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**Europe's Debt Crisis, Coordination
Failure, and International Effects**

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Abstract

This paper gives an overview of the causes of the European debt crisis and the consequences for the external relations. It finds that political mishandling has increased uncertainty, which has contributed to a tendency for the euro to become weaker.

JEL Classification:E42, F33, F36, G01

Note: In this report, "\$" refers to US dollars.

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1. INTRODUCTION

The European debt crisis started as a small local policy shock in Greece, but it has come to threaten the survival of the euro with potentially far reaching consequences for the world economy. Since December 2011 financial markets have stabilized somewhat, but fundamental issues remain unsolved. This crisis is due partly to fundamental economic developments, such as growth and competitiveness, and partly to uncooperative behavior between the main policy makers in Europe. One of the paradoxes of this crisis is that, despite all its problems, the euro 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, but they still see the euro as a major currency in the world. However, the euro will only maintain this role if European governments can get the sovereign debt crisis under control. Whatever the ultimate conclusion of the drama, the experience 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 debt crisis, it is important to distinguish between sudden shocks and underlying fundamental problems in Europe's economic governance. Their interaction has been the specific flavor of this crisis.

There are two views to the European debt crisis. For the “fundamentalists”, the debt crisis is caused by the lack of discipline in sticking to the principles of “a sound and competitive macroeconomic base and solid public finance” (Weidmann 2001). Hence, the remedy is to implement “painful reforms” and consolidate budgets, which would rebuild trust and confidence in financial markets (Issing 2009). For the “monetarists”, the European debt crisis is a liquidity crisis. A small local liquidity shock causes a sudden deterioration in a specific class of asset values, can cause a global systemic financial crisis when the need for liquidity spills over to banks that then get distressed because the deteriorating asset prices put their balance sheets into difficulties and reduce bank capital (Chacko et al. 2011). In this case, a crisis can 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 between economists and monetarists in the 1980s regarding the preconditions of monetary union. The economists, who were the predecessors of today's fundamentalists, claimed that a monetary union was only possible between similar economies, while the monetarists argued that convergence will 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 European Central Bank (ECB), and defined so-called convergence criteria that needed to be met in order to participate in the currency union. This proposal was then enshrined into the Maastricht Treaty (Collignon and Schwarzer 2003). The solution of Europe's debt crisis requires a similar compromise between

long-term fiscal consolidation and short-term liquidity management. However, such a coherent policy approach will be unlikely to be forthcoming without a European economic government.

From a fundamental view, Europe's fiscal framework—the Stability and Growth Pact (SGP)—has failed to provide the fiscal discipline required to ensure financial stability. Clearly, this requires reforms of Europe's institutional framework and the issue of amending the European Union Treaty is now more frequently evoked by policymakers. The European Council on December 2011 agreed on new procedures of fiscal surveillance and asked member states to introduce a “debt brake” into their national constitutions. However, on top of institutional fragility, a genuine liquidity crisis has developed that has destabilized the banking system. Trouble started in 2008 when the Lehman Brothers' bankruptcy 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 have arisen, but the major shock occurred in 2009 when the newly elected Papandreou government (in Greece) discovered that its predecessor had falsified records and run budget deficits more than twice as high as officially announced, violating the rules of the SGP. This disclosure destabilized financial markets. The situation worsened further when the German government refused bailout packages, euro bonds, 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. 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. This was an institutional improvement for crisis management of the euro area, but for financial markets the EFSF offered too little and came 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 meeting in July 2011 increased the fund's resources from the initial amount of €440 billion to €780 billion. Yet again, this was not enough. Given that Italy has to refinance approximately €350 billion in 2012 and there are 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 failed again to calm the markets.

The highly indebted member states certainly face important structural problems. In contrast to Germany, no adjustment was undertaken in the years of the euro area boom.¹ One problem was the slowdown of capital productivity in southern member states as a consequence of

¹ 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.

falling and low interest rates in the 1990s and early 2000s. This caused them to lose their competitive advantage and they became more vulnerable to large shocks. These structural handicaps require deep reforms that will necessarily take time before they produce tangible results—provided the right measures are implemented. In the meantime, governments have a choice. They can either finance deficits until the reforms improve economic performance, or they can implement austerity measures that will reduce demand. Fundamentalists are critical of the first option because it carries the risk of excessive deficits and unsustainable debt. Monetarists criticize the second option because it could bring the reform process to a halt, when excessive austerity becomes socially unsustainable. To accommodate the fundamentalists, the liquidity-providing measures of the EFSF were subject to severe conditions of fiscal consolidation in borrowing countries. Yet, the draconian budget consolidation programs did not bring down public debt. In Greece, economic growth continues to be negative and the deficit has stabilized in 2011 at rates close to 10% of GDP. In fact large deficits persist everywhere, because the lack of domestic demand in the highly indebted countries reduces revenue and low growth undermines the confidence of financial markets. Monetarists therefore argue that there is an increasing need for bailing out member states that have lost access to the capital market. But this is also problematic as a general bailout commitment could generate moral hazard, while the volumes of financial bailouts are increasingly awesome. While the European Union may be able to bail out Greece, for larger member states like Italy this is impossible.

These diverging opinions may be normal in a pluralist society, but in Europe they create fault lines between member states. There can be no doubt that part of Europe's problem is caused by the fragility of its governance structures. The system seemed to have worked well during the benign first decade of the EMU, but seems now no longer able to cope with the policy requirements in the crisis. This paper first discusses the euro area's economic fragility and then looks at the handicaps of Europe's economic governance.

2. ECONOMIC FRAGILITY OF THE EURO AREA

2.1 Market Worries and Liquidity

When the Maastricht Treaty was established in the early 1990s, it centralized monetary policy in a new institution, the ECB; fiscal policy remained decentralized with member states retaining control over their budgets. Nevertheless, the treaty² set up a loose policy framework for avoiding excessive deficits. A surveillance procedure was set up whereby the European Commission would check that budget deficits by member states would remain below 3% of

² Initially the Maastricht Treaty, now the Treaty on the Functioning of the European Union (TFEU) article 126.

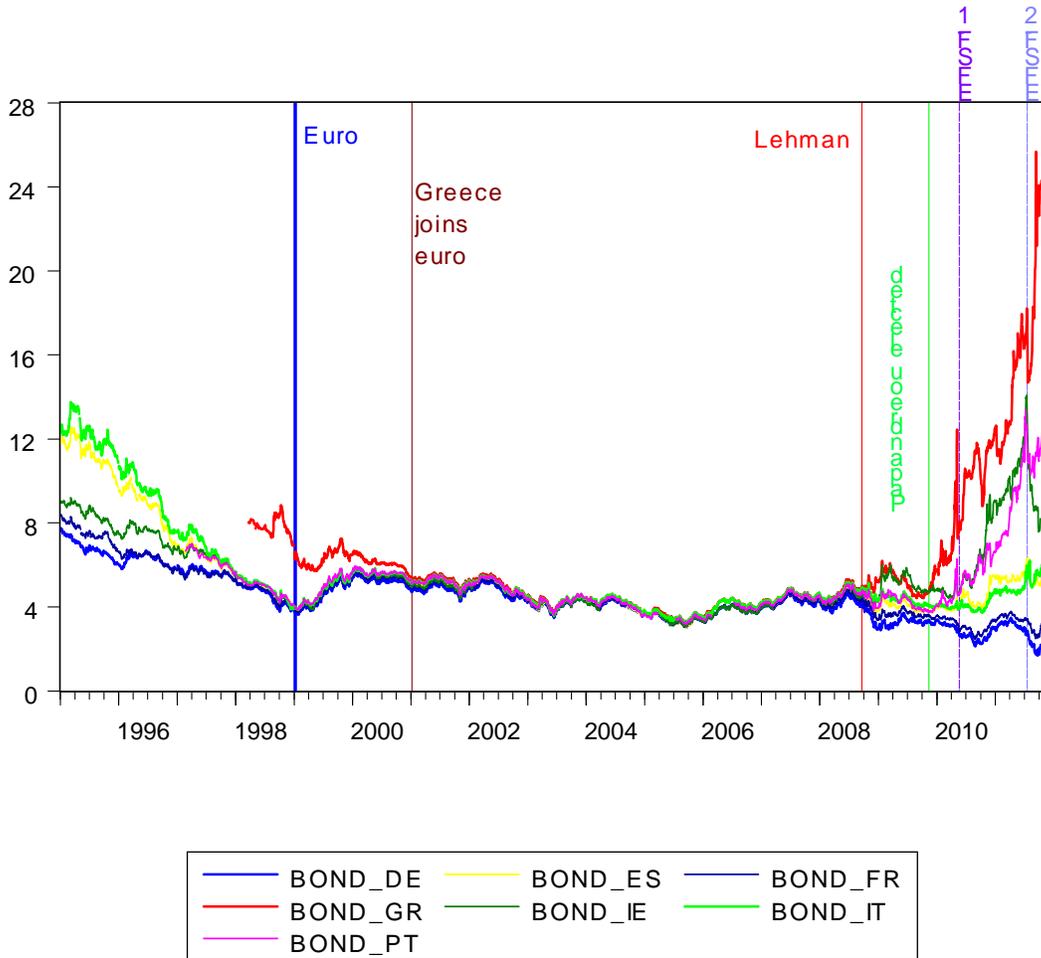
GDP and debt would not stay persistently above 60%. The excessive deficit procedure (EDP) in the treaties was operationalized by the Stability and Growth Pact (SGP) through European secondary legislation by setting up “preventive” and “corrective” arms.³ If a member state violated these criteria, the European Council could impose penalties, although this has never happened.

The Treaty on the Functioning of the European Union (TFEU) (or Lisbon Treaty) (TFEU) article 125 was interpreted as stipulating that national governments ought not to be bailed out by other member states or the European Union, 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 (10 basis points) increases government outlays by more than 0.1% of GDP (Codogno, Favero, and Missale 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 1 shows that until the crisis in 2007–2008, government bonds of all member states in the EU traded at similar returns as Germany. Yields increased moderately after the Lehman Brothers’ collapse, but quickly came down again. The game changed with the Greek shock in 2009, which undermined the credibility of the Stability and Growth Pact and raised questions about how sustainable the Greek debt actually was. Yield spreads shot up and soon spilled over to other southern debtors.

³ 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).

Figure 1: 10-Year Government Bond Yields



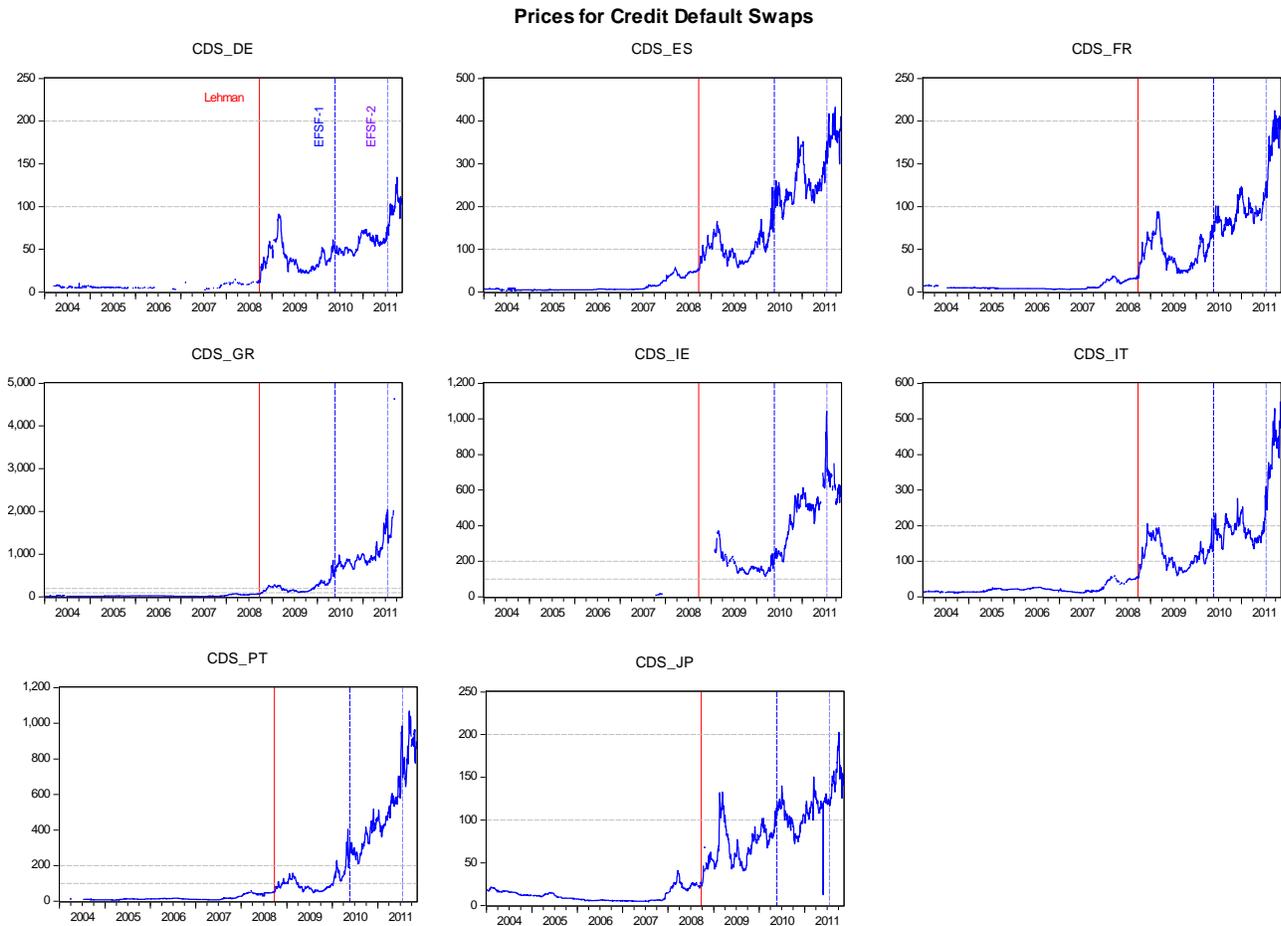
DE=Germany; ES=Spain; FR=France; GR=Greece; IE=Ireland; IT=Italy; PT=Portugal.

Source: Bloomberg www.bloomberg.com (accessed November 2011).

Clearly, markets increasingly feared sovereign defaults, which is also evident from the prices for credit default swaps (CDS), an insurance premium that is paid to protect against defaults (Figure 2). The price of CDS rose everywhere after the Lehman Brothers crash, and then fell again in 2009. But the default risk reflected in CDS increased steadily in all euro area member states after the election of Papandreou in late 2009. However, the risk assessment clearly diverged between states. In Germany the price for CDS did not reach \$200, while it climbed to \$4617 in Greece on 16 September 2011. Even in Japan, where the debt–GDP ratio is 220%, CDS 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 the yield spreads. Spreads have increased for governments with high (Greece, Italy) and low (Spain) debt levels; they have remained low (Germany, France) in member states with relatively high deficits or risen (Italy) in member

states with low deficits. This is puzzling, for it looks as if neither the level nor the dynamics of the debt ratio nor the provision of liquidity by member states can explain why markets are nervous. This means that economic fundamentals are only one reason for the European debt crisis. The other reason must be the liquidity shock, which was enlarged by the political mishandling of the crisis.

Figure 2: Prices for Credit Default Swaps



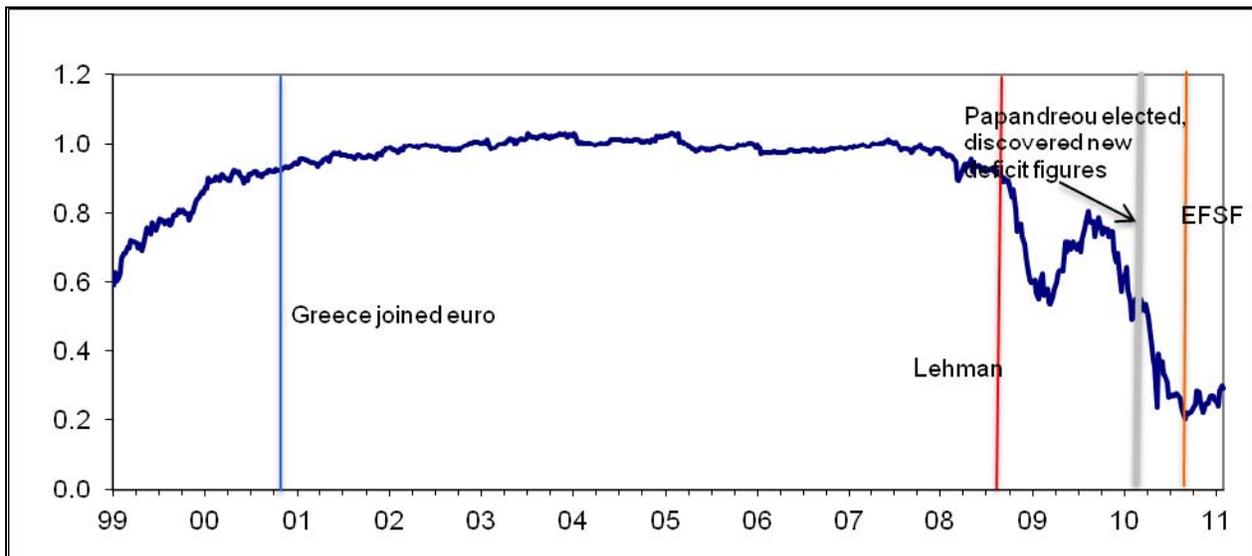
DE = Germany; ES = Spain; FR = France; GR = Greece, IE = Ireland; IT = Italy; JP = Japan; PT = Portugal.

Source: Bloomberg. www.bloomberg.com (accessed February 2012).

The explosion of yield spreads was a consequence of a market run which reflected the 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 3 shows the deterioration of Greek bonds 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 is now only 20% of German bonds. Such

price developments must cause a massive reallocation of resources and potentially important distortions in banks' balance sheet. To prevent a further collapse of asset prices, and then of banks, European governments had to bail out Greece, and later Ireland and Portugal. Having first argued wrongly that the treaties prohibited sovereign bailouts, policy makers now discovered correctly that the wording of the TFEU article 125 only barred the "assumption" of debt, but did not prevent the European Union from making loans.⁴ This new interpretation made it possible to set up the European Financial Stability Fund (EFSF) in May 2010. However, this bailout was conditional on very strict and harsh austerity measures.

Figure 3: Greek 10-Year Government Bond Prices Relative to German Bund



Source: Bloomberg www.bloomberg.com (accessed February 2012); author's calculations.

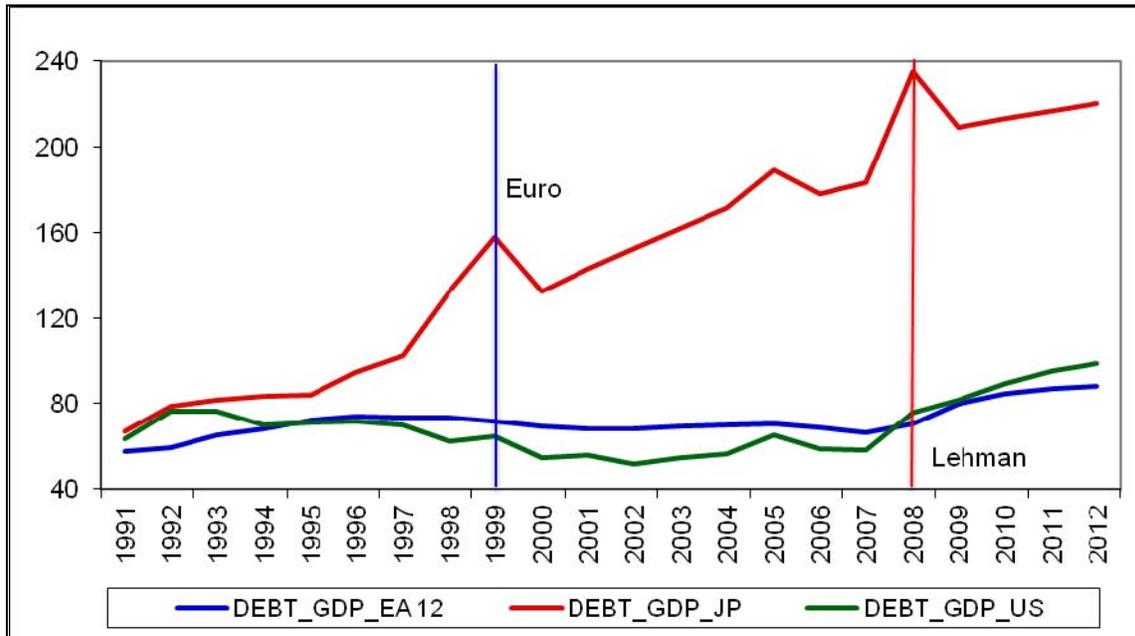
⁴ TFEU, article 125.1 says: "The Union shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State, without prejudice to mutual financial guarantees for the joint 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.

2.2 European Debt in Context

Markets fear that sovereign debtors in Greece and elsewhere will default, because the debt levels are unsustainable. This raises the question how much debt increase 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 are needed to bring affairs back in order. Sometimes it is added that the debt problems are generated by lack of competitiveness and current account imbalances that require painful macroeconomic adjustment. However, the evidence supporting these arguments is not clear-cut.

Figure 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 has 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 nations' public debt in absolute terms is clear from Table 1, which shows the share of euro area member states in the total outstanding public euro debt of €8.1 trillion. The US and Japan carry a debt stock of over €10 billion. 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 2001, the euro area borrowed €437.7 billion, while the US deficit is more than twice as much and Japan's is only two-thirds. Thus, the euro area's overall debt performance should be more sustainable than in the US if one considers new borrowings and also more sustainable than in Japan if one looks at the debt to GDP ratio. This position may explain the relative stability of the euro exchange rate.

Figure 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 February 2012).

However, Europe's problem does not emerge from the aggregate, but from particular member states. The relative weight of debtors is unequally distributed. With nearly two trillion euros in outstanding debt, Germany is Europe's biggest sovereign debtor with a share of 24.1%, followed by Italy (23.6%) and France (21.5%). Greece's public debt of €340 billion represents only 4.5% of total debt in the euro area. (Table 1). With respect to new borrowing, France exceeds all others. The annual deficit for 2011 is estimated to be €126.8 billion, nearly as much as Germany and Italy combined. Greece is expected to borrow €16.8 billion, which represents a share in new borrowing well below its share in the outstanding debt stock. This is also true for Italy, but not for Spain, Ireland, or Portugal. Among the non-euro member states, the UK borrows far more than any other euro member, including France.

Table 1 also shows the impact of the debt crisis on debt levels in terms of absolute changes of the debt ratio and relative to the initial level. Only Sweden has been able to lower its debt level since 2007. In the euro area, Germany, Austria, and Belgium, but also the Mediterranean countries—Italy, Malta, and Cyprus—have stayed below the average increase. With the exception of Italy, the most vulnerable member states (Greece, Ireland, Portugal, and Spain) have debt increases above average, although Portugal does better than the Netherlands and Greece better than Finland. Spain starts from very low levels. Outside the euro area, the

performance is generally worse, which could indicate that the fiscal rules in the euro area are effectively constraining public borrowing.⁵

Table 1: Public Debt and Deficits of Euro Area Member States

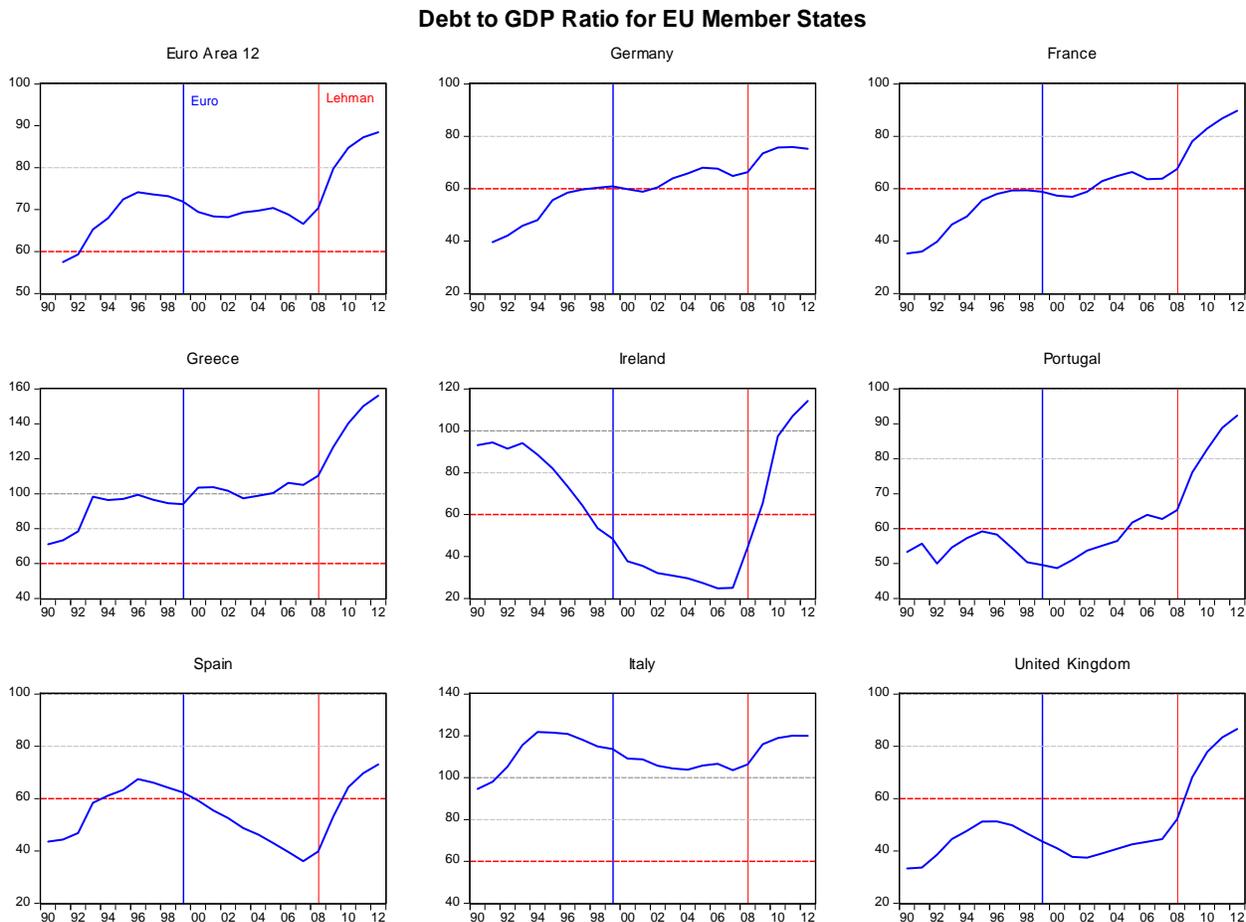
	Debt						Deficit	
	Debt in 2011 (€billion)	Country Share (%)	Debt per Head (€ thousands)	Debt-to-GDP Level in 2007	Absolute Change 2007–2012	Relative Change 2007–2012 (%)	Deficit in 2011 (€billion)	Country Share (%)
Euro area 12	8107.1	100.0	24.5	66.6	21.9	32.9	-427.7	100.0
Germany	1955.9	24.1	23.9	64.9	10.3	15.9	-69.6	16.3
Italy	1912.3	23.6	31.5	103.6	16.3	15.7	-68.4	16.0
France	1746.7	21.5	26.8	63.8	26.0	40.8	-126.8	29.6
Spain	745.4	9.2	15.9	36.1	36.9	102.2	-68.4	16.0
Netherlands	402.1	5.0	24.2	45.3	22.0	48.6	-23.5	5.5
Belgium	367.1	4.5	33.9	84.2	17.9	21.3	-16.8	3.9
Greece	340.2	4.2	29.9	105.0	51.0	48.6	-16.8	3.9
Austria	209.4	2.6	24.9	59.3	14.0	23.6	-10.5	2.4
Ireland	169.7	2.1	37.9	25.0	89.3	357.2	-16.3	3.8
Portugal	152.6	1.9	14.3	62.7	29.7	47.4	-8.4	2.0
Finland	96.2	1.2	17.9	35.2	17.8	50.6	-3.0	0.7
Slovakia	31.5	0.4	5.7	29.6	17.8	60.1	-3.7	0.9
Slovenia	16.6	0.2	8.2	23.4	24.2	103.4	-2.0	0.5
Cyprus	11.9	0.1	14.7	58.3	10.1	17.3	-1.0	0.2
Malta	4.5	0.1	0.0	61.7	9.2	14.9	-0.2	0.0
Estonia	1.4	0.0	1.1	3.7	8.0	216.2	-0.3	0.1
	Relative to EA	Relative to EA	debt per head	Relative to EA	Relative to EA	Relative to EA	Relative to EA	Relative to EA
United Kingdom	1474.3	18.2	23.5	44.5	42.1	94.6	-152.5	35.6
Poland	200.8	2.5	5.3	45.0	14.6	32.4	-22.8	5.3
Sweden	151.2	1.9	16.3	40.0	-2.5	-6.3	-0.4	0.1
Denmark	115.4	1.4	20.9	27.3	21.9	80.2	-10.4	2.4
Hungary	75.0	0.9	7.5	66.1	15.5	23.4	-4.4	1.0
Czech Republic	66.0	0.8	6.2	29.0	16.2	55.9	-7.0	1.6
Romania	42.2	0.5	2.0	12.6	21.5	170.6	-6.1	1.4
Lithuania	12.0	0.1	3.7	16.9	31.4	185.8	-2.0	0.5
Latvia	9.7	0.1	4.4	9.0	47.6	528.9	-1.5	0.3
Bulgaria	7.6	0.1	1.0	17.2	3.6	20.9	-1.1	0.3
United States	10764.9	132.8	34.5	62.4	39.7	63.6	-970.7	227.0
Japan	10132.3	125.0	78.7	187.7	37.5	20.0	-291.7	68.2

Source: AMECO. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed February 2012); author's calculations.

⁵ 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.

Figure 5 shows the evolution of debt ratios over time for selected member states. The performances are 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. Greece and Italy had debt levels close to 100% of GDP and only Ireland, Spain, and the United Kingdom (UK) remained well below the required 60%. However, the global financial crisis was a shock that affected member states unevenly.

Figure 5: Debt to GDP Ratio for EU Member States



Source: AMECO. http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm (accessed February 2012).

Interestingly, these data do not show any significant correlation between the debt levels or their changes and the vulnerability that financial markets have attributed to member states in the south that is revealed by the yield spreads on government bonds in Figure 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.⁶ 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 minimization of national costs leads to a suboptimal equilibrium for all.

2.3 Economic Fundamentals and European Public Debt

Europe's debt problems occurred on the basis of long run structural deficits, which 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 first major liquidity shock after Lehman Brother's collapsed. This recession reduced revenue for all governments,⁷ and pushed up debt. The importance of the global financial crisis in 2008–2009 is often underestimated for the euro debt crisis, because fundamentalists blame lack of discipline 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.⁸ 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 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. It is therefore more appropriate to look at absolute amounts of expenditure, revenue, and deficits.

Figures 6a, 6b, and 6c show expenditure, revenue, and deficits for Greece. The deficit had already started to deteriorate after 2007, when the GDP growth rate had slowed down; it really exploded after the Lehman Brothers' crash when GDP growth became negative. Expenditure increased at a linear trend until the last quarter of 2009, when 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 for new public borrowing. However, Greece's GDP has continued to fall and the deficit persists, so that the debt ratio continues to climb.

⁶ 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 irrational. 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.

⁷ The income elasticity of government revenue relative to GDP is close to 1 (European Commission 2011b).

⁸ The European Commission's (2011b) 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.

Figure 6a: Greece—Growth and Public Finance

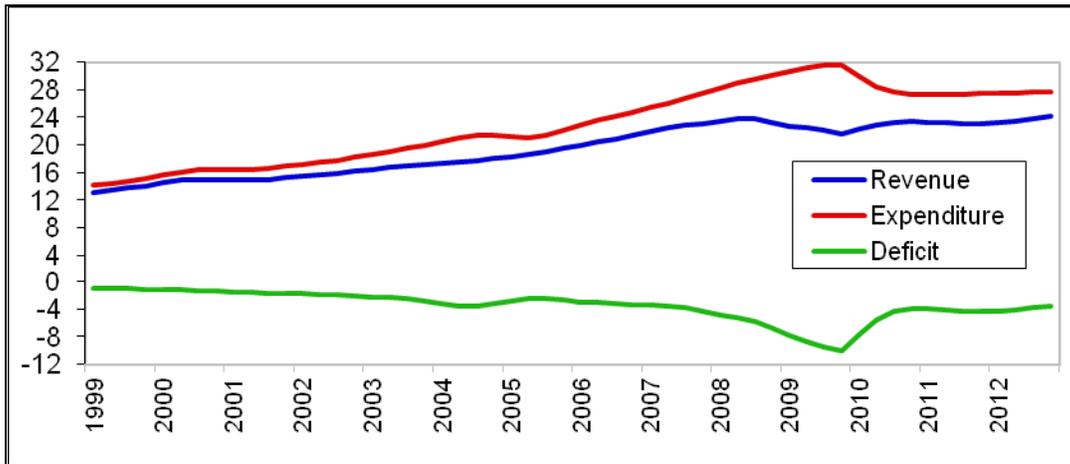


Figure 6b: Greece—Nominal GDP
(quarterly, billion euros)

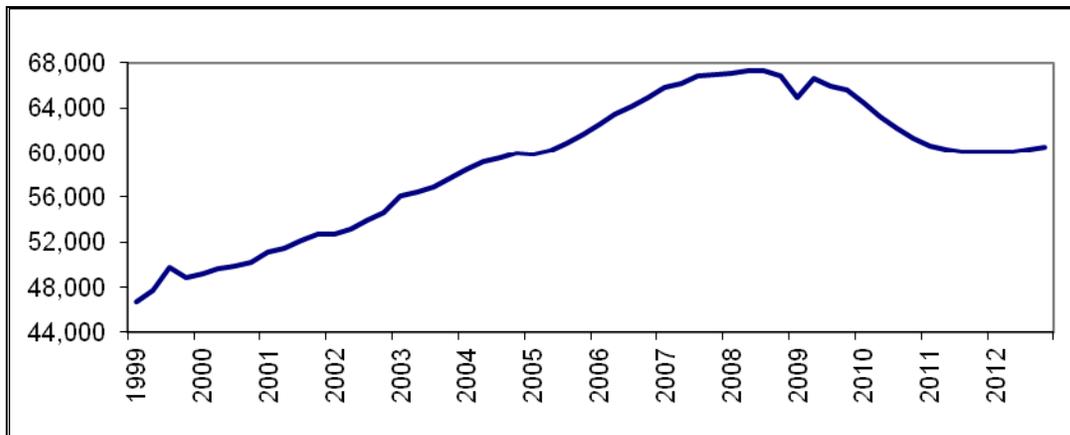
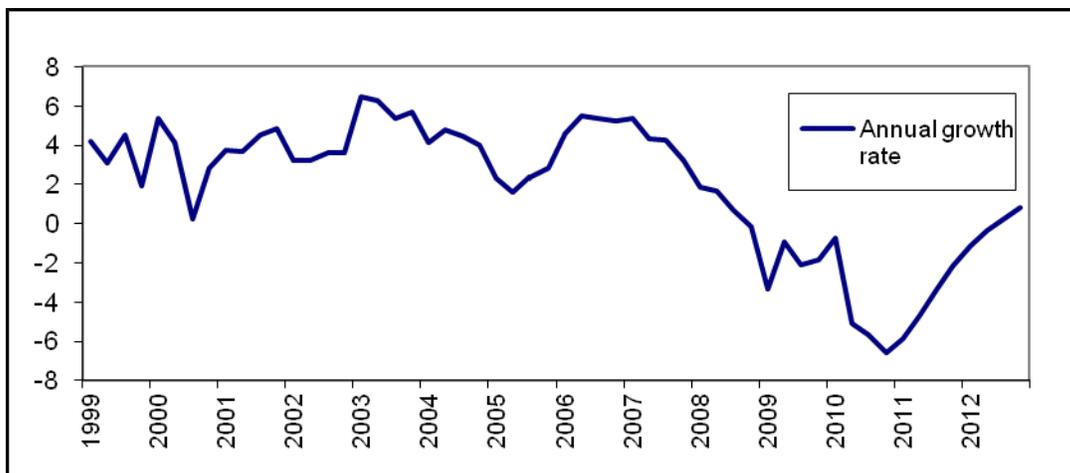


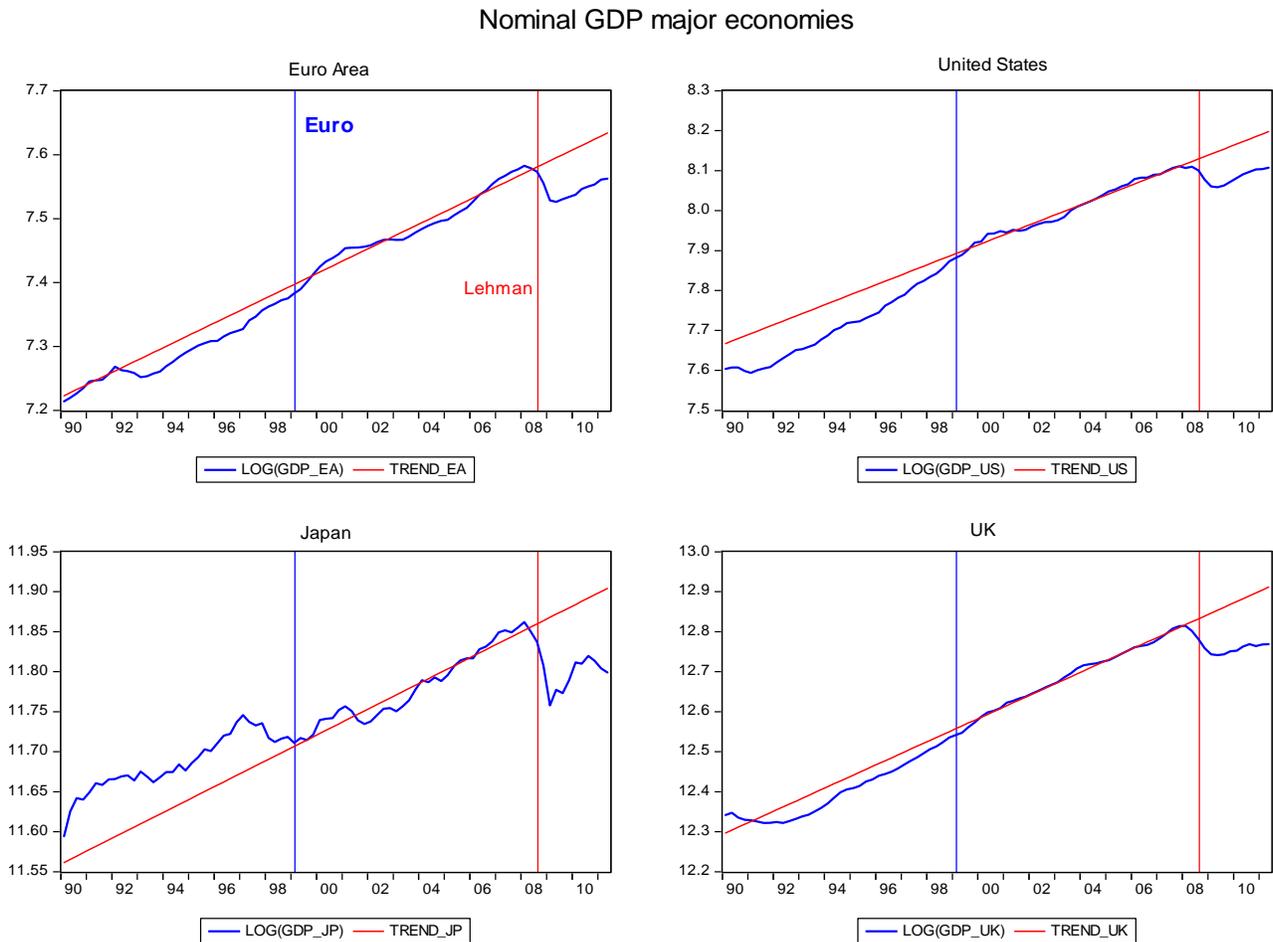
Figure 6c: Greece—Growth



Source: Eurostat. <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/> (accessed February 2012).

The Greek situation 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 (Figure 7).

Figure 7: Nominal GDP Major Economies



Source: Eurostat. <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/> (accessed February 2012).

It is reasonable to assume that this slow return to growth is a consequence of the harsh consolidation program imposed by European authorities. For Greece the austerity program seems counterproductive. This hypothesis is also supported by the data for growth contribution (Table 2). Between 2009 and 2011, GDP fell by 10%, capital stock by 30.3%, and the stock of capital equipment by 50%. Domestic demand shrank by 17.5% and the only positive contribution to growth has come from a small increase in net exports (in essence because of a reduction in imports). Nominal wages have been cut and employment is down. Unemployment

has risen by over 50%. Under these conditions, the debt ratio increases unabatedly and it seems unrealistic to expect that Greece could stabilize its public finances with such policies.

Table 2: Macroeconomic Aggregates: Greece

Annual Change, %

	1992- 2006	2007	2008	2009	2010	2011	2012	2009- 2011
GDP	3.0	4.3	1.0	-2.0	-4.5	-3.5	1.1	-10.0
Private consumption	3.1	2.8	3.2	-2.2	-4.5	-6.4	-2.2	-13.1
Public consumption	3.1	8.2	1.5	10.3	-6.5	-2.6	0.1	1.2
Gross fixed capital formation	4.3	5.5	-7.5	-11.2	-16.5	-2.6	0.1	-30.3
- of which: equipment	8.6	22.3	6.6	-11.8	-23.5	-16.0	-1.9	-51.3
Exports	6.3	5.8	4.0	-20.1	3.8	10.7	6.9	-5.6
Imports	5.8	9.9	4.0	-18.6	-4.8	-8.4	-3.1	-31.8
Contribution to GDP growth								
- domestic demand	3.4	4.6	1.0	-1.8	-7.7	-8.0	-1.8	-17.5
- inventories	-0.1	1.6	0.5	-2.3	0.9	-0.5	0.3	-1.9
- net exports	-0.4	-0	-0.5	2.0	2.3	5.0	2.6	9.3
								0.0
Wages (compensation per head)	7.9	6.1	7.0	3.6	-3.5	-1.0	0.1	-0.9
Unit labor cost	6.0	3.6	6.2	5.0	-1.1	-0.1	-0.9	3.8
Employment change	1.2	1.7	0.2	-0.7	-2.1	-2.6	0.1	-5.4
Unemployment rate	9.9	8.3	7.7	9.5	12.6	15.2	15.3	

Source: European Commission (2011a).

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.

2.4 Debt Sustainability

Given that excessive austerity will lower growth, increase default risks, and push up interest rates that in turn lowers growth, a vicious circle must be avoided by stretching the 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 nominal 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 prophecies 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 2012). The condition is derived from a system of two differential equations, one describing the intertemporal budget constraint (1), the other describing the fiscal policy reaction function stipulated by the EDP and the SGP (2).

The well-known solvency constraint is

$$(1) \quad \Delta d = (r - y)d - s$$

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. We describe the EDP-rule as the policy reaction function as

$$(2) \quad \Delta s = \alpha(def - z_1) + \beta(d - z_2)$$

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 to react to an excessive deficit: it may correct the excess borrowing by bringing the deficit down by a fraction α 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, β is a coefficient for correcting the excess of the debt ratio over 60%. The recent reform of the SGP sets β now normatively at 5% (European Commission 2011b).

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:

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

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-GDP ratio will be the debt target of 60 percent. If $\beta = 0$, the steady state debt level will vary with the nominal growth rate. Nevertheless, as nominal growth tends to zero, the debt-GDP ratio would tend to infinity. Fiscal policy rules that focus on β , 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 lower 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 $r < y$: $\alpha > (\sqrt{r + \pi} - \sqrt{y + \pi})^2$ 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 (2012) has shown that this condition has been fulfilled 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 are sustainable provided a liquidity crisis that pushes interest rates beyond the sustainable threshold is avoided. Furthermore, the Ramsey Golden Rule of dynamic efficiency (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 not 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. But this is precisely where European policy makers 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 policy making must be understood.

3. POLITICAL FRAGILITY OF THE EURO AREA

3.1 Collective Action Problems

The European debt crisis is a liquidity crisis that could turn into a solvency crisis. Southern European member states have difficulties raising funds to roll over their debt at reasonable cost, because political mismanagement has scared investors who seek to unload risky assets. Unless European authorities step in and correct their mistakes by buying the excess supply of securities, financial asset prices will collapse to a point where the whole banking system could become dysfunctional. Thus, there is a conflict of interest between European authorities and private markets that increases the risks of the crisis. The crisis is reinforced by the collective action problems within the 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 could increase its debt ratio beyond 220%, while in the euro area debt ratios above 100% are already problematic. In Japan, the central bank has provided the liquidity necessary to prevent bank and bond runs; in Europe, this is prevented by a restrictive interpretation of the central bank's role as lender of last resort. On the one hand, the ECB's readiness to buy distressed sovereign debt is constrained by public opinion in Germany and some other northern member states, because the creation of liquidity is seen as a potential source of inflation. On the other hand, northern governments have been reluctant to commit taxpayers' money to the bailout of other member states' debt. This pushes the burden of providing liquidity to finance Europe's rising public debt onto risk-averse private financial markets. Under normal circumstances, as they are observed in Japan, banks and investment funds would provide the necessary liquidity and hold government bonds in their portfolio as long as the yields compensate them for the risks arising from changing fundamental economic variables. But in Europe, policy makers do not seem to be willing or able to agree and commit

to coherent policies. In response to this political uncertainty, investors shift out of risky assets and bond prices collapse. To get private investors to supply liquidity at reasonable cost, political authorities would have to be very clear in their communication, so that markets can evaluate the fundamental risks involved in the macro-economy. Unfortunately, the intergovernmental governance where 17 governments are autonomous and responsible to 17 local parliaments prevents clear communication and unified action.

Because the political problems of the EU's governance are intractable, analysts focus on economics. But without solving the governance issue, the economic advice can be misleading. In an influential paper, de Grauwe (2011a: 4) has likened government bonds in the European Monetary Union to emerging market debt because "members of a monetary union issue debt in currency over which they have no control". By this, he means that a European government experiencing a liquidity crisis "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 learnt from endless historic 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 mandate to maintain price stability. Both these principles are the foundation of monetary union. However, if Greece had its own currency, but 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 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 3 provides evidence about the shifts in bank deposits within the euro area since the Lehman Brothers' crisis in September 2008. Total deposits, as accounted for in the broad money aggregate M3, have increased over the three years by €511.7 billion; a rate of increase of 6.3%. 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, presently supported by the EFSF. 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 euros. 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 member state with a huge banking sector. Maybe risk-averse investors 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 be experiencing a serious liquidity crisis but not Italy or Spain and 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 feature of monetary union of not being able to print money at governments' will, but rather 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.

Table 3: Changes in M3 Bank Deposits in Member States

September 2008 to September 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.

Collective action problems occur when rational individual actors make decisions that are suboptimal in aggregate. The policy dilemma in European monetary union consists in the fact that the euro is a common resource good, while fiscal policy is autonomous, so that member state governments do not have to take into consideration the external effects of their budget decisions. The ECB imposes correctly the domestic budget constraint by controlling money supply, 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 tax payers are liquidified 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 solvability. However, given that lenders in the European Union are a collective, even if German may be an important actor, such monitoring must be delegated to a European institution. However, it would not be a good outcome if borrowing member states default, for foreign taxpayers lose their asset claims and their wealth would be reduced. This is where the collective action problem arises. 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 increases the cost to taxpayers in the form of high yields, larger bailouts, and higher risks of bank failures. It follows that a centralized macroeconomic government would be in the interest of all European taxpayers, as it would reduce the cost of bailouts and risks of defaults and bank crises.

Collignon, Esposito, and Lierse (2012) have shown that political communication significantly contributes to the rising yield spreads between Greece and Germany. In the short run, every time Chancellor 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 a direct effect whereby Merkel's statements seem to reduce the yield spread. Thus the picture is one of chaotic cacophony that irritates markets (and citizens), while in the end sound policies prevail. The price for this political inefficiency is high in terms of credit risk (Figure 1) and credit cost (Figure 3).

A liquidity crisis becomes systemic when the risk of an avalanche of defaults spreads through the banking system. Table 4 shows the exposure of banks in some member states with respect to southern European economies as a percentage of banks' net capital. The vulnerability towards Greece is relatively low for the euro area as a whole, but significant for Portugal. A forced Greek default is 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 wipe out between one-fifth to more than one-third of banks' own capital reserves. This would come after banks have already made losses of similar proportion after the Lehman crisis, to which governments had to respond by emergency funds and nationalizations. Experiencing a second major financial shock so quickly after the Lehman Brothers' collapse could have devastating economic, social, and political effects. But even voluntary debt restructuring does not come without costs (Collignon 2011a).

Table 4: Bank Balance Sheet Exposure vs. Southern Europe, 2010

(claims % on total capital)

	<i>Euro Area</i>	France	Germany	Belgium	Nether-lands	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

Sources: Author's calculations done by Centro EuropaRicerche, Rome.

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 clearly moved into a more "federal" direction during this crisis. Instead, this paper now looks at how the euro area's political fragility affects its external relations with other currencies and particularly with the dollar.

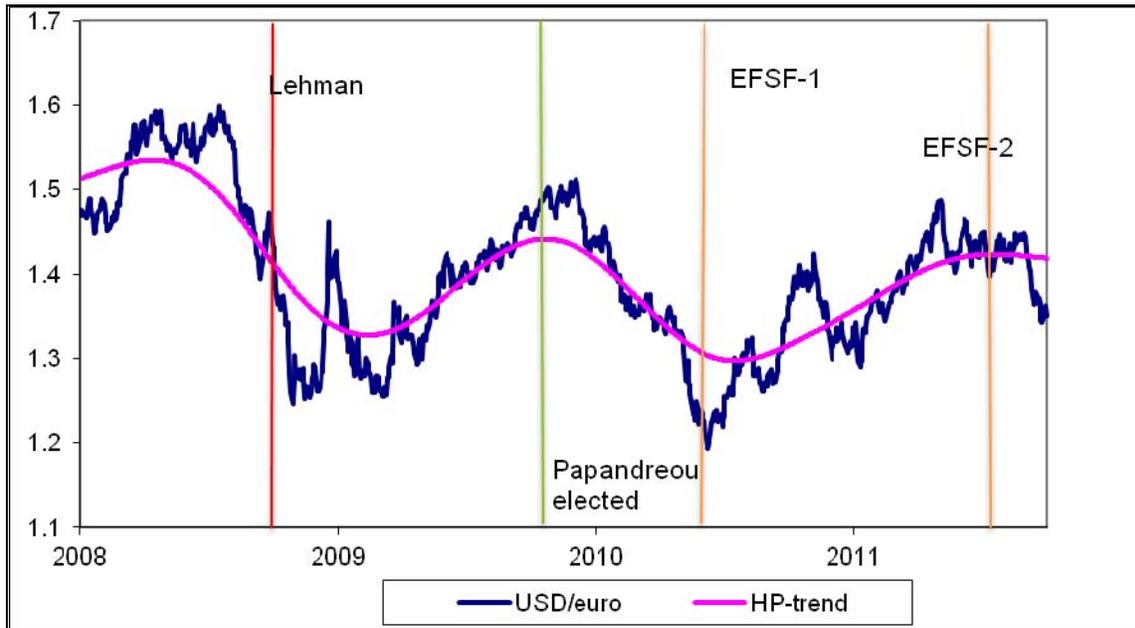
3.3 External Effects

Given the vulnerability of the European banking system, non-euro area banks will seek to reduce their portfolio holdings in European sovereign bonds and even their deposits in European banks. This should have consequences for euro exchange rates, as some investors will shift their assets out of the euro into other safer assets, 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 paper 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 (including central banks) have an asymmetric information advantage, given that their actions shape the macroeconomic outcome that determines the solvability of bonds. For this reason, markets must closely monitor the discourse of political decision makers. But if the statements made by policy makers 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, Esposito, and Lierse (2012) have formally modeled the interaction between Greek bond spreads bailouts and the political risk generated by controversial policy statements. This paper uses the same method to assess the impact of political uncertainty with regards to the Greek debt crisis on the dollar–euro exchange rate.

Figure 8 shows the movements in the daily dollar–euro exchange rate. There has been a moderate trend for the euro to depreciate by an average of 71 basis points per annum since early 2008, although volatility has been substantial with peak values of \$1.50 and \$1.20 per euro. Around the time of the Lehman Brothers' crisis, the euro weakened greatly because American banks were liquidating their foreign currency holdings to face the Lehman liquidity shock. The situation returned to normal in the second half of 2009, but following the revelation by the Greek government about irregularities in the Greek debt reporting, the euro weakened again. After the establishment of the EFSF in 2010, investors' confidence returned and the euro appreciated until the situation worsened again in September 2011, when uncertainties about the payout of the second Greek bailout tranche increased. In addition, the German government's insistence on "private sector involvement" in a potential debt restructuring caused panic sales of all southern sovereign debt, including in Italy and France. The European Council agreed in October 2011 that from 2013, all future government bond issues would be subject to collective action clauses whereby a sovereign bond will automatically lose value when a member state turns to the future European bailout fund.

Figure 8: Dollar–Euro Daily Exchange Rates, 2008–2011

Source: European Central Bank. <http://sdw.ecb.europa.eu/browse.do?node=2018794> (accessed February 2012).

The underlying factors that are driving the exchange rate must be understood. For that purpose a GARCH-M model was used,⁹ where the change of 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 spread over Germany. Table 5 gives the results.¹⁰

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 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. Thus, given that uncertainty measured by the GARCH term has increased by 616% between September 2009 and September 2011, the uncertainty generated by Europe's debt crisis has increased the average rate of the euro depreciation by 0.8 percentage points. This is by no means trivial.

The GARCH equation in the lower part of Table 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.

⁹ A GARCH-M model estimates a time series' mean as a function of the conditional variance.

¹⁰ The estimates were done using Eviews software and Table 5 reproduces the standard Eviews output.

Collignon, Esposito, and Lierse (2012) showed that the Greek–German spread is increasing in response to political miscommunication by European leaders represented by a variable tracing 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, this study included in the estimation the variable of political statements by Chancellor Merkel described in Collignon, Esposito, and Lierse (2012) (Appendix). The results are similar to Table 5, although the statistical significance is now weaker, but still acceptable according to conventional criteria.

Table 5: GARCH Estimate

Dependent Variable: DLOG(ER)
Method: ML - ARCH (Marquardt) - Student's t distribution
Date: 11/07/11 Time: 14:50
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)

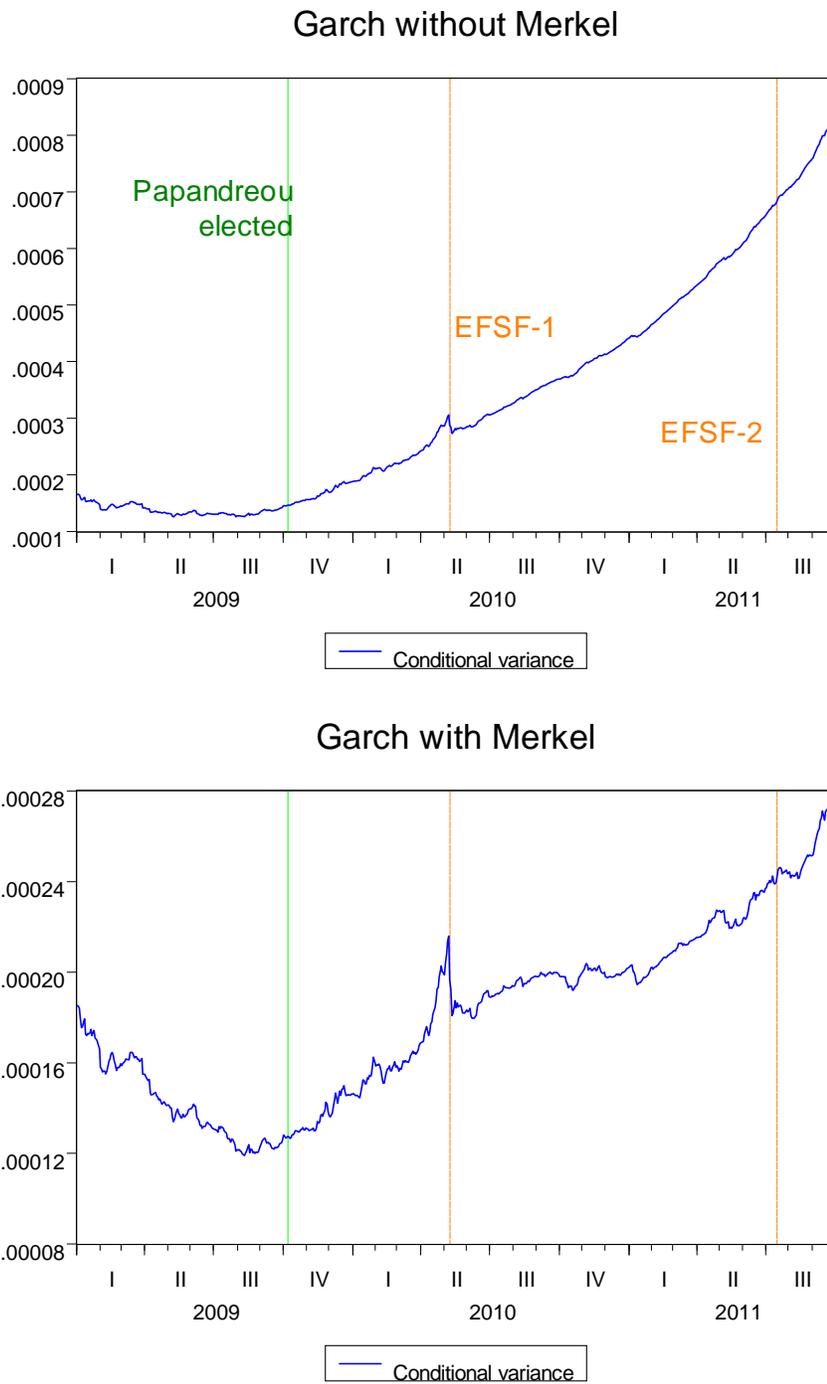
Variable	Coefficient	Std. Error	z-Statistic	Prob.
LOG(GARCH)	-0.001314	0.000527	-2.494277	0.0126
C	-0.013037	0.005337	-2.442695	0.0146
DLOG(USYEN)	0.210485	0.028866	7.291751	0.0000
DLOG(SPREADGR)	-0.043833	0.005119	-8.562533	0.0000
Variance Equation				
C	1.44E-07	1.35E-07	1.065614	0.2866
RESID(-1)^2	-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 criter.	7.143505	
Durbin-Watson stat	2.036840			

Source: Collignon, Esposito, and Lierse (2012).

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 in the model (Appendix) indirectly by the role of Germany. Figure 9 shows that this uncertainty has continually grown since the Greek crisis broke in late 2009.

Figure 9 also shows the clear but only temporary effect of setting up the EFSF. Markets seemed at first reassured of getting the necessary liquidity, but quickly lost this confidence when the political bickering among European policy makers continued. In this context, the enlargement of the EFSF's resources in July 2011 has hardly affected market sentiments. It seems that the longer the crisis is dragging on, the less financial investors keep their trust that European policy makers have the political will or wisdom to provide the liquidity markets need. In fact, the agreement of October 2011 to involve the private sector in a "voluntary haircut" (that is, debt forgiveness) of €100 billion has confirmed their fears. It is not known how the decision of leveraging the EFSF will affect market sentiment. However, it is clear that the cacophony of the EU's intergovernmental governance is weakening the euro's international role. Given that the euro is the main alternative reserve currency to the dollar, Europe's political weakness may also explain why the dollar is holding up so well despite high deficits, slow growth, and high unemployment.

Figure 9: Political Uncertainty Reflected in Dollar–Euro Rate



Source: Author's compilations based on data in Collignon, Esposito, and Lierse (2012).

3.2 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%, the US despite having a higher deficit ratio. Japan and the US have monetized a significant part of their debt, without being threatened by 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 destabilize the whole system of European monetary union.

While private investors are less and less willing to hold risky sovereign debt from southern states, bond prices are falling to levels where they are destabilizing the banking system. Hence, it is important to find a buyer of last resort. Such a buyer could be either the European Central Bank or the European Union.

The creation of the EFSF was an attempt to provide liquidity to member states that have 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 bail out money. However, this causes policy outcomes that damage the interests of all Europeans. It is unlikely that Europe's intergovernmental system can ever solve this coordination problem. However, by centralizing debt and deficit management at the European level,¹¹ a European economic government could implement coherent and less noisy fiscal policies in the euro area. Although this is clearly an efficient solution, it poses important questions of democratic legitimacy (Collignon 2003). For the time being, Europe does not seem to be willing to confront these issues, although the public debate may be shifting.

The other alternative is to ask the ECB to be the buyer of last resort for government bonds. Monetarists argue that Europe is now in a systemic liquidity crisis that has spread to most southern member states. In this situation, contagion between sovereign bond markets can only be stopped if the central bank is willing to be the lender of last resort that guarantees that cash is available to pay out bondholders (de Grauwe 2011a). According to their view, only the ECB has the "firing power" to buy all bonds that the private sector does not wish to hold. The argument boils down to saying that the central bank could issue unlimited liability, that is, money. Fundamentalists, especially in the German government and in the Bundesbank, have

¹¹ This does not exclude that member states retain the allocation function of public finances.

fiercely resisted this proposal. Their fear is that monetizing public debt could undermine price stability and even lead to hyperinflation (Weidman 2011).

However, the two positions focus on different aspects. The lender-of-last-resort camp only looks at the short run; the fundamentalists emphasize the long run. How to pass from here to there is rarely discussed. That the fear by fundamentalists is not without grounds can be seen from the monetarist claim that in countries capable of issuing debt in their own currency, "central banks can always provide the liquidity to the sovereign to avoid default. This may lead to future inflation, but it shields the sovereign from a default forced by the market" (de Grauwe 2011b: 32). In fact, this debate resembles the classic conflict in monetary theory between horizontalists and verticalists. Horizontalists claim that money supply must be perfectly elastic (the supply curve of money is a horizontal line at any interest rate), while verticalists insist that the central bank needs to keep money supply tight and highly inelastic in order to prevent inflation (the supply curve of money is a vertical line at any amount of base money).

So far, the ECB has taken an in-between position: it has bought only a modest amount of government securities and it insists that it is fulfilling its mandate of maintaining price stability over the medium term, because it keeps money supply under control by "sterilizing" its interventions. Sterilization means that to the degree that the ECB buys government bonds; it will sell other assets, domestic, and foreign, which will keep money supply stable and therefore prevent inflationary money pressures. Hence, as long as the ECB has sellable assets other than government bonds, the inflation risk can be eliminated. This means open market operations in government securities do not have to be inflationary under all circumstances, but the constraints on a non-inflationary bailout depend on the balance sheet of the central bank. Hence, the capacity of the ECB is not unlimited. In this respect the fundamentalists are right to emphasize that a central bank's reputation takes long to be built up, but trust can be easily and quickly lost. It is therefore unlikely that the ECB can or will give a firm commitment to be the lender of last resort that monetizes public debt although it may intervene occasionally.

If the ECB cannot guarantee the bailout of southern European debtors, member state governments must carry out this task. This is the correct instrument, for responsible fiscal policy is a matter of government responsibility. Yet, governments have not been willing to assume this responsibility because they resist committing their taxpayers' money to other member states. In addition, the northern member states benefit from a comparative advantage in : Countries like Germany enjoy low interest rates because their debt is the risk-free asset in the euro area, and the low cost of borrowing keeps German deficits down, reinforcing the safety of the German bonds. By keeping their payments to other member states as low as possible, they improve their competitive advantage. Hence, German policy makers maintain maximum pressure on southern states to cut their deficits so that they do not have to pay. On the other hand, the southern member states have an interest to lower the social cost of adjustment by receiving funds from the northern member states. Unless this conflict is bridged by a cooperative solution, the whole euro area could fall apart. Nevertheless, as long as no

default occurs, lending to deficit countries is an asset for lenders. In other words, euro bonds would make Germany and the northern member states richer in financial wealth.

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. Issing (2009) has suggested that a “true” multi-country European bond would comprise a full joint guarantee in which every participating country guarantees the full bond issued. The bonds could be issued by the EU, under the management of the European Commission and possibly with the help of the European Investment Bank. 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 eurobonds, 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). Monetarists argue that eurobonds are an expression of European solidarity where the “strongest” guarantee the “weakest”. However, it has not been clarified how the instrument of eurobonds would work in practice and whether Issing’s suggestion is the only viable one.

A practical solution is the creation of Union Bonds (Collignon 2011b) that would consist of authorizing a European institution like the EFSF to buy debt titles issued by member states, bundle them according to a fixed portfolio share equal to the proportion of share holdings in the European Central Bank, and then issue against them Union bonds. 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. One could even increase the risk-free element of Union bonds 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 collateral for discounting purposes.

4. CONCLUSION

Europe’s debt 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.

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APPENDIX: GARCH ESTIMATE WITH CHANCELLOR

MERKEL

Dependent Variable: DLOG(ER)
 Method: ML - ARCH (Marquardt) - Student's t distribution
 Date: 11/07/11 Time: 14:59
 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)

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 criter.	7.140116	
Durbin-Watson stat	2.049970			