
| Japan | 9151.4 | 100.7 | 71.8 | 187.7 | *55.7* | *29.7* | −359.5 | 123.6 |

*EA* euro area, *GDP* gross domestic product. Crisis countries shown in bold

*Sources*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm; ECB for member state shares in ECB capital. http://www.ecb.europa.eu/ecb/orga/capital/html/index.en.html (accessed December 2013)

United Kingdom (UK).[9] Within the euro area, Malta, Belgium, and Germany had the lowest debt increases. On average, performance is worse outside the euro area, which could indicate that the fiscal rules in the euro area have effectively constrained public borrowing.[10]

Figure 7.5 shows the evolution of debt ratios over time for selected member states. Their performance is very diverse. Prior to the Lehman Brothers' crisis in 2008, debt ratios had fallen in Ireland, Spain, and Italy, remained stagnant in Greece and the UK, but had risen in Germany, France, and Portugal, as well as in the US. Greece and Italy had debt levels close to 100 % of GDP and only Ireland, Spain, and the UK had remained well below the required 60 %. However, the shock of the global financial crisis pushed debt up everywhere, although it affected member states unevenly.

These data do not show any significant correlation between the debt levels or their changes and the financial vulnerability revealed by the yield spreads on government bonds in Fig. 7.1. Financial markets seem to have criteria for evaluation, which are different from fundamentals, and this is why political action is required to remove distortions and market failure.[11] To prevent market failure from turning into a systemic run, authorities must provide liquidity to markets. However, European governments keep bickering and are drawn into collective action dilemmas, where the attempt to minimize national costs leads to a suboptimal outcome for all.

## Economic Fundamentals and European Public Debt

Europe's debt problems occurred on the basis of long run structural deficits that were not corrected during the benign first decade of the EMU, despite the imperatives of the SGP. They turned into an acute confidence crisis when the global recession caused a major liquidity shock after Lehman Brothers collapsed. This recession reduced revenue for all governments,[12] and pushed up debt. The importance of the 2008–2009 global financial crisis is often underestimated for the euro debt crisis because fundamentalists blame the lack of discipline

---

[9] Latvia joined the euro area on 1 January 2014.

[10] This statement is also supported by regressing the deficit share on the debt share, which yields a coefficient of 0.8789 for the euro area and 1.161 for non-euro states.

[11] Some observers believe in market perfection and argue that sustainable debt is whatever markets believe it to be. This rejoins the Keynesian hypothesis of a beauty contest, where newspaper readers are asked to vote for whom they think will win the competition. But this implies that there is no stability in public debt dynamics and markets would behave irrationally. While psychological factors and herding may explain temporary deviations from equilibrium, government intervention can prevent a systemic breakdown and return market sentiment to a more stable path.

[12] The income elasticity of government revenue relative to GDP is close to 1 (European Commission 2011b).
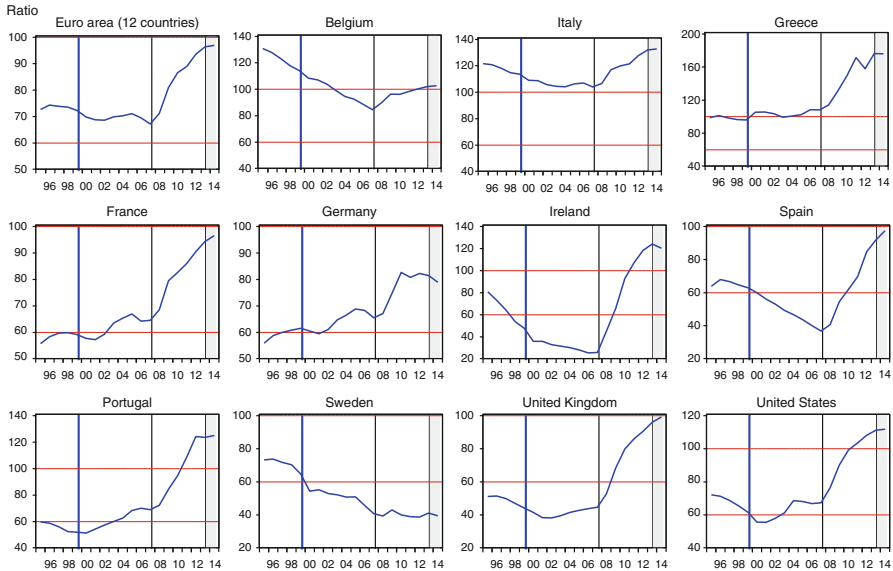
**Fig. 7.5** Debt to GDP ratio for EU member states and United States. *EU* European union; *GDP* gross domestic product. *Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed May 2013)

in fiscal behavior. Although it cannot be ignored that mistaken policies have contributed to the crisis, using debt or deficit ratios can give misleading evidence.[13] In order to enable comparisons between member states, the analysis of public finances usually refers to debt and deficit ratios relative to GDP. However, if government revenue is a stable proportion of GDP, but expenditure is exogenous, a drop in GDP will appear as an increase in the spending ratio, while the revenue effect is underestimated. The policy conclusion is that spending must be reduced, and this will slow down growth and public revenue. Because the drop in GDP distorts the ratio, it is more appropriate for assessing the crisis effect to look at absolute amounts of expenditure, revenue, and deficits.

Greece is the paradigmatic example. Figure 7.6 shows expenditure, revenue, and deficits. The deficit had already started to deteriorate after 2007, when the GDP growth rate had slowed down; it exploded after the Lehman Brothers' crash when GDP growth became negative. Expenditure increased at a linear trend until the last quarter of 2009, when Prime Minister Papandreou took over, but revenue fell as GDP shrank. Under pressure from European authorities to return to the SGP criteria, public expenditure was cut and this had the effect of reducing the need

---

[13] The European Commission's reformed surveillance method of the SGP makes the same mistake in that it calculates the expenditure benchmark for avoiding excessive deficits with reference to GDP growth.

**a** % of GDP
## Growth and public finance

Revenue
Expenditure
Deficit

**b** Quarterly, million euros
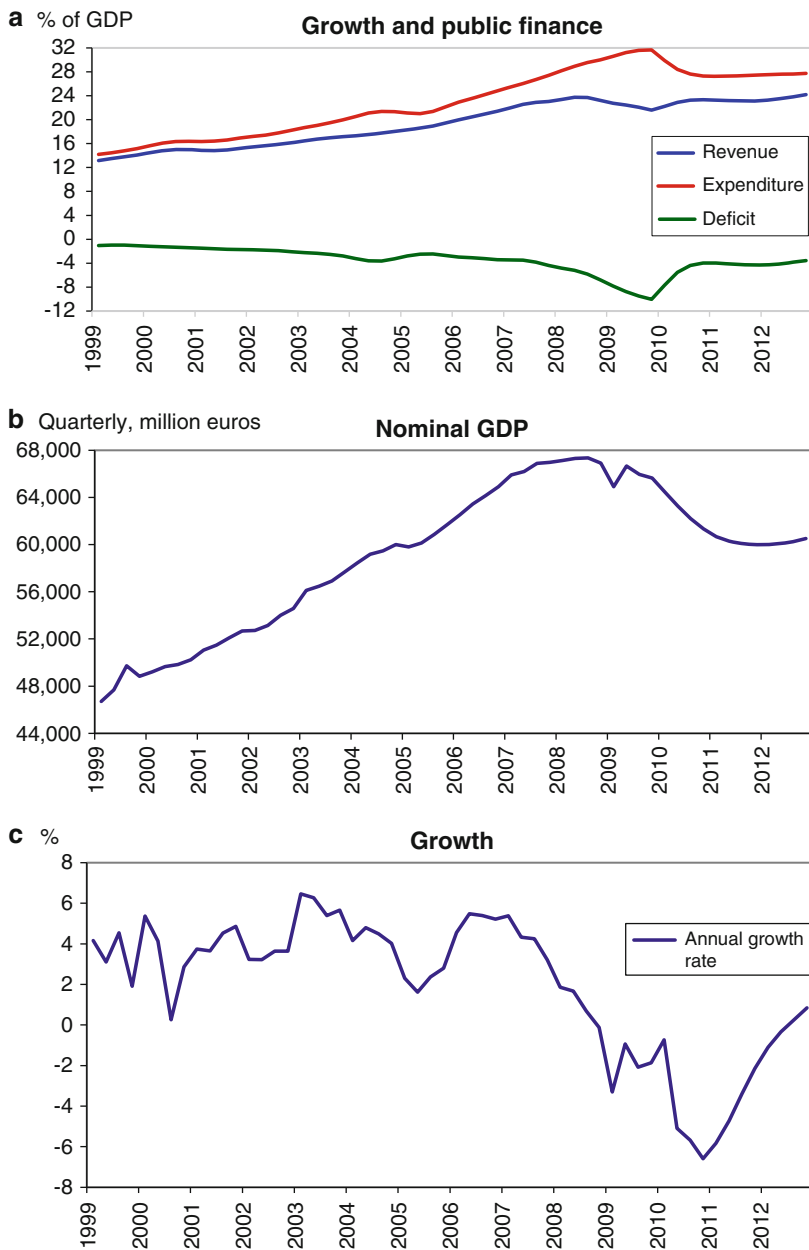## Nominal GDP

**c** %
## Growth

Annual growth
rate

**Fig. 7.6** Greece. *GDP* gross domestic product. *Source*: European Commission. AMECO database; Eurostat for quarterly accounts. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed February 2013)
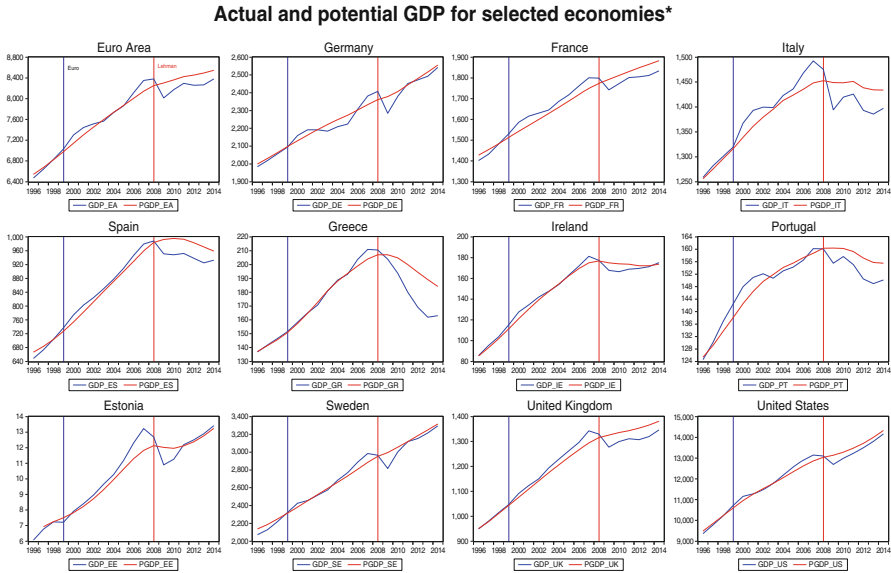
**Actual and potential GDP for selected economies***



**Fig. 7.7** Nominal GDP in major economies. *Note*: *Values shown on vertical axis are million euros for euro area and European economies; million pounds sterling for United Kingdom; million US dollars for United States. *GDP* gross domestic product, *PGDP* potential gross domestic product. *Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed December 2013)

for new public borrowing. However, Greece's GDP has continued to fall and the deficit persists, so that the debt ratio continues to climb.

The situation in Greece is different from the performance in other countries, where economic growth has picked up and became positive in 2010, although the output losses of 2009 have had lasting effects and still contribute to the structural deterioration of public finances in all countries (Fig. 7.7).

The slow return to growth is a consequence of the harsh consolidation programs imposed by European authorities. The lack of effective demand has pushed actual GDP below potential output and output gaps became negative everywhere. Figure 7.7 shows evidence from the euro area, some selected member states, and the US. The fall in income is significant everywhere. In the euro area as a whole, and especially in the crisis economies in the south, actual GDP is lagging far behind potential. By contrast, in the US the gap is closing again.

While most economies outside Europe have managed to slowly return to the growth path of their potential capacity, the euro area has failed to do the same. The difference between the US and Europe is revealing. In the US, domestic demand, that is, the mix of private and public consumption and investment, has picked up and is nearly absorbing potential output again. In the euro area, domestic drivers of growth are by and large absent and the little demand there is comes from net exports into the rest of the world. Furthermore, we observe that the growth of potential output has slowed down since the crisis started. Thus, the crisis has not only done temporary damage, which will be overcome in time, but it has also done structural

damage, which will not improve without counteracting policies. With lower investment, potential output is shrinking, because employment is destroyed, skills are eroding, labor force participation rates are falling, and productive infrastructure is worn out. These depressing effects will prevent the consolidation of public debt and raise the probability of private sector defaults and bankruptcies. The euro crisis is the manifestation of such a negative feedback loop. A closer look also reveals that Europe's problems were sharpened by a premature and overly rapid exit of stimulative fiscal and monetary policies in 2010 (Collignon 2013a).

These observations reveal a deeper problem with Europe's fiscal rules. The SGP stipulates specifically that the corrective arm of the pact is suspended when a member state's economy shrinks by more than 1.7 %. However, it does not give criteria for ending the suspension. Presumably the corrective procedures are put back into motion as soon as the critical shrinkage has stopped and growth returns. But this is too early, as it implies that budgets would have to be adjusted to the lower output level. This early adjustment will prevent growth and output from returning rapidly to its normal steady state. Furthermore, if the demand restraints contribute to lower investment and employment, long run growth is persistently impaired. Hence, if a large part of the deficit is caused by a revenue gap after a severe output shock, it might be more appropriate to smoothen the adjustment over time. A simple rule to achieve this would be to freeze nominal expenditure until the pre-shock output level has been reached again and let the deficit adjust endogenously during this period. Once the previous GDP level has been surpassed, the ordinary preventive and corrective mechanisms of the SGP should be fully implemented again.

## Debt Sustainability

Given that excessive austerity will lower growth, increase default risk, and push up interest rates that in turn will lower growth, a vicious circle must be avoided by stretching fiscal adjustment over time. The question then emerges whether the rising public debt during the adjustment period remains sustainable. The well-known formula for debt dynamics says that the debt ratio increases by a snowball effect minus the primary surplus. The snowball effect is determined by the difference between interest and growth rates (sometimes called the growth-adjusted interest rate) multiplied by the debt ratio; the primary surplus must compensate this effect if the debt ratio is to remain stable. Hence, the larger the growth-adjusted interest rate and the larger the debt ratio, the more difficult it is to finance public debt. This difficulty can lead to multiple equilibriums and self-fulfilling prophesies when doubts about the solvability of debtors lead investors to sell bonds, thereby further pushing up interest rates This logic also applies to excessive austerity policies that lower growth and raise fears about the debtor's solvency, which will further increase debt spreads and deteriorate the primary budget position via lower revenue.

There is a clear criterion for assessing debt sustainability: fiscal policy must fulfill the intertemporal budget constraint. This means that today's debt must be paid back by future primary surpluses. Hence the debt ratio can temporarily deteriorate, as long as it will improve in the future. Sustainability does not require that the debt ratio is stable and constant at all times. How can we judge that this condition is fulfilled? It turns out that there is a very simple condition that makes public debt sustainable (Collignon 2012a). The condition is derived from a system of two differential equations, one describing the intertemporal budget constraint (7.1), the other describing the fiscal policy reaction function stipulated by the EDP and the SGP (7.2).

The well-known intertemporal budget constraint is:

$$\Delta d = (r - y)d - s \tag{7.1}$$

with $r$ standing for the real interest rate and $y$ for the growth rate (and the difference is the growth-adjusted real interest rate). $(r - y)d$ is the snowball effect. The EDP-rule for the policy reaction is described as

$$\Delta s = \alpha(def - z_1) + \beta(d - z_2) \tag{7.2}$$

where $def$ stands for the deficit/GDP ratio and $d$ for the debt/GDP ratio and $s$ is the primary surplus (that is, the surplus of government revenue over expenditure net of the debt service), $z_1$ is the deficit target and $z_2$ the debt target. A government has two ways of reacting to an excessive deficit: it may correct the excess borrowing by bringing the deficit down by a fraction alpha of what is required to reach the target. For example, if the deficit is 4 % while the target is 3 %, a coefficient $\alpha = 0.5$ means that the budget correction is half a percentage point of GDP. Similarly, $\beta$ is a coefficient for correcting the excess of the debt ratio over 60 %. The recent reform of the SGP sets $\beta$ now normatively at 5 % (European Commission 2011a).

The solution for this system of two differential equations has two parts. First, the steady state of the debt/GDP ratio is determined by the following formula:

$$\overline{d} = \frac{\alpha z_1 + \beta z_2}{\alpha(y + \pi) + \beta}$$

It turns out that the steady state evolves as a function of the targeted policy objectives, the size of the reaction coefficients alpha and beta, and the nominal growth rate of GDP. If policy focused only on debt levels and ignored deficits ($\alpha = 0$) the steady state of the debt to GDP ratio will be the debt target of 60 %. If $\beta = 0$, the steady state debt level will vary with the nominal growth rate. Nevertheless, as the nominal growth tends to zero, the debt-GDP ratio would tend to infinity. Fiscal policy rules that focus on $\beta$, that is, on correcting debt levels, are therefore more likely to generate stable debt levels. From this point of view the recent reform of the SGP is to be welcomed. If both coefficients are positive, debt ratios will converge to lower levels. However, the more economic growth falls,

the more important it becomes to focus on the debt rule rather than on the deficit rule, for otherwise the long run equilibrium debt will rise to very high levels. Japan is an example for such high steady state debt levels, as nominal growth tended to zero.

The second part of the solution determines the conditions under which the actual debt ratios will converge to the steady state. Whether the debt dynamics are stable, depends on how quickly governments react to the violation of the EDP and on the macroeconomic environment. The conditions for stability are:

1. *If $\alpha = 0$ : $\beta > (r - y)^2$*
2. *If $\beta = 0$ and $r > y : \alpha > r - y$ is the sufficient condition*
3. *If $\beta = 0$ and $r < y : \alpha > \left( \sqrt{r + \pi} - \sqrt{y + \pi} \right)^2$ is the sufficient condition*

These conditions boil down to the simple statement that public debt is sustainable, and therefore that sovereign solvency is guaranteed, as long as the primary budget position is adjusted by more than the growth-adjusted real interest rate. In normal times this is a fairly soft requirement. Collignon (2012a) shows that this condition has been fulfilled on average over the last 20 years. Although beta is rarely significant in Europe, alpha varies in the range of 16 % (Belgium) to 73 % (Germany), with Greece (35 %) and Italy (23 %) in the middle. Thus, it must be concluded that public finances have been sustainable over time. Furthermore, the Ramsey Golden Rule of dynamic efficiency, described by Blanchard and Fischer (1989), says that in the long run the growth-adjusted real interest rate should tend toward zero, which implies that fiscal consolidation could be accomplished by economic growth. This does not mean that European debt ratios will never rise, but that they fulfill the intertemporal budget constraint and are sustainable as long as the stability condition is fulfilled and the necessary liquidity is provided.

A good measure of how far a government is from a stable debt position is the difference between the primary budget position and the interest liability as a share of GDP. If this gap is closed, the debt ratio will be stable. The interest liability is sometimes also called the "snowball effect," because if the interest rate exceeds the nominal growth rate, the liabilities will increase at the growth-adjusted interest rate and this will also require rising primary surpluses.

Figure 7.8 presents the evolution of the primary budget positions in selected member states. The euro area as a whole had a small surplus before the crisis, which became a big deficit and has returned to a positive position since 2012. The horizontal punctuated line indicates the level of interest rate liabilities. The only countries close to financial stability are Germany, Italy and, according to the European Commission forecasts, Greece.

The consolidation effort that would stabilize the debt ratio is the difference between the snowball effect and the cyclically adjusted primary surplus. When the gap is negative, the debt ratio is falling; if it is positive, the ratio rises. Table 7.2 shows that in the north debt is stable, in the south it is rising. For the euro area as a whole, the consolidation gap in 2012 was nearly 2 %. In Germany, Luxembourg,
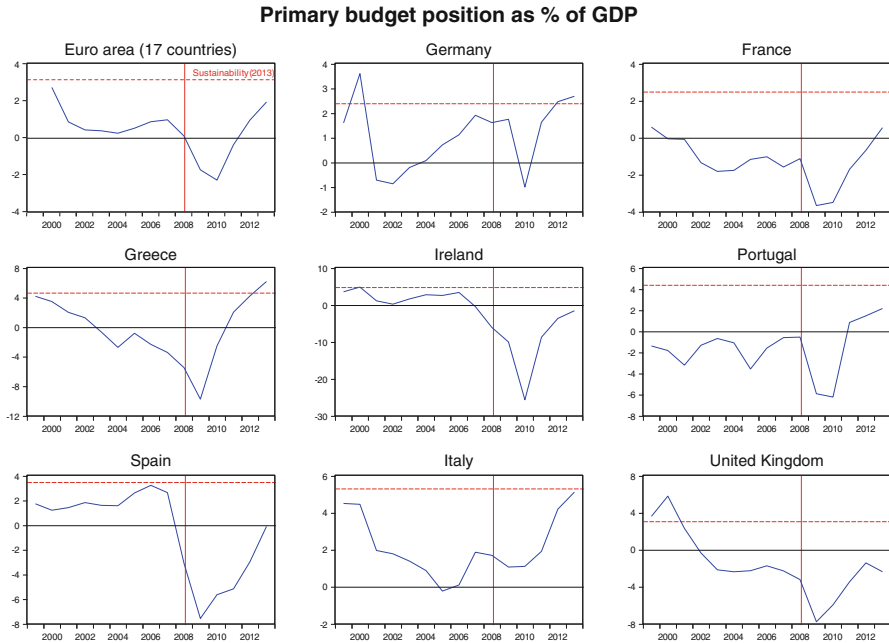
**Primary budget position as % of GDP**



**Fig. 7.8** Primary budget position (% of GDP). *Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed December 2013)

and Finland debt ratios were coming down and in Austria and Estonia they were nearly stable. Malta and Belgium are slightly below the euro average, France and Italy above. In Slovenia, Ireland, Cyprus, Portugal, Spain, and Greece significant consolidation efforts would have to be made in order to stabilize the debt ratio. In Cyprus, Portugal, Spain, and Greece this seems practically impossible. Outside the euro area, the Czech Republic and the UK are also in difficult positions.

However, the factors behind these adjustment requirements are not all the same. Most of the southern countries, except Italy and Greece, but including France have negative structural primary budget positions. This is also true for Romania, Denmark, Lithuania, Poland, Czech Republic, and the UK. By contrast, most northern euro members have positive primary budgets. The problems in the south are accentuated by the high snowball effect, which comes from higher interest rates and negative economic growth. Thus, we are back to the central issue: how to bring back growth.

But this is precisely where European policymakers are failing. They resist providing the liquidity required to prevent a liquidity shock turning into a solvency crisis. To understand this cooperation failure, Europe's intergovernmental system of policymaking must be understood.

**Table 7.2** Consolidation gap to stabilize public debt

| 2012 % of GDP | Snowball effect | Structural primary surplus | Gap |
|---|---|---|---|
| Germany | 0.90 | 2.64 | −1.74 |
| Luxembourg | −0.35 | 0.52 | −0.86 |
| Finland | −0.22 | 0.22 | −0.44 |
| Austria | 0.45 | 0.27 | 0.18 |
| Estonia | −0.22 | −0.51 | 0.29 |
| Malta | 1.08 | −0.05 | 1.13 |
| Belgium | 1.64 | 0.09 | 1.55 |
| *Euro area (17)* | *2.50* | *0.51* | *1.99* |
| France | 1.18 | −0.99 | 2.17 |
| Italy | 6.51 | 4.20 | 2.31 |
| Slovakia | 0.42 | −2.13 | 2.55 |
| Netherlands | 2.06 | −0.73 | 2.79 |
| Slovenia | 3.04 | −0.62 | 3.66 |
| Ireland | 0.75 | −3.21 | 3.97 |
| Cyprus | 3.52 | −3.15 | 6.68 |
| Portugal | 8.09 | −0.41 | 8.51 |
| Spain | 3.90 | −5.46 | 9.35 |
| Greece | 17.98 | 0.79 | 17.19 |
| Latvia | −2.04 | 0.47 | −2.51 |
| Hungary | 3.05 | 4.15 | −1.09 |
| Sweden | 0.13 | 0.96 | −0.83 |
| Bulgaria | 0.39 | 0.49 | −0.11 |
| Romania | −0.05 | −0.40 | 0.35 |
| Denmark | 0.98 | 0.39 | 0.59 |
| Lithuania | −0.49 | −1.25 | 0.77 |
| Poland | 0.47 | −0.82 | 1.29 |
| Czech Republic | 1.46 | −2.02 | 3.48 |
| United Kingdom | 1.57 | −2.17 | 3.74 |

*Source*: European Commission. AMECO database. http://ec.europa.eu/economy_finance/db_indi cators/ameco/index_en.htm (accessed April 2013)

## 7.3 Political Fragility of the Euro Area

### Collective Action Problems

The European debt crisis was a liquidity crisis that could have turned into a solvency crisis with devastating domino effects. Southern European member states had difficulties raising funds to roll over their debts at reasonable cost, because political mismanagement had scared investors who were seeking to unload risky assets. If European authorities had not bought the excess supply of securities, financial asset prices would have collapsed and the whole banking system would have become dysfunctional. The crisis was reinforced by the collective action problems within European economic governance. Europe's political

mismanagement is the big difference between Japan and the US on the one side, and Europe on the other. It could explain why Japan was able to increase its debt ratio beyond 220 %, while in the euro area debt ratios above 100 % are already problematic. In Japan and the US, governments borrow to stimulate the real economy and the central banks provide the liquidity necessary to prevent bank and bond runs when liquidity gets too tight; Europe had exited stimulative policies prematurely in 2010 (Collignon 2013a). Fiscal policy tightened too soon, and a restrictive interpretation of the central bank's role as lender of last resort constrained the ECB's capacity to intervene in secondary public debt markets. Northern governments were also reluctant to commit taxpayers' money to bail out other member states. All these factors together created a credit crunch. Under normal circumstances, monetary and fiscal policy should interact in such a way that investors feel reassured and start investing again. But in Europe, policymakers were not willing or able to agree and commit to coherent policies. In response to this political uncertainty, investors sold risky assets and bond prices collapsed. To get private investors to supply credit at reasonable cost, political authorities would have had to be much clearer in their communication. In the end, the job was done by the ECB, because it was the only stakeholder able to act in the common interest of Europeans. Intergovernmental governance, where 17 governments are autonomous and accountable to 17 local parliaments, had failed to generate unified action. But the policy dilemma has pushed the ECB into an uncomfortable role of being Europe's policymaker of last resort.

Because the political problems of the EU's governance are intractable, analysts have mainly focused on economics. But without solving the governance issue, economic advice can be misleading. In an influential paper, de Grauwe (2011: p. 1) likened public debt in the European Monetary Union to emerging market debt because "members in monetary union issue debt in currency over which they have no control." By this, he means that a European government "cannot force the central bank" to buy its debt and therefore markets can force any member state into default. There is truth in the argument that an ultra-hard budget constraint can turn into a default crisis, as one has learnt from endless historical experiences. But it is a mistake to believe that this is a characteristic feature of a monetary union. Member states' inability "to force the central bank" is a consequence of the combination of central bank independence and the primary objective to maintain price stability. Both these two principles are the foundation of monetary union. If Greece had its own currency, and an independent central bank committed to price stability, the likelihood of default would not be lower than it is in the euro area. As de Grauwe shows, the difference in yields between the UK (that controls its currency) and Spain (that does not) is best explained by the difference in inflation rates. It may be debated whether the primary objective of price stability is desirable in the present situation, but there are many reasons why the ECB should be independent and preserve the internal and external value of the euro.

De Grauwe points out that capital outflows from any currency area, whether it is a stand-alone country or a currency area, will weaken the exchange rate. In any country that issues its own currency, including those in the euro area, unsustainable

**Table 7.3** Changes in M3 bank deposits in member states (September 2008–2011)

|             | € (billion) | Basis points shift | Growth rate (%) | Contribution (%) |
|-------------|-------------|--------------------|-----------------|------------------|
| Germany     | 214.3       | 109                | 11.2            | 41.9             |
| France      | 135.0       | 43                 | 8.6             | 26.4             |
| Italy       | 110.4       | 44                 | 9.6             | 21.6             |
| Netherlands | 61.7        | 26                 | 9.9             | 12.1             |
| Spain       | 38.2        | –3                 | 3.6             | 7.5              |
| Belgium     | 37.1        | 15                 | 9.6             | 7.3              |
| Finland     | 13.1        | 7                  | 11.5            | 2.6              |
| Cyprus      | 7.2         | 6                  | 18.9            | 1.4              |
| Austria     | 4.9         | –12                | 2.0             | 1.0              |
| Slovakia    | 1.6         | 0                  | 5.1             | 0.3              |
| Slovenia    | 1.1         | 0                  | 6.1             | 0.2              |
| Estonia     | 1.0         | 1                  | 13.4            | 0.2              |
| Malta       | 0.5         | 0                  | 6.1             | 0.1              |
| Portugal    | –4.0        | –6                 | –2.5            | –0.8             |
| Ireland     | –12.6       | –32                | –5.1            | –2.5             |
| Greece      | –35.8       | –58                | –15.6           | –7.0             |
| Luxembourg  | –62.2       | –97                | –18.2           | –12.2            |
| Euro area   | 511.7       | 0                  | 6.3             | 100.0            |

*Source*: Data provided by European Central Bank on request; author's calculations

public debt would cause a currency crisis. As was seen, the euro exchange rate has remained reasonably stable, because aggregate euro debt is not excessive when compared to the United States or Japan. However, de Grauwe also claims that monetary movements within the currency area shift the stock of money supply from one region to another and that such movements tend to depress local activity and increase the likelihood of a local default. Yet, the evidence for this claim is mixed. Within the euro area payment flows related to bond holdings can be compensated by other monetary movements including bank credit to the local private sector, foreign direct investment, and factor income regional intergovernmental transfers. As discussed earlier, the effect of a shift in the bond portfolio on the money stock is uncertain. More important are the evolution in bank loans and the shift in deposits.

Table 7.3 provides evidence about the shifts in bank deposits within the euro area from the Lehman Brothers' crisis in September 2008 up to 2011, which was the worst period of the crisis. Total deposits, as accounted for in the broad money aggregate, which the ECB calls M3, have increased over the three years by €511.7 billion; a rate of increase of 6.3 % over three years. Of this increase, the biggest share (41.9 %) was recorded in Germany, where deposits grew at a rate of 11.2 %, although growth was even faster in Cyprus, Estonia, and Finland. As a percentage of the euro aggregate, the shifts in the relative shares of money supply are relatively small: Germany gained 109 basis points, France and Italy over 40 basis points. The losers have been Greece, Ireland, and Portugal. This could confirm de Grauwe's claim of a financially depressing outflow of money from these economies. However, while the shift of deposits as a share of the euro area aggregate seems to

support the idea that money has gone from Greece, Ireland, and Portugal to Germany (the shares compensate each other), the increase in total deposits in Germany is significantly higher in absolute billions of euro. It is also true that France, Italy, and Spain have increased their M3 deposit stock, most probably because there is additional bank lending in these regions. Interestingly the largest monetary outflow took place in Luxembourg, which does not have a debt problem and is usually considered to be a safe haven. However, Luxembourg may be a special case, given that it is a small state with a huge banking sector. Risk-averse investors may have retired their funds to place them in Switzerland or elsewhere in dollars. According to the de Grauwe model of a "sudden shift," Greece, Ireland, Portugal, and Luxembourg should have experienced a serious liquidity crisis but not Italy or Spain. Yet this is only partially supported by our evidence. It seems reasonable to argue that southern Europe suffers from a reduction in money supply, but the reasons may not be the presumed systemic features of a monetary union that is not able to print money at governments' will, but rather to the design of the economic governance in the euro area. The real issues in Europe's debt crisis are collective action problems in intergovernmental governance.

Collective action problems occur when rational individual actors make decisions that are suboptimal in the aggregate. The policy dilemma in the European monetary union is that the euro is a limited common resource to which all actors must have free and equal access. However, fiscal policy makes autonomous and often incoherent claims on this resource because sovereign governments do not take into consideration the external effects of their budget decisions. The ECB imposes (correctly) the hard budget constraints by controlling money supply for the euro area as a whole, but each member state has an incentive to raise its own share in available funds at the expense of others. Cooper and John (1988) have shown that such a situation leads to a unique non-cooperative equilibrium, which is Pareto-suboptimal. The spillover effects from this uncooperative equilibrium are pernicious. In principle, high deficit countries could be funded by low-debt member states. This would not impose undue burdens on lenders, for credit is a form of wealth, and taxpayers in lending states would build up assets that they should be able to liquidate in the future. From this point of view, bailing out a member state in the euro area is like banking: a form of maturity transformation. Illiquid claims on, say, future Greek taxpayers are made liquid by other member states, say Germany, which dispose of greater liquidity margins. Like in any other bank in the world, lenders must monitor borrowers and impose conditions that ensure solvency. However, given that lenders in the European Union are a collective, even if Germany is an important actor, such monitoring is subject to collective action dilemmas unless it is delegated to a European institution. However, if borrowing member states defaulted, foreign taxpayers would lose their asset claims and their wealth would be reduced. Given the possibility of default, each member state has a desire—just as private investors—to minimize its own contribution to the collective bailout, and in aggregate all of them are likely to generate the under-provision of bailout funds. This collective action problem is likely to cause falling bond prices and could ignite a banking crisis.

The euro area's problem is therefore, first of all, a problem of governance. In federal states with fiscal unions, the problem is solved by a central government that redistributes funds through budget transfers. In Europe, governments are autonomous and most cooperate voluntarily if they wish to bail out a state in distress. But because, by definition, national governments serve their national constituencies first, they will seek to limit their exposure to potential defaults losses, and their crisis communication is dominated by discourses that say "no, we can't." Nevertheless, assuming that the benefits from the existence of the European Union, of a single market, and of a stable currency are still valid and clearly recognized, the preference for preserving the system should be high enough to ensure that governments will ultimately provide the necessary bailout. Saying no may then simply be a step in a drawn out bargaining process that aims at limiting national bailout contributions. But even if governments made the right decisions, the political noise around the negotiation process would make the bailout more costly than if a centralized authority made decisions. By definition, a centralized European economic government would eliminate the collective action problems and therefore minimize the noise and uncertainty in the bailout process. By contrast, Europe's decentralized governance has increased political and economic uncertainty and pushed up interest rates on sovereign debt. As a consequence, the cost to taxpayers in the form of high yields, larger bailouts, and higher risks of bank failures have gone up as well. It follows that a centralized macroeconomic government should be in the interest of all European taxpayers, as it would reduce the cost of bailouts and risks of defaults and bank crises.

Collignon et al. (2013) show that political communication contributes significantly to the rising yield spreads between Greece and Germany. In the short run, every time Germany's Chancellor Angela Merkel has made a declaration on Greece, uncertainty measured by the volatility of spreads has increased and this higher volatility has required higher returns on bonds from Greece. However, over the longer run, there was an additional effect whereby her statements reduced the yield spread again, although to a lesser extent. Thus, the picture is one of chaotic cacophony that irritates markets (and citizens), although in the end sound policies prevail. The price for this political inefficiency is high in terms of credit risk (Fig. 7.1) and credit cost (Fig. 7.3).

A liquidity crisis becomes systemic when the risk of an avalanche of defaults spreads through the banking system. Table 7.4 shows the early exposure of banks as a percentage of banks' net capital in some member states with respect to southern European economies. The vulnerability toward Greece was relatively low for the euro area as a whole, but significant for Portugal. A forced Greek default was most likely to spill over into Portugal and from there to Spain and then to the Netherlands, Belgium, Germany, and France. Overall, a disorderly default of the four risky sovereign debtors with a recovery rate of 50 % would have wiped out between one-fifth to more than one-third of the banks' own capital reserves. This would have come after the banks had already made losses of similar proportion after the Lehman crisis, to which governments had to respond by emergency funds and help from international organizations. Experiencing a second major financial

**Table 7.4** Bank balance sheet exposure vs. southern Europe, 2010 (claims % of total capital)

|  | Euro Area | France | Germany | Belgium | Netherlands | Italy | Greece | Ireland | Portugal | Spain |
|---|---|---|---|---|---|---|---|---|---|---|
| Exposure vs. Greece | 4.5 | 8.9 | 6.7 | 2.6 | 3.7 | 0.9 |  | 0.6 | 17.7 | 0.3 |
| Exposure vs. Ireland | 8.6 | 4.6 | 23.2 | 34.3 | 12.3 | 2.9 | 0.8 |  | 8.9 | 2.6 |
| Exposure vs. Portugal | 6.4 | 4.2 | 7.1 | 4.8 | 4.8 | 0.9 | 0.1 | 1.8 |  | 22.4 |
| Exposure vs. Spain | 19.3 | 22.0 | 35.7 | 29.0 | 56.7 | 6.3 | 0.6 | 10.1 | 46.0 |  |
| Potential losses in southern Europe (with a recovery rate of 50 %) | 19.4 | 19.9 | 36.3 | 35.3 | 38.7 | 5.5 | 0.8 | 6.2 | 36.3 | 12.6 |
| Effective losses registered during 2008–2009 crisis | 13.5 | 9.8 | 22.7 | 42.9 | 18.9 | 7.9 | 15.6 | 16.3 | 0.0 | 10.4 |

*Source*: Author's calculations done by Centro Europa Ricerche, Rome

shock so quickly after the Lehman Brothers' collapse created an extremely dangerous situation.

The implication of this strong interdependence of member states' economies and banks in monetary union is that autonomous decisions by national governments have far reaching consequences for all and generate important externalities, which require central governments to internalize the external effects. Here is not the space to speculate whether such a deepening of European integration will be realized, although European policy debates have moved into a more "federal" direction during this crisis. Instead, this chapter now looks at how the euro area's political fragility affects its external relations with other currencies and particularly with the dollar.

## External Effects

Given the vulnerability of the European banking system, non-euro area investors may seek to reduce their euro-denominated portfolio holdings. This should have consequences for euro exchange rates, as some investors might shift their assets into other safer currency denominations, notably the dollar. The extent of such shifts will depend on the degree of uncertainty in risky environments. How much has Europe's governance impacted the dollar–euro exchange rate? Exchange rate economics is a controversial field. No universal model exists for explaining exchange rate movements that holds under all circumstances. Fundamental variables such as relative growth, budget developments, and interest spreads, all play varying roles in determining the level and volatility of interest rates. This section concentrates on the impact of political uncertainty in the euro area on the dollar–euro exchange rate.

Financial markets have only incomplete information about the fundamental value of risky bonds in their portfolio; by contrast, governments and central banks have an asymmetric information advantage, given that their actions shape the macroeconomic outcome that determines the solvency of bonds. For this reason, markets must closely monitor the discourse of political decision makers. But if the statements made by policymakers are incoherent, controversial, or unrealistic, the ensuing uncertainty will deter investors from holding risky assets as the visibility of the future macroeconomic outcome is impaired. Collignon et al. (2013) formally modeled the interaction between Greek bond spreads bailouts and the political risk generated by controversial policy statements. I am using the same method here to assess the impact of political uncertainty with regards to the Greek debt crisis on the dollar–euro exchange rate.

Figure 7.9 shows the movements in the daily exchange rate of the euro relative to the dollar and the yen. Three major periods are clearly distinguishable: an initial weakening of the euro in 1999–2000, a gradual euro appreciation from the time of the dot.com bubble crash in late 2000 and the terrorist attacks in the US on 9 September 2001 (9/11) up to the global financial crisis in 2008, and finally a
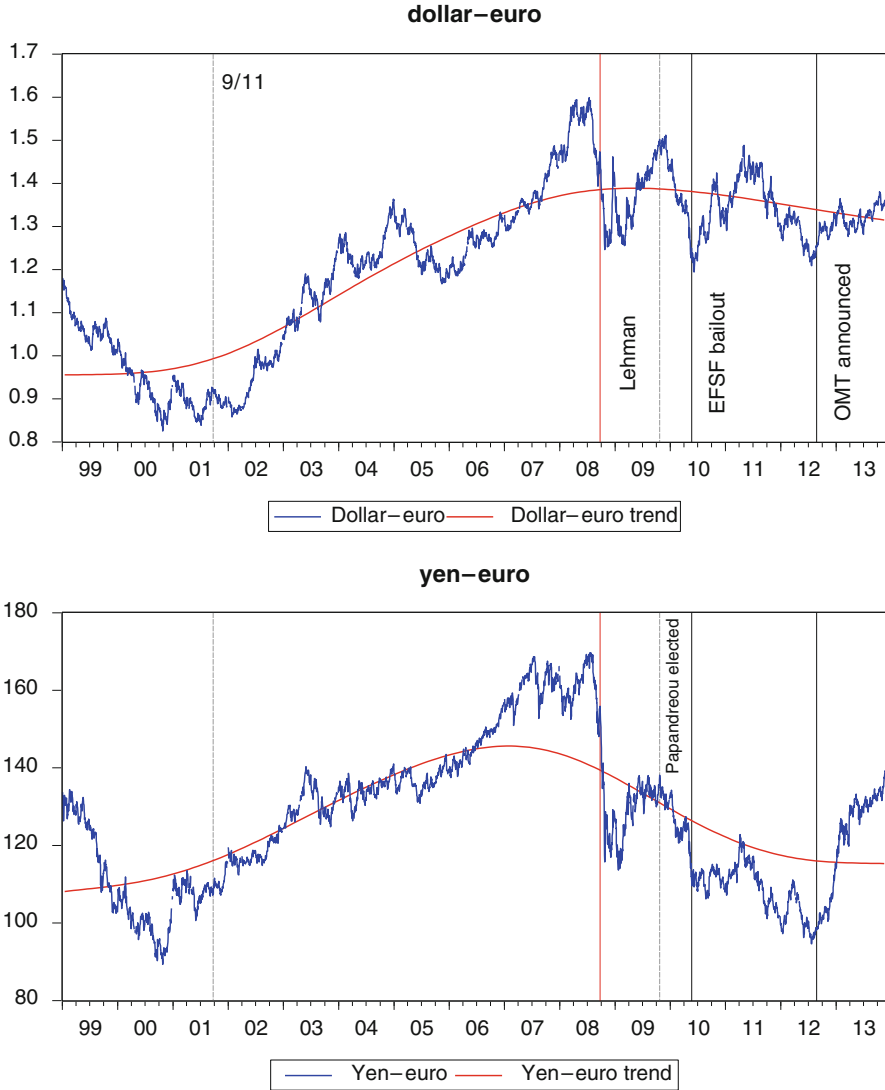
## dollar−euro



## yen−euro



**Fig. 7.9** Dollar–euro and yen–euro daily exchange rates. *EFSF* European Financial Stability Facility, *OMT* outright monetary transactions. *Source*: ECB Statistical Data Warehouse. http:// sdw.ecb.europa.eu/browse.do?node=2018794 (accessed February 2012)

period with a long run stable trend but high volatility after the Lehman Brothers' bankruptcy. The tendency for the euro to weaken was stronger against the yen than against the dollar, which reflects the "safe haven" factor of the Japanese economy, since it did not experience a financial crisis then, and the aggressive monetary easing adopted under Prime Minister Shinzo Abe was still in the future. The turning points of the large swings in the euro exchange rates are clearly associated with

major policy events; Papandreou's election in 2009 and the deterioration of the Greek economy in 2011 sent the euro down. Bailout packages like the EFSF and ESM in 2010 and the OMT announcement in 2012 reassured markets and strengthened the euro. Thus, the external value of the euro has been strongly affected by the politics of the euro area, while the fundamentals seem to have been more stable, although they have also deteriorated under the excessive austerity drive (Fig. 7.10).

The volatility of the euro exchange rate is driven by political uncertainty. This is confirmed by estimating a GARCH-M model,[14] where the change in the daily exchange rate is affected by global economic fundamentals, measured by the proxy of the dollar–yen exchange rate, and by European developments, measured by the change in the Greek bond yield spread over Germany. Table 7.5 gives the results.[15] The upper part gives the coefficients for the direct impact of the variables, the lower part shows the variance equation, which estimates the impact of uncertainty.

A negative sign in the upper equation indicates a weakening of the euro relative to the dollar. Higher Greek spreads and higher uncertainty weaken the euro. By contrast, a depreciation of the dollar relative to the yen also translates into a stronger euro relative to the dollar. The GARCH-term is of particular interest as it is a measure for risk and uncertainty. An increase of noise by 10 % will depreciate the daily euro exchange rate by 1.3 basis points.

The GARCH equation in the lower part of Table 7.5 measures noise, that is, the variance conditioned on its autoregressive process and on the change of the Greek spread and good news on the Greek situation. The study found a noise-increasing effect resulting from higher Greek spreads and from political news, although the impact is small. The sign of the coefficient and the statistical significance are acceptable according to conventional evaluation standards.

Collignon et al. (2013) have shown that the Greek–German spread is increasing in response to political miscommunication by European leaders represented by a variable tracing Germany's Chancellor Merkel's statements. The implication from that model for this study's exchange rate analysis is that the political system of governing the euro area has a tendency to weaken the euro. To check this hypothesis, the estimation included the variable of political statements by Chancellor Merkel described in Collignon et al. (2013). The results (Table 7.6 in Appendix) are similar to Table 7.5, although the statistical significance is now weaker, but still acceptable according to conventional criteria.

The conditional variance measured by the GARCH model is an indicator for the uncertainty which foreign investors experience when deciding whether to hold euro assets in their portfolio. It is generated by the variables of Greek spreads, political news, and indirectly by the role of Germany. Figure 7.10 shows that this uncertainty has continually grown as a consequence of the Greek crisis and the hesitations of

---

[14] A GARCH-M model estimates a time series' mean as a function of the conditional variance.

[15] The estimates were done using Eviews software and Table 7.5 reproduces the standard Eviews output.

## GARCH without Merkel

Papandreou
elected

EFSF-1

EFSF-2

Conditional variance
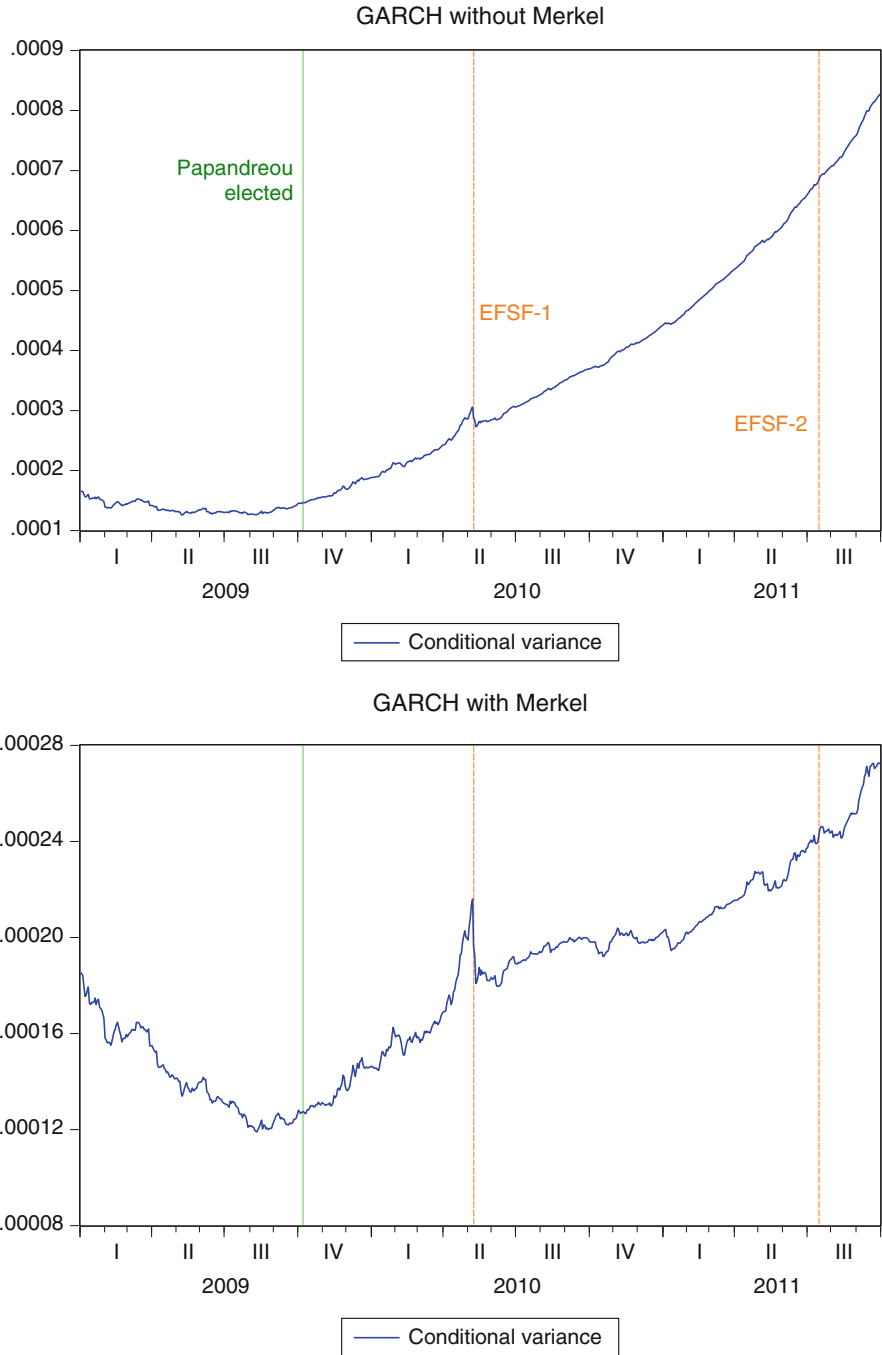
## GARCH with Merkel

Conditional variance

**Fig. 7.10** Political uncertainty reflected in dollar–euro rate. *EFSF* European Financial Stability Facility. *Source*: Author's calculations based on data in Collignon et al. (2013)

**Table 7.5** GARCH estimate

| Variable | Coefficient | Std. error | z-statistic | Prob. |
|---|---|---|---|---|
| LOG(GARCH) | −0.001314 | 0.000527 | −2.494277 | 0.0126 |
| C | −0.013037 | 0.005337 | −2.442695 | 0.0146 |
| DLOG(USYEN) | 0.210485 | 0.028866 | 7.291751 | 0.0000 |
| DLOG(SPREADGR) | −0.043833 | 0.005119 | −8.562533 | 0.0000 |
| Variance equation | | | | |
| C | 1.44E-07 | 1.35E-07 | 1.065614 | 0.2866 |
| RESID(−1)^2 | −0.001615 | 0.000789 | −2.046765 | 0.0407 |
| RESID(−1)^2*(RESID(−1) < 0) | −0.018689 | 0.008513 | −2.195371 | 0.0281 |
| GARCH(−1) | 1.002918 | 0.005311 | 188.8306 | 0.0000 |
| POLGRG | 1.27E-06 | 5.30E-07 | 2.393281 | 0.0167 |
| DLOG(SPREADGR) | 2.83E-05 | 8.53E-06 | 3.312546 | 0.0009 |
| T-DIST. DOF | 15.83733 | 10.58604 | 1.496058 | 0.1346 |
| R-squared | 0.117640 | Mean dependent var | | −4.21E-05 |
| Adjusted R-squared | 0.113927 | S.D. dependent var | | 0.007349 |
| S.E. of regression | 0.006918 | Akaike info criterion | | −7.170607 |
| Sum squared resid | 0.034118 | Schwarz criterion | | −7.100418 |
| Log likelihood | 2581.663 | Hannan-Quinn criterion | | −7.143505 |
| Durbin-Watson stat | 2.036840 | | | |

Dependent variable: DLOG(ER)
Method: ML-ARCH (Marquardt)—Student's t distribution
Sample: 1/01/2009 9/30/2011
Included observations: 717
Convergence achieved after 23 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(5) + C(6)*RESID(−1)^2 + C(7)*RESID(−1)^2*(RESID(−1) < 0) + C(8)*GARCH(−1) + C(9)*POLGRG + C(10)*DLOG(SPREADGR)
*Source*: Data from Collignon et al. (2013); author's calculations

political leaders. Figure 7.10 also shows the clear but only temporary effect of setting up the bailout fund. Markets seemed at first reassured of getting the necessary liquidity, but quickly lost this confidence when the political bickering among European policymakers continued. The German chancellor, who at first seemed unwilling to bail out Greece, has been an important factor in generating this uncertainty, just as the ECB reassured markets in later years.

## *Political Implications*

It has become clear that Europe's problems are essentially grounded in its dysfunctional political decision-making system and much less in economic fundamentals. Japan has lower yields than many European member states, despite a debt ratio of 220 % and the US despite having a higher deficit ratio. Japan and the US have monetized a significant part of their debt, without experiencing runaway inflation.

Although it is true that in the medium-term deficits must be balanced and European debt ratios must come down, the success of such consolidation policies depends largely on economic growth. Excessive austerity programs do not help southern member states to return to growth; they risk destabilizing the European monetary union.

Because private investors are less willing to hold risky sovereign debt from southern states in a climate of political uncertainty, bond prices have fallen to levels where they are destabilizing the banking system. For this reason, it was important to find a buyer of last resort. Given the reluctance of member states to pool their fiscal policies, the European Central Bank was finally forced to step in. The creation of the EFSF and ESM was an insufficient attempt to provide liquidity to member states that had lost access to capital markets. It has had temporary effects of bringing down yields on southern European debt, but these effects did not last because the volumes of financial resources were insufficient to reassure financial investors. The reasons for this under-provision of resources are a simple collective action problem: each government seeks to minimize its own contribution of taxpayers' money and the overall consequence is the suboptimal provision of bailout money. However, this behavior has caused policy outcomes that have damaged the interests of all Europeans. It is unlikely that Europe's intergovernmental system can solve this coordination problem. What would be needed would be to centralize Europe's debt and deficit management at the European level.[16] In 2012, there was increasing talk in European policy circles about the need for a "federalist jump" in the EU. No doubt, a European economic government could implement coherent and less noisy fiscal policies in the euro area. But although this is clearly an efficient solution, it poses important questions of democratic legitimacy (Collignon 2003). Not surprisingly, member state governments have buried such ideas after the ECB had saved the euro.

While the ECB was able to restore sufficient trust in financial markets by fulfilling its role as lender of last resort, it cannot substitute for politics. Ultimately, member state governments must assume responsibility for the European policy mix. As Japan has taught the world, monetary policy is helpless in a liquidity trap with near-zero nominal interest rates and deflationary tendencies. Fiscal policy must then step in. But fiscal policy is a matter of government responsibility and euro area governments have not been willing to assume this responsibility. In addition, northern member states, and especially Germany, benefit from a comparative advantage: German interest rates are low because German debt is considered the risk-free asset in the euro area; the low cost of borrowing keeps German deficits down, further lowering the risk premia for German bonds. By keeping payments to other member states as low as possible, Germany improves its competitive advantage. Hence, German policymakers maintain maximum pressure

---

[16] This does not exclude that members could retain the allocation function of public finances.

on southern states to cut their deficits so that Germany can keep transfers down. On the other hand, the southern member states must lower the social cost of adjustment by receiving funds from the northern member states. This conflict is generating significant political risks in the euro area.

One way out of the dilemma is the creation of euro bonds through which the EU could raise funds and lend them to distressed member states. Again, this is a highly controversial subject. The European Commission (2011b) proposed the introduction of stability bonds in its *Green Paper on the Feasibility of Introducing Stability Bonds*, but so far Germany has vetoed the idea, for fear that it would become liable for the debt accumulated by others and would ultimately have to pay higher interest rates. Fundamentalists reject euro bonds, because they believe such an instrument would lead to the collectivization of sovereign risks among taxpayers in the monetary union, creating "appetite for ever more of that sweet poison and harms the credibility of the central bank in its quest for price stability" (Weidmann 2011: p. 1). Monetarists argue that euro bonds are an expression of European solidarity where the "strongest" guarantee the "weakest."

An alternative practical solution is the creation of an asset-backed security, which I have called union bonds (Collignon 2011). It would consist of authorizing a European institution like the ESM—as the counterparty—to buy debt titles issued by member states and bundle them according to a fixed portfolio share equal to the proportion of share holdings in the ECB. In this case, the stronger member states would not be liable for the weaker states. According to the laws of portfolio theory, such a bundled union bond would be less risky and more stable than individual member state bonds. The risk-free elements of the union bonds could be increased by tranching these bonds into risky and risk-free tranches. These union bonds could cover a large share of outstanding government debt. This has the desirable side effect of creating a deep and liquid bond market that would be of interest for foreign investors. The liquidity of such a bond market could be further reinforced by the commitment of the ECB to accept union bonds as privileged collateral for discounting purposes.

## 7.4 Conclusion

The euro-crisis crisis is in reality a political crisis. The euro area economy is fully integrated by the fact that the ECB alone sets monetary budget constraints on domestic economies, but the political heterogeneities and different member state jurisdictions prevent economic policies that are consistent with the requirements of a single currency. Either Europe will move forward and deepen its political integration, or it will disappear as a global player and sink into irrelevance.

# Appendix

**Table 7.6** GARCH estimate with Chancellor Merkel

| Variable | Coefficient | Std. error | z-statistic | Prob. |
|---|---|---|---|---|
| LOG(GARCH) | −0.001442 | 0.000807 | −1.786455 | 0.0740 |
| C | −0.014156 | 0.008176 | −1.731375 | 0.0834 |
| DLOG(USYEN) | 0.211648 | 0.029657 | 7.136499 | 0.0000 |
| MERKEL2 | −0.001259 | 0.000801 | −1.570980 | 0.1162 |
| DLOG(SPREADGR) | −0.045337 | 0.005173 | −8.764105 | 0.0000 |
| Variance equation | | | | |
| C | 1.64E-07 | 1.44E-07 | 1.135365 | 0.2562 |
| RESID(−1)^2 | 0.000763 | 0.006831 | 0.111644 | 0.9111 |
| RESID(−1)^2*(RESID(−1) < 0) | −0.019221 | 0.011520 | −1.668584 | 0.0952 |
| GARCH(−1) | 1.000230 | 0.005029 | 198.8866 | 0.0000 |
| POLGRG | 1.32E-06 | 5.04E-07 | 2.630957 | 0.0085 |
| DLOG(SPREADGR) | 2.85E-05 | 1.05E-05 | 2.725873 | 0.0064 |
| T-DIST. DOF | 17.95679 | 13.01142 | 1.380079 | 0.1676 |
| R-squared | 0.119345 | Mean dependent var | | −4.21E-05 |
| Adjusted R-squared | 0.114398 | S.D. dependent var | | 0.007349 |
| S.E. of regression | 0.006916 | Akaike info criterion | | −7.169682 |
| Sum squared resid | 0.034053 | Schwarz criterion | | −7.093112 |
| Log likelihood | 2582.331 | Hannan-Quinn criterion | | −7.140116 |
| Durbin-Watson stat | 2.049970 | | | |

Dependent variable: DLOG(ER)
Method: ML-ARCH (Marquardt)—Student's t distribution
Sample: 1/01/2009 9/30/2011
Included observations: 717
Convergence achieved after 18 iterations
Presample variance: backcast (parameter = 0.7)
GARCH = C(6) + C(7)*RESID(−1)^2 + C(8)*RESID(−1)^2*(RESID(−1) < 0) + C(9)*GARCH(−1) + C(10)*POLGRG + C(11)*DLOG(SPREADGR)
*Source*: Data from Collignon et al. (2013); author's calculations

# References

Blanchard, O., & Fischer, S. (1989). *Lectures on macroeconomics*. Cambridge: MIT.

Chacko, G., Evans, C. L., Gunawan, H., & Sjöman, A. (2011). *The global economic system: How liquidity shocks affect financial institutions and lead to economic crises*. New Jersey: Pearson FT Press.

Codogno, L., Favero, C., & Missale, A. (2003). Yield spreads on EMU government bonds. *Economic Policy, 18*, 503–532.

Collignon, S. (2003). *The European republic: Reflections on the political economy of a future constitution*. London: The Federal Trust for Educational Research and Bertelsmann Foundation. http://www.stefancollignon.de/PDF/The%20European%20Republic-text1.pdf.

Collignon, S. (2011). Eurobonds: The financial equivalent of a single currency. In: *Eurobonds: Concepts and implications* (pp. 17–40). Brussels: European Parliament, Economic and Monetary Affairs Committee. IP/A/ECON/NT/2011–01.

Collignon, S. (2012a). Fiscal policy rules and the sustainability of public debt in Europe. *International Economic Review, 53*(2), 539–567.

Collignon, S. (2012b). *ECB interventions, OMT and the bankruptcy of the no-bailout principle*. Brussels: European Parliament, Economic and Monetary Affairs Committee. IP/A/ECON/NT/ 2012–05.

Collignon, S. (2013a). *Exit strategies and the impact on the euro area*. Brussels: European Parliament, Economic and Monetary Affairs Committee.

Collignon, S. (2013b). *The various roles of the ECB in the new EMU architecture*. Brussels: European Parliament, Economic and Monetary Affairs Committee. IP/A/ECON/NT/2013-03.

Collignon, S., Esposito, P., & Lierse, H. (2013). European sovereign bailouts, political risk and the economic consequences of Mrs. Merkel. *Journal of International Commerce, Economics and Policy, 4*(2), 1–25.

Collignon, S., & Schwarzer, D. (2003). *Private sector involvement in the euro: The power of ideas*. London: Routledge.

Cooper, R., & John, A. (1988). Coordinating coordination failures in a Keynesian model. *Quarterly Journal of Economics, 103*(August), 441–463.

De Grauwe, P. (2011). *A fragile eurozone in search of a better governance* (Cesifo Working Paper No. 3456)

European Central Bank (ECB). (2011). *ECB announces measures to support bank lending and money market activity*. ECB Press Release, 8 December. Frankfurt: European Central Bank. http://www.ecb.europa.eu/press/pr/date/2011/html/pr111208_1.en.html. Accessed 15 January 2014.

European Commission. (2011a). *Public finances in EMU. European Economy*. Brussels: European Commission, Directorate-General for Economic and Financial Affairs.

European Commission. (2011b). *Green paper on the feasibility of introducing stability bonds* (COM/2011/0818 final)

European Commission. (2013). *Report on public finances in EMU*. European Economy, 4/2013. Brussels: European Commission, Directorate-General for Economic and Financial Affairs.

Weidmann, J. (2011). Managing macroprudential and monetary policy—a challenge for central banks. *Speech at the SUERF/Deutsche Bundesbank IMFS Conference, the ESRB at 1*, Berlin, 8 November 2011.