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Sovereign Default and the Euro

Karl Whelan, University College Dublin

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Sovereign Default and the Euro¹

Karl Whelan²

University College Dublin

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Abstract: The introduction of the euro meant that countries with sovereign debt problems could not use monetisation and devaluation as a way to prevent default. The institutional structures of the euro were also widely thought to prevent a country in difficulties being bailed out by other euro members or having its sovereign debt purchased by the ECB. Despite these restrictions, there was relatively little discussion about sovereign default in pre-EMU debates among economists and financial markets priced in almost no default risk in the pre-crisis years. The crisis has seen bailouts and bond purchases by the ECB but there has also been a sovereign default inside the euro and further defaults seem likely. The introduction of the euro was intended to bring greater stability by ending devaluations triggered by self-fulfilling runs on a currency. While this particular scenario can no longer happen, this paper discusses mechanisms whereby expectations that a country may leave the euro can lead to this outcome occurring.

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² Karl.whelan@ucd.ie

"No, Greece will not default. Please. In the euro area, the default does not exist."

Economics Commissioner Joaquin Almunia to Bloomberg TV, January 2010.

1. Introduction

The Greek sovereign debt default, first agreed in summer 2011 and implemented in spring 2012, has been a historically important event. It was the first sovereign default in the post-war period in an advanced economy and, despite regular claims to the contrary, it has set a precedent that members of the euro area will default if their sovereign debt burden becomes unsustainable.

The implications of this event are still ricocheting around the euro area and it is unclear how the crisis will play out. However, someone analysing the Greek debt crisis from a longer historical perspective may not have been too surprised by this default. As Reinhart and Rogoff (2009) admirably demonstrated, sovereign debt sustainability problems are as old as sovereign debt itself. These sustainability problems have tended to be solved via some combination of inflation, financial repression and default. With the legal mandates of the ECB and the rule of European Union making the first two difficult to achieve, it could have been argued that it was always likely that a euro area member state that got into severe fiscal trouble would have to default. And yet, the Greek default still came as a shock to many.

This paper reviews the history of ideas and events relating to the role of sovereign default in the euro area. It has four parts.

The first part of the paper reviews the economic motivations for EMU and the role played by sovereign default in the extensive debate about EMU in the decade prior to the introduction of the euro in 1999. The pre-EMU era was plagued with instability as problems associated with fiscal and current account deficits led to currency crises, a phenomenon that economists modelled as potentially being triggered by self-fulfilling "runs" triggered by capital markets. During this era, currency realignments worked as a safety valve to prevent sovereign defaults. However, with a few notable exceptions, the potential for sovereign default played relatively little role in the pre-EMU debate, with academic economists tending to focus more on the question of whether the countries planning to go into EMU constituted an optimal currency area and whether asymmetric shocks would increase or decrease after the adoption of the common currency.

The second part of the paper discusses the behaviour of sovereign debt risk spreads before and after the introduction of the euro, documenting their near-elimination followed by their dramatic re-emergence from 2009 onwards. It also discusses how the reduction in risk spreads across European financial markets was responsible for a huge build-up of private debt in the periphery. These developments and their unwinding proved to be dramatic asymmetric shocks that were larger than those envisaged in the pre-EMU debates.

The third part of the paper discusses events since 2010 and the current situation in relation to sovereign default risks in the euro area. It stresses how many of the "red lines" that economists perceived as being in place during the pre-EMU debate turned out not to exist. Discretion and politics have dominated rules in determining the course of the euro crisis. However, while bailouts

and ECB bond-buying turned out to be legal, the precedents set in the Greek and Cypriot crises point to increasing risks of sovereign default in euro area member states.

The final part of the paper outlines how the original currency crisis literature's ideas about self-fulfilling expectations are still relevant to the survival of the euro today. While EMU members cannot run out of the "foreign currency" of the other euro members, there are scenarios in which the fear of an exit from the euro can lead to deposit outflows that result in this exit actually occurring.

2. Pre-Euro Crises and Arguments About EMU

While the euro area has been lurching from crisis to crisis over the past few years, it's worth remembering that there is nothing new about monetary crises in Europe. Throughout the post-Bretton-Woods era, Europe has struggled to establish a stable set of exchange rate arrangements. In particular, the European Monetary System, which aimed to keep currencies within pre-specified bands, was subject to regular crises and realignments. In this section, I discuss the economics underlying currency crises and then turn to the role played by sovereign default in the debate about the merits of EMU that took place during the 1990s.

2.1. *Pre-EMU Currency Crises*

The era before EMU saw regular currency realignments. Simplifying things considerably, one can characterise these realignments as being driven by two factors: Fiscal developments and current account developments.

In relation to fiscal developments, devaluations and their consequent inflation played an important role in preventing large sovereign debt burdens in European countries leading to sovereign default. The absence of an explicit low inflation target also made it easier for central banks to play a role as a sovereign debt purchaser of last resort. So while potential buyers of European sovereign debt prior to the introduction of the euro needed to take account of devaluation and inflation risks, large losses due to a disruptive default were generally considered a slim possibility.

Current account difficulties also triggered currency realignments. The period after the introduction of the EMS ran parallel with the economics profession developing sophisticated models of how current account problems could lead to exchange rate crises with key contributions including Krugman (1979), Flood and Garber (1984) and Obstfeld (1986). Fiscal and monetary policies that produced current account deficits would lead to the erosion of foreign currency reserves. Eventually, investors would anticipate a state running out of foreign exchange and thus being unable to defend its fixed exchange rate. This would lead to a self-fulfilling run in which investors dump the currency and force a devaluation.

While technically a different story, it is worth emphasising that concerns about sovereign default also lie in the background of the foreign-reserve-focused currency crisis models. Governments that are willing and able to borrow large amounts of foreign exchange to defend a fixed exchange rate

will be able to avoid a crash via the self-fulfilling mechanisms outlined in these models. Ultimately, however, it is the government's concern about its ability to repay foreign borrowings (and the concern of potential creditors about the safety of such loans) that lead to governments being unwilling to do "whatever it takes" to defend a fixed exchange rate. In this sense, concerns about sovereign default lay behind both fiscal and current-account-driven devaluations.

The signing of the Maastricht Treaty in February 1992 triggered a wide-ranging debate in policy and academic circles about the consequences of the monetary union envisioned in the Treaty. Ironically, the signing of the Treaty was immediately followed by the most disruptive of all the crises to hit the EMS. With tensions driven by macroeconomic events in Germany that followed unification, the UK exited from the EMS's Exchange Rate Mechanism in September 1992 after a speculative attack, which reportedly made over \$1 billion for George Soros. The subsequent months saw most other EMS members also devalue against the Deutsche Mark and a significant widening of the bands within which the currencies of the continuing members could fluctuate.³

Viewed from today's perspective, the EMS crisis of 1992-1993 could be viewed as a sign that large asymmetric shocks were always likely to prevent EMU from being a successful project. However, for many European leaders and academics, the events of this period strengthened the arguments for monetary union. The years prior to this crisis had seen a significant easing of restrictions on capital movements as well as financial deregulation. The Soros-fuelled sterling crisis convinced many that the self-fulfilling speculative crises outlined in the academic models were going to be ever more virulent and make a system of quasi-fixed exchange rates impossible to operate.

For many in Europe, then, the lesson from this period was that a full-fledged EMU was the only way to rule out monetary crisis.⁴ This had been the key point underlying the 1989 *Delors Report* and this report became the intellectual foundation for the common currency.

2.2. Sovereign Default in Debates about EMU

While joining the euro prevented a country from going through an EMS-style currency crisis, it also eliminated the "safety valve" that depreciation provided for dealing with sovereign debt crisis. Perhaps surprisingly, however, the enormous literature on EMU during the 1990s generally devoted little attention to the possibilities of sovereign default within the euro and the threats this could present to the sustainability of the single currency.

The Maastricht treaty contained a number of articles that were aimed at minimising the impact on price stability of fiscal problems. An article known as the "no bailout" clause was widely described as preventing countries from assisting other member states undergoing sovereign debt problems and the ECB was prevented from engaging in "monetary financing" via direct purchases of sovereign bonds. Though rarely discussed in such terms, the implication was that euro area members that could not control their public finances would have to go through a sovereign default.

³ See Eichengreen (2000) and Buiter, Corsetti and Pesenti (1998) for excellent discussions of the 1992\1993 EMS crisis.

⁴ See, for example, Buiter (1997) for an extended version of this argument.

Looking through the large literature on EMU from the 1990s, however, one can find relatively few examples of economists who were concerned that fiscal problems and the absence of a sovereign lender of last resort could undermine the euro. Two important exceptions were contributions from Charles Goodhart (1998) and Chris Sims (1999).

Goodhart's 1998 paper emphasised that EMU would feature "an unprecedented divorce between the main monetary and fiscal authorities." He noted that that arguments for a common currency based on optimal currency area theory were flawed because this theory

is unable to account for the close relationship between sovereignty and currency areas—a relationship that tenaciously persists through the course of the creation, and break-up, of federal states.

Sims (1999) sketched out a scenario that conforms well with the tensions of the past few years.

If a country were in such distress that its interest rates rise substantially above those of other EMU members and that it thereby came to the brink of default, it seems very likely that it would leave the EMU and restart its independent monetary system. It would thereby revive the option of gentle, uniform, and partial default via inflationary finance and devaluation. If markets put some credence in this scenario, they will react to an EMU member's fiscal distress much the way they have historically reacted to a fragile commitment to a fixed exchange rate. Rising interest rates on debt will fuel speculation that drives the rates up even faster, increasing fiscal distress further, in a rapid spiral leading to crisis.

In general, however, predictions that sovereign debt problems could cause severe difficulties for the euro were rarely aired during the run up to 1999 or the early years of EMU.

One potential reason for this lack of focus on sovereign debt defaults could be that economists did not believe in the no-bailout policy. However, my reading of the academic papers of this period is that most economists firmly believed the no-bailout policy would be stuck to and thus that sovereign defaults could occur for euro area member states. For example, Rudi Dornbusch (1997) commented that

Once the accession issue is resolved, the sovereign-risk question will come back. High debt levels and the categorical no-bailout injunction make it impossible to assume the problem away.

Sadly for us all, Rudi didn't live to see the current euro crisis. If he had, he would have been surprised that the no-bailout clause turned out to be not so categorical. However, another prediction of his 1997 paper—that German sovereign debt would prove to be a safe-haven and its yields fall relative to other countries during a fiscal crisis—has finally come to pass.

In general, most of the researchers that considered the implications of a sovereign debt default disagreed with Sims's diagnosis that such defaults could be a threat to the integrity of the euro. For example, Buiters, Corsetti and Roubini (1993) expressed confidence that the no-bailout rule would be stuck to, that financial markets would discipline high-debt countries and that the spill-over effects of a sovereign default on other countries would be contained via "co-operative international action"

rather than bailing out the country in trouble. Similarly, Eichengreen and Wyplosz (1998) discussed the possibility of a sovereign default for a euro area member state and concluded that a sovereign default would be unlikely to destabilise the banking sector in most member states and also unlikely to trigger contagion to other states.

Hindsight makes us all wise, so my intention in highlighting these two papers is not to suggest these authors got things particularly wrong. In fact, these papers were among a relatively small number of pre-EMU articles that focused on the potential for sovereign default and banking crises to cause serious problems for the euro.

Most papers didn't focus on these issues at all. Part of the explanation for the absence of concern about sovereign default was the confidence that the Stability and Growth Pact agreed to as part of the Maastricht Treaty would enforce an improvement in fiscal performance which, combined with the no-bailout rules and market discipline, would make a default in the euro area unlikely. Again keeping in mind that hindsight makes us all wise, the following quote from Robert Mundell (1997), founder of optimum currency area theory and an advocate of EMU, is worth reading in full:

Greece is an important country in the European Union, given its history in Europe, its strategic position in the Eastern Mediterranean, and its potential in the services industries. Europe's commitment to Greece is manifested in the heavy transfers it makes every year. It is in Europe's interest to wean countries like Greece and Portugal from these transfer payments and the best chance to do so is to help Greece to establish the conditions for bringing its economy into macroeconomic balance. That could best be achieved by allowing Greece to enter the EMU. If 14 countries were to qualify for EMU, and Greece made a concerted effort to bring its economy into balance, the marginal cost of allowing Greece to enter would be small compared to its huge benefits.

While Greece did not make the initial cut for EMU in 1999, it is likely that some of the factors noted by Mundell influenced the European leaders that decided to admit it in 2001.

2.3. The Principle Debates: OCAs and Asymmetric Shocks

Rather than the potential for (and implications of) sovereign default, the vast literature on EMU during the 1990s focused largely on whether the candidate countries for EMU satisfied the criteria for an optimal currency area (OCA) as set out in Mundell's famous 1961 paper and the subsequent literature that further developed the OCA concept. As documented by Jonung and Drea (2010), the debate about EMU tended to divide between European economists who, by and large, viewed the EMU project positively and U.S. economists, many of whom were sceptical.

American sceptics of the euro established a strong case that the new currency union did not satisfy the criteria for being an optimum currency area. Critics such as Feldstein (1992) pointed out that while having free trade, the euro area would not have a substantial federal budget to allow centralised transfers and taxes to ease the burden of asymmetric shocks. The diverse economic structures of the potentially participating economies was also widely discussed, implying that asymmetric shocks were likely to be important. In relation to adjustment to shocks, Blanchard and Katz (1992) established that much of the adjustment to asymmetric shocks in the U.S. occurred

through migration across states, something that was less likely to facilitate adjustment within a European common currency area.

Most enthusiasts for the euro project conceded these points but argued that the correct debate was not about whether the countries seeking to establish a currency union constituted an OCA in the 1990s but whether, over time, they would gradually come closer to meeting the criteria.

Krugman (1993) used the arguments of the “new economic geography” to predict that the logic of economies of scale would mean a further diversion in economic structures after EMU. More influential in Europe, however, were arguments such as those presented by Frankel and Rose (1997) who argued that the currency union would increase trade links between member states and that countries with close trade links tended to have more correlated business cycles.

These arguments about how close the new currency area would be to an OCA generally dominated the debate. For instance, Feldstein (1997) was a widely-cited critique of plans for EMU. The paper listed a series of political and economic factors that would make EMU an unsatisfactory arrangement. However, while Feldstein suggested that an unsatisfactory economic performance within EMU would eventually lead to some countries choosing to leave the common currency, the paper paid little attention to financial stability concerns and did not mention sovereign default.

From today’s perspective, perhaps the most interesting aspect of the OCA-influenced debate about the euro is that it seems to have generally missed what turned out to be the most important asymmetric shock to ever hit the European economy: EMU itself. A rare exception was the warning of Alan Walters (1990) that harmonisation of nominal interest rates could prove to be destabilising as countries that were pursuing expansive policies would have higher inflation rates and lower real interest rates, which would further exacerbate inflation in these countries. In general, however, there was relatively little focus in the pre-EMU debate on the idea that monetary union itself could be a source of destabilising macroeconomic shocks.

3. Debt Developments in the Pre-Crisis Euro

This section reviews private and public debt developments after EMU and prior to the crisis.

3.1. Public Debt Developments

The Stability and Growth Pact (SGP) appears to have been responsible for much of the pre-EMU confidence that members would keep their public debt under control. However, the early years of the common currency showed the pact was effectively dead not long after arrival.

As the US slipped into recession in the early 2000s following the bursting of the tech bubble, the euro area experienced a slowdown that placed the public finances of many members under pressure. By 2002, it was clear that Germany (then taking its turn to be viewed as “the sick man of Europe”) was not going to be able to stay within the SGP’s criteria. Around this time, the European Commission president, Romano Prodi, famously declared the pact to be “stupid” and “rigid”.

In 2003, the Commission assessed both Germany and France to be in violation of the SGP and recommended to the Economic and Financial Affairs Council (ECOFIN) that prescriptive steps be required for these countries under the excessive deficit procedure.⁵ The politicians on the ECOFIN declined to follow the Commission's recommendations. With the euro area's leading economies unwilling to comply with the terms of the SGP, the pact was violated almost as often as honoured by euro area member states in the following years.

Despite the failure of the SGP to enforce the strict fiscal discipline that had been envisaged, markets still saw very little risk of a sovereign default inside the euro area during the early years of EMU. Financial markets had not seen a sovereign debt default in Europe in the post-war period but were well attuned to the risks associated with currency devaluations. As the prospect of devaluations receded in the run-up to the euro and then (apparently) disappeared altogether with its introduction, yields on sovereign debt across all member states—which had previously differed substantially—converged within a narrow band and remained this way until 2009. See Figure 1 for the long-term sovereign bond rates of a selected group of euro area member states.

Despite substantial variations across euro area member states in their underlying fiscal positions, financial markets barely priced default risk into sovereign debt yields. Figure 2 shows a series of scatter plots for different years of the relationship between long-term sovereign yields of euro area members on their respective public debt to GDP ratios. The plots show a dramatic narrowing of sovereign bond yields and an effect of public debt on yields during the pre-crisis years that is barely detectable when viewed on a scale that includes the yields from the pre-EMU period.

Table 1 reports a series of year-by-year results for regressions of sovereign bond yields on public debt ratios. For most of the years after the introduction of the euro, there is a statistically significant positive relationships but its magnitude is tiny. In all cases, the coefficients are lower than 0.01, meaning an increase in the debt to GDP ratio of 100 points would add less than one percentage point to a country's sovereign yield. In contrast, after 2009, the estimated risk-premium coefficients increased dramatically with the coefficient for 2012 of 0.109, implying such an increase would raise sovereign yields by 11 percentage points. With large increases in public debt ratios in most member states after 2007 (see Figure 3 for selected countries) these results point to sovereign default risk as the key driver behind government borrowing rates in the euro area in recent years.

The pre-crisis relationships between sovereign debt and yields were also unstable. For this reason, Table 2 shows that a pooled regression for the period 2000-2009 has an R-squared of essentially zero. A pooled regression for the period 2010-2012 produces a large and statistically significant risk-premium coefficient.⁶ The top right data-point in the 2012 graph in Figure 2 represents Greece. As might be expected, excluding this data-point reduces the size of the coefficient on debt but it remains large and statistically significant.

⁵ See Gros, Mayer and Ubide (2004) for a contemporaneous account of developments during this period.

⁶ These regressions parallel Figure 2 and so exclude country-specific dummies. Including these dummies, debt ratios are still insignificant prior to 2010 while the coefficient on the debt ratio increases and remains significant for the period 2010-2012.

Figure 1: Long-Term Sovereign Bond Rates for Selected Euro Area Member States

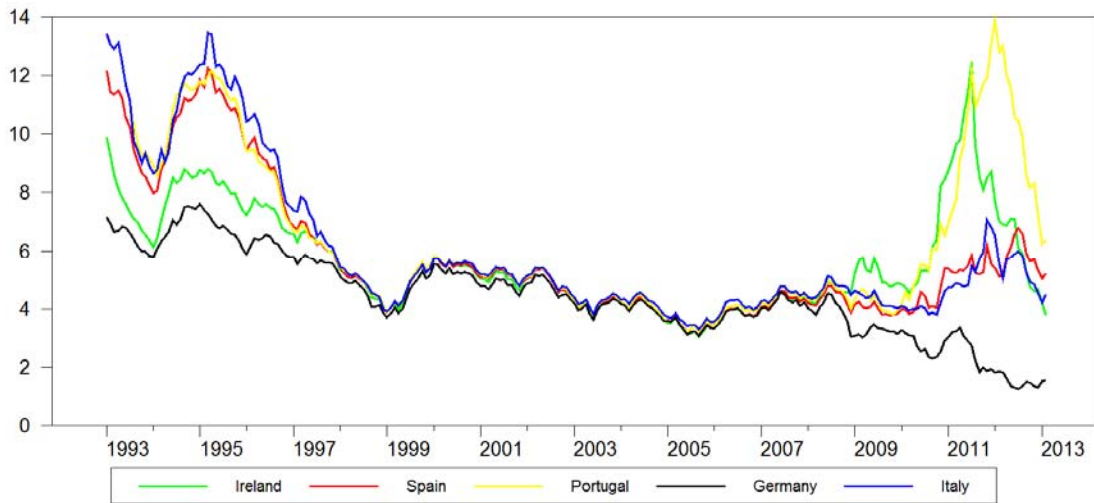


Figure 2: The Relationship between Sovereign Debt and Sovereign Interest Rates in the Euro Area

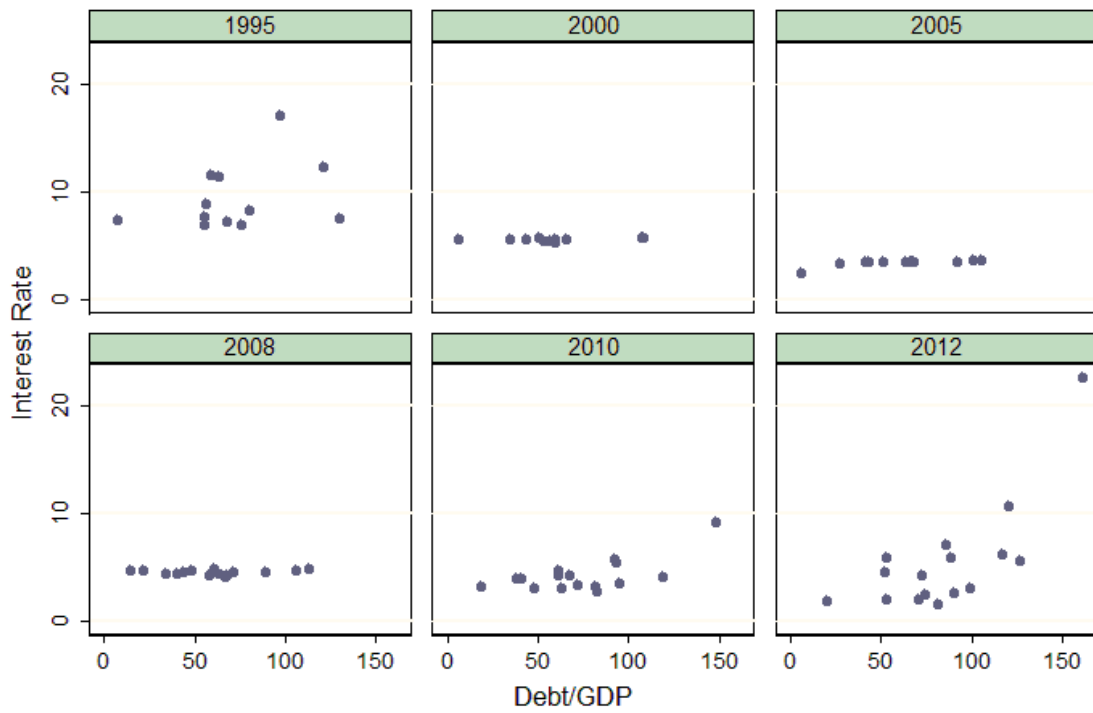


Table 1: Effect of Public Debt Ratios on Sovereign Yields, by Year, Euro Area Members

Dependent Variable: Long-Term Sovereign Yield
Explanatory Variable: Debt/GDP Ratio

	Coefficient	Std. Error	R-squared	Observations
2000	0.001	0.001	0.06	11
2001	0.002	0.001	0.36	11
2002	0.002	0.001	0.41	12
2003	0.006	0.002	0.52	12
2004	0.009	0.003	0.50	12
2005	0.007	0.002	0.56	12
2006	0.005	0.001	0.70	12
2007	0.001	0.001	0.02	13
2008	0.001	0.002	0.03	15
2009	0.002	0.005	0.02	16
2010	0.032	0.010	0.42	16
2011	0.076	0.016	0.61	16
2012	0.109	0.028	0.53	16

Table 2: Effect of Public Debt Ratios on Sovereign Yields, Pre- and Post-Crisis, Euro Area Members

Dependent Variable: Long-Term Sovereign Yield
Explanatory Variable: Debt/GDP Ratio

	Coefficient	Std. Error	R-squared	Observations
2000-2009	0.002	0.003	0.003	155
2010-2012	0.075	0.012	0.471	48

Why did financial markets fail to do what many economists had predicted they would and price in default risk after the introduction of the euro?

Part of the answer lay with the operational structures of the euro area's monetary policy and the EU's banking regulation policies. As Buitert and Sibert (2006) noted in an important and perceptive paper, the Eurosystem's operational procedures allowed the sovereign debt of any participating member state to be pledged as collateral (with a low haircut) in return for low-cost central bank loans.

These operational procedures allowed banks to operate a profitable carry trade in which balance sheets were expanded with low interest ECB funding on the liability side and higher-yielding sovereign debt on the asset side. Furthermore, the EU's implementation of the Basle capital adequacy regulations saw sovereign bonds of euro area member states allocated a zero risk weight. During a boom period for financial markets, this opportunity to make arbitrage-style profits without raising risk-weighted-assets was attractive to many banks. The demand generated by this trade appears to have contributed to limiting sovereign risk spreads.

All the same, the importance of these institutional factors can perhaps be over-stated. These features remain in place today and yet there is now a very wide dispersion in sovereign bond yields across euro area members. With little historical experience of sovereign default in modern Europe and an on-going period of relative macroeconomic stability known to many as "the great moderation" sovereign defaults simply appeared to be a very unlikely event to most market participants during the early years of the euro.

There was also an important element of self-fulfilment about the belief that euro area members were unlikely to default. Reduced sovereign debt yields significantly helped to improve assessments of debt sustainability. For example, in 1993, Italy had a debt-GDP ratio of 116 percent and allocated 13 percent of its GDP to public debt interest payments. In contrast, in 2004, with a debt-GDP ratio still standing at 104 percent, Italy only spent 5 percent of its GDP on government debt interest. High debt ratios seemed more sustainable as long as the low risk premia were in place. Furthermore, with benign financial conditions in place and growth in countries like Greece and Ireland outstripping growth in Germany, investors may have believed these countries were on a path of real convergence towards the output levels of the euro area's core.

In retrospect, one can point to the failure of countries such as Italy and Greece, which both entered the euro with high debt levels, to use the reduction in debt interest costs that occurred after euro membership to effect a substantial reduction in debt ratios but, at the time, markets viewed these countries as having improved their debt sustainability and so there was relatively little pressure to reduce debt levels.

3.2. Private Debt Developments

Popular or political discussions sometimes describe the euro crisis as simply due to the failure to maintain fiscal discipline during the early years of EMU. However, in a number of euro area member states, the key impact of the euro was not in fiscal arena but rather on private sector balance sheets. Private borrowing rates in euro area member states generally tracked sovereign yields after the

introduction of the new currency leading to a substantial harmonisation of private borrowing rates across the area.

While most of the pre-EMU academic debate had focused on differences in trade structures as a source of asymmetric shocks, it could be argued that this near-harmonisation of private borrowing rates proved to be a far greater asymmetric shock than had been envisaged in this debate. Figure 1 illustrates how asymmetric this shock was. Interest rates in Germany and other “core” euro members remained at pre-EMU levels but private borrowing rates for firms and households in many other euro area states declined dramatically.

The elimination of devaluation risk also greatly encouraged intra-EMU financial flows. With borrowing costs well down and many willing providers of this cheap credit, it is perhaps unsurprising that private debt levels in the euro area’s “peripheral” member states soared. Figure 4 illustrates how private debts rose steadily relative to GDP after the introduction of the euro in countries such as Ireland, Spain, Portugal and Greece while Figure 5 shows the significant declines in net international investment positions that accompanied this build-up of debt.

With hindsight, it is easy to see that these increases in private debt represented an important risk factor for the sovereign debt of these countries. For example, while Spain and Ireland had low and declining public debt ratios during the pre-crisis years, the explosion in private debt fuelled housing bubbles that masked underlying problems with public finances in these countries. Asset price bubbles also represented threats to the banking sector which ended up having an important influence on public debt. However, there is little evidence that financial markets perceived private debt developments as representing a significant risk factor for euro area members. Adding this variable to the regressions in tables 1 and 2 reveals no evidence that financial markets placed a positive weight on private debt ratios during pre-crisis era.

Figure 3: Public Sector Debt-GDP Ratio for Selected Countries

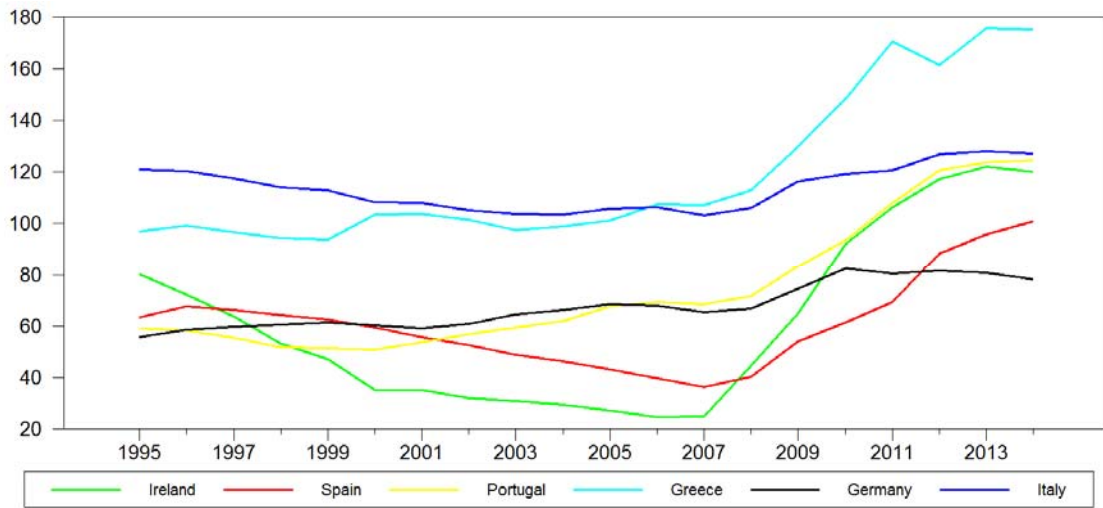


Figure 4: Private Sector Debt-GDP Ratio for Selected Countries

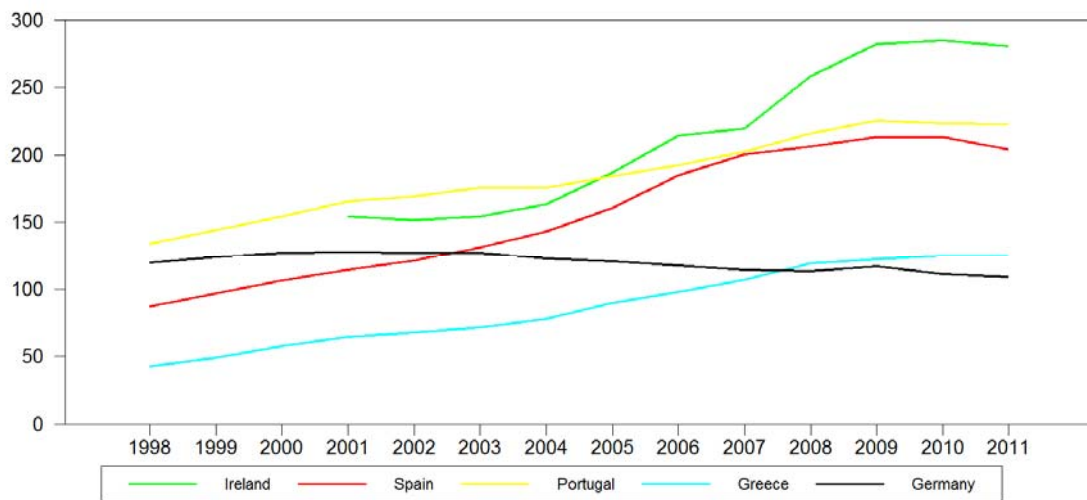


Figure 5: Net International Investment Position as a Percent of GDP for Selected Countries.

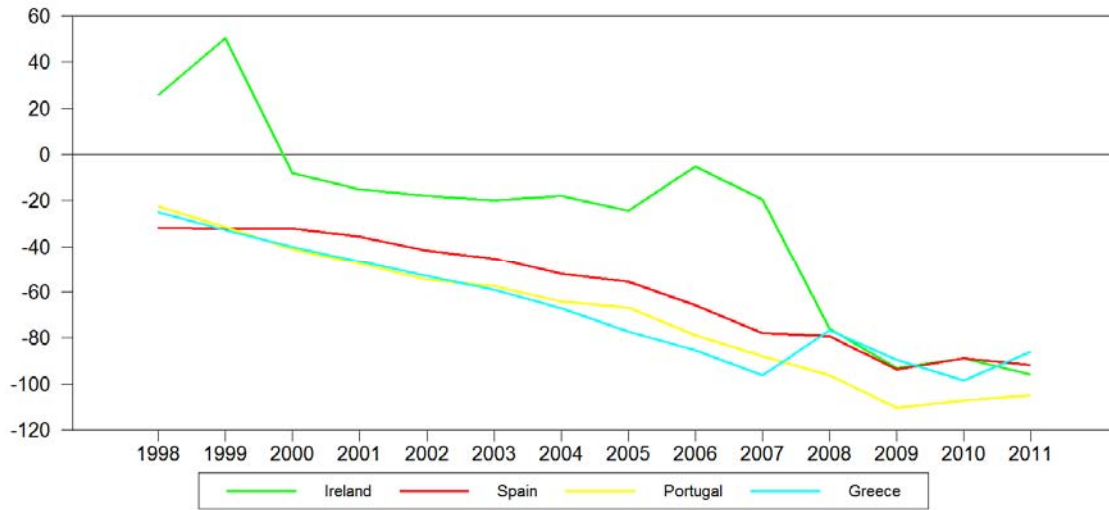
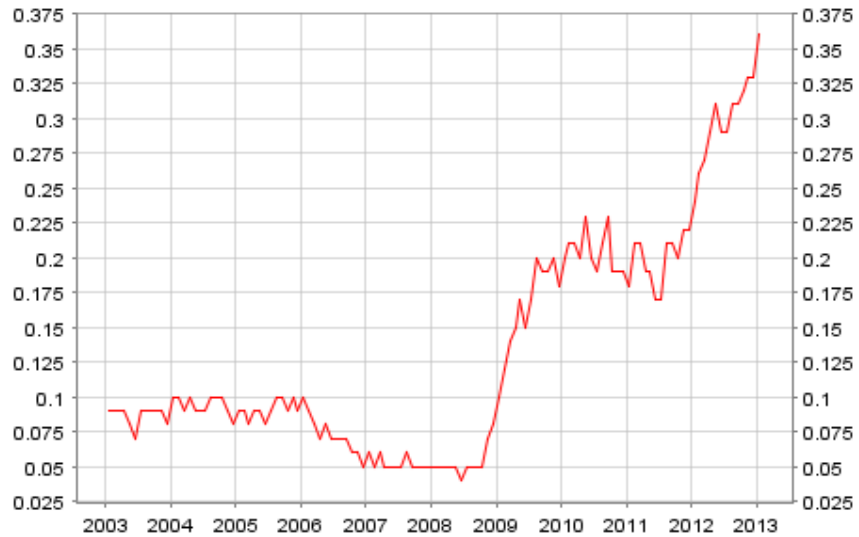


Figure 6: Coefficient of Cross-Country Variation of Interest Rates on New Loans to Businesses (Excluding Revolving Loans and Overdrafts)



4. The Crisis: Discretion (and Politics) Not Rules

This section discusses the triggers for the euro area's sovereign debt crisis, the response of member states in providing bailouts but ultimately arranging a sovereign default in Greece, and the current state of euro area policy on sovereign default.

4.1. *The Triggers*

The early months of the financial crisis that began with concerns in 2007 about U.S. sub-prime mortgage-backed securities saw a certain amount of commentary from European politicians about how the crisis showed the weakness of "Anglo-Saxon" financial models. However, it quickly became apparent that European banks had been voracious purchasers of these securities and that these banks had issued many loans of dubious quality themselves.

The global recession provoked by the financial crisis hit Europe's economy hard and led to a substantial worsening of budgetary positions. In addition, the crisis brought a worldwide re-evaluation of risk and of banking models based on high leverage and risky investments. Creditors that had been happy to lend to banks in Europe's periphery became less enthusiastic about continuing to lend into economies with high debt levels and deep recessions. Governments that had bailed out financial institutions that had over-expanded their balance sheets put pressure on these banks to cut down in size and, in particular, to cut back on foreign lending. The result was a credit crunch that remains in place today. Importantly, the euro area's financial integration process went into reverse with the cost of credit for firms and households across member states rapidly diverging after 2008 (see Figure 6).

The combination of deep recession and credit crunch has hit all euro area members hard but, as with the elimination of risk spreads that accompanied the euro, the shock has been a highly asymmetric one. Countries with high levels of debt and economies that became reliant on inflows of private credit have been hit particularly hard.

Spain and Ireland, which had been running budget surpluses, saw their booming housing markets collapse and revenues from the construction sector evaporate almost overnight. Spain went from a budget surplus of 2 percent of GDP in 2007 to a deficit of 11 percent in 2009; Ireland went from having a balanced budget to a 13 percent deficit over the same period. With bad loans ruining the balance sheet of its banks, the Irish government's attempts to use public money to repay private bank creditors contributed to it running out of sovereign funding.⁷ Concerns about Spain's banking sector have also severely damaged its sovereign credit reputation.

Other countries have been hit hard by the crisis because of underlying weaknesses or poor fiscal performances prior to the crisis have become severely exacerbated. Portugal did not have an economic boom in the early years of the euro and had uncomfortably high public debt and deficits on the eve of the crisis which then led to a dramatic worsening. Italy's public deficit has not increased as much as other countries but the crisis has seen its debt ratio edge back up towards 120 percent.

⁷ See Whelan (2010, 2011) for detailed discussions of Ireland's economic crisis.

Finally, and most crucially, there was Greece. Its reported pre-crisis deficits and debt ratios had always been uncomfortably high. Then the PASOK government that was elected in October 2009 admitted that the official figures were grossly understating the extent of Greek public debt. The 2009 deficit that was being reported as 5 percent of GDP is now reported as 15.6 percent, while the debt ratio for 2009 was revised up from 113 percent of GDP to 130 percent. As soon as the true extent of its public debt problem became clear, financial markets became concerned that Greece could be heading for sovereign default. Yields began to rise throughout late 2009 and early 2010, effectively locking Greece out of the debt markets.

4.2. The Greek Bailout

As with most debt crises, the initial response of political leaders in Greece and the rest of the euro area was denial. The news stories of late 2009 and early 2010 reported plenty of reassurances that Greece would not need a bailout and would get its public finances back on track without a sovereign default.

By early 2010, however, it was clear that the Greek crisis was going to lead to either a quick sovereign default or some sort of bailout. Some hardliners in European policy circles maintained for a time that a bailout would not occur. For instance, ECB Executive Board member, Jürgen Stark insisted on January 6, 2010 that⁸

The markets are deluding themselves when they think at a certain point the other member states will put their hands on their wallets to save Greece.

However, the mood music pointed towards some form of European bailout for Greece. Despite the mountain of ink spilled in the pre-EMU debates about the “no bailout” clause in the European treaty, it turned out that no such clause existed. The relevant article (No. 124 of the current treaty) merely stated that the Union and its member states “shall not be liable for or assume the commitments” of other countries. This did not prevent the voluntary provision of loans to government in trouble. Such loans can assist a country in difficulty honouring its loan commitments but are not the same thing as other countries explicitly taking on these commitments as their own responsibilities, which is the only thing actually outlawed by the article.

In any case, Article 122 also explicitly allowed the EU to grant financial assistance in periods of “severe difficulties caused by natural disasters or exceptional occurrences beyond its control” and the judgment of what is meant by the latter clause was clearly going to be up to the EU’s leaders themselves.

An early indication that a bailout was coming came in February 2009, when German finance minister Peer Steinbrück said⁹

The euro-region treaties don’t foresee any help for insolvent countries, but in reality the other states would have to rescue those running into difficulty.

⁸ See <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a.4cGz1tLfU4>

⁹ See <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aGX4UExx.jOk>

By early 2010, it became increasingly clear that Steinbrück's assessment was correct and that a Greek default at this point was not something the euro area's leaders would countenance. By March 25, 2010 loans to Greece from the rest of the euro area and the IMF were announced and by May a fully-formed bailout fund for the euro area, the European Financial Stability Facility (EFSF), had been put in place.

To supplement the EFSF, which was going to take months to put in place, the European Central Bank agreed in May 2010 to purchase bonds of stressed sovereigns in what it termed the Securities Markets Programme. Another pillar of fiscal discipline that economists had believed in – the prohibition on monetary financing – also turned out not to really exist. The relevant article (No. 123 in the current treaty) outlawed the direct purchase of sovereign bonds by the Eurosystem but not secondary market purchases.

It seems very likely that the exception for indirect purchases was provided to allow the ECB to use repurchase agreements in its monetary policy operations and indeed these have been the main operational tool used by the Eurosystem. However, the wording chosen did not rule out non-temporary outright purchases in secondary markets. For governments under pressure to issue debt in primary market, the existence of a central bank willing to purchase debt in secondary markets in effectively as good as direct primary market sales. So it turned out the treaty did not forbid the ECB from ensuring continued funding of budget deficits for highly-indebted governments.

The fact that many leading economists believed there was a “categorical no bailout” clause and that ECB bond purchases were illegal when in fact neither prohibition existed provides an important lesson for economists: Treaties need to be interpreted on the basis of what the fine print possibly allows rather than on the basis of the spirit of the economics that underlies them.

4.3. Politics, Populism and Fear

When comparing the decision to provide a bailout to Greece with the consideration of this question by academic economists prior to 1999, it is striking that the euro area's leaders had political motivations, populist ideas and economic concerns that had not been anticipated by the economists.

One of the political elements that had not been anticipated was the extent to which the euro area's leaders viewed a sovereign default as within the euro area as inflicting undesirable political damage on all members of the currency union. In a January 2010 interview with Bloomberg, Economics Commissioner Joaquin Almunia declared¹⁰

No, Greece will not default. Please. In the euro area, the default does not exist.

Mr. Almunia will have been aware of Greece's precarious financial position but the attitude that a sovereign default inside the euro was unthinkable played a key role in the provision of the bailout.

Jean-Claude Juncker, president of the Eurogroup of finance ministers, put the issue as follows¹¹

¹⁰ http://www.clipsyndicate.com/video/play/1280681/eu_s_almunia_says_no_plan_b_to_plug_greek_deficit

¹¹ <http://www.eurotrib.com/story/2010/2/12/133833/911>

I think the markets exaggerate and are speculating now on an absence of reaction from the Eurozone. They are wrong; we won't abandon Greece.

Indeed, the populist idea that financial speculators were trying to undermine Greece and the euro was rampant among European leaders at the time. With this diagnosis in hand, it was considered essential to intervene to prevent a Greek default, thus proving to unruly financial markets that it was politicians and not speculators that were in charge. Participants in the credit default swap (CDS) market were singled out as particularly responsible for Greece's problems.

A couple of other quotes from Juncker help to illustrate the prevailing attitude. In February 2010, he said¹²

Financial markets are clearly wrong if they believe they can break Greece into little bits

More pointedly, by March, the rhetoric had risen to the level of explicit threats of restrictions on financial markets¹³

We have to strengthen the primacy of politics. We have to be able to stop financial markets. We have instruments of torture in the basement. We will display them if it becomes necessary.

As clear and undeniable evidence of debt sustainability problems arose in Greece and other euro area countries, the demonising of financial markets has been toned down over subsequent years. However, this kind of populist thinking does appear to have played a key role in the initial decision to provide Greece with a bailout rather than arrange a default in 2010.

A final factor that the pre-EMU debate among economists had failed to anticipate was the full extent of the fear that a sovereign default in the euro area would cause substantial knock-on problems for the European banking sector. A detailed discussion of this issue by Buitier, Corsetti and Roubini (1993) had concluded, for example, that governments would likely deal with sovereign defaults in other countries by enforcing creditor write-downs at troubled banks and then directly recapitalising them with public funds.

The Europe of early 2010, however, was a place where the mere mention of the word "default" triggered visions of Hank Paulson's decision to let Lehman brothers go into bankruptcy. The idea that a Greek default would be "another Lehman's" was commonly cited, with concerns focusing on the effects on banks holding Greek bonds and institutions that had written CDS insurance on Greek debt.

The European Central Bank played a crucial role in presenting a Greek default as a potential disaster for the euro area and delaying the decision to allow such a default. Members of the Executive Board, such as Lorenzo Bini Smaghi regularly gave speeches depicting the depicting a potential Greek default as provoking "an economic meltdown".¹⁴ For example, Bini Smaghi (2011) argued that a default should be avoided because it would "punish patient investors" who believed in the

¹² <http://www.ft.com/intl/cms/s/0/d74c7530-1b62-11df-838f-00144feab49a.html>

¹³ <http://www.spiegel.de/international/europe/instruments-of-torture-the-eu-steps-up-efforts-in-search-of-a-solution-for-greece-a-681035.html>

¹⁴ <http://www.businessinsider.com/smaghi-greek-debt-restructuring-2011-5>

adjustment program could restore sustainability, that a default would discourage investors from providing money to any euro-area member state and that

the payment of debts should be enforced, through sanctions if need be

ECB officials regularly threatened to cut off credit to the Greek banking system if a default was implemented and this hard line was maintained right up to the decision to restructure Greece's debts, with ECB President Jean-Claude Trichet insisting on July 11, 2011¹⁵

no credit event, no selective default, no default. That is the message of the Governing Council.

One can still ask why those who expressed the concerns about the knock-on financial effects of a Greek default did not favour simply "mopping up" afterwards by recapitalising those institutions that would be affected by the default. I believe the answer lay partly with politics in Germany and France (the latter's banks having a larger exposure than most to Greek bonds). The bank bailouts of 2009 had proved to be politically unpopular and "helping out the Greeks" was perhaps seen as less politically unpopular than "bailout out the banks, again".

4.4. The Greek Default

So, sovereign default did not come to the euro area in the manner that many had anticipated. Bailouts were offered to Greece while the ECB bought Greek bonds and railed against anyone who proposed a default. The Greek sovereign default occurred because the size of the country's insolvency proved to be enormous and because it became politically impossible for the rest of the euro area to continue bailing out private creditors. Discretion and politics were the key factors, not rules.

Much of the outside focus on Greece's economic difficulties in recent years has concentrated on the political implementation problems of the austerity programme designed as a condition of the EU-IMF bailout. The reality is that the Greek government has implemented an extreme austerity programme of tax increases and spending cuts: Greece's primary deficit—the gap between non-interest spending and revenues—fell from 10.6 percent of GDP in 2009 to 2.4 percent in 2011.¹⁶ However, as the Greek economy imploded and debt interest charges accumulated, its fiscal adjustment programme was never on track and projections for peak debt-GDP ratios grew ever higher.

With large amounts of private holders of Greek sovereign bonds being paid off in 2010 and the IMF having a special preferred creditor status, it became clear to euro area leaders that without default on privately-held bonds (Private Sector Involvement or PSI, in the language of the IMF) they would be getting back very little of the money they were loaning to Greece. In October 2010, Angela Merkel and Nicolas Sarkozy took a walk on the beach at Deauville. Their meeting concluded with a short communique which stated that any future crisis management regime would include "the necessary arrangements for an adequate participation of private creditors".

¹⁵ <http://www.ecb.int/press/pressconf/2011/html/is110707.en.html>

¹⁶ For comparison, the UK—currently going through a wide-ranging public debate on the effects of "austerity"—saw its primary deficit decline by only 1.8 percent of GDP over the same period.

These few magic words changed the euro area forever. Yields on Irish sovereign debt exploded and, within weeks, Ireland had applied for an EU-IMF bailout. Similarly, Portuguese yields also steadily rose until it applied for a bailout in May 2011. The various European governments and policy bodies continued to debate the wisdom of a Greek debt restructuring throughout this period but the die was effectively cast at Deauville and by July 2011, the euro area's leaders agreed that Greece's private sovereign debts should be restructured.

The period from the July 2011 agreement to pursue PSI to the Greek debt exchange of March 2012 contained a number of twists and turns but the key fact of this period was that a debt restructuring took place for a euro area country without triggering that country's exit. Moreover, with the notable exception of Cyprus, the Greek default did not cause any of the systemic financial problems in other euro area member states that ECB officials had warned about. Overall, relative to the various disasters that were forewarned, I find it hard to disagree with the judgment of Zettlemeyer, Trebesch and Gulati (2012) that the Greek debt exchange has to be considered a success.

One reason the debt exchange failed to cause financial distress throughout the rest of the euro area is that, despite common claims to the contrary, the amount of Greek debt sovereign debt held by banks in other countries was relatively modest. Perhaps more interesting is the strange role played by sovereign CDS during the long period from Deauville to the March 2012 exchange. A look at the data should have demonstrated that the idea that payouts on Greek CDS claims could have been a systemic financial shock was never credible. Zettlemeyer, Trebesch and Gulati (2012) note, for example, that data compiled by the Depository Trust & Clearing Corporation indicated that the net notional volume of Greek CDS was only €7 billion at the end of 2009 and had fallen to below €2.5 billion by early 2012. These are tiny values when compared with the size of the euro area's financial system.

Throughout this period, however, European policy makers focused time and again on the need to avoid triggering a "credit event" as judged by the International Swaps and Derivatives Association (ISDA). There appear to have been a number of different motivations for this focus. One motivation seems to have been the determination to punish "speculators" that took out CDS contracts and thus to damage a market viewed as a destabilising force. An alternative motivation appears to have been the desire to present any exchange as voluntary and to avoid an ISDA declaration that would lead to a restructuring being termed a credit event. While ultimately no more than an exercise in semantics, Europe's leaders demonstrated a strong desire to label any debt exchange "voluntary" thus allowing them to keep a straight face when saying there was no default.

As things turned out, the restructuring required passing a law for Greek-law bonds that was coercive and the exchange was determined a credit event by ISDA. But there do not appear to have been any negative repercussions from this declaration. An important lesson from this event is that international policy makers often appear to make decisions based on a skewed and inadequate understanding of how financial markets work.

4.5. *The Outlook for Sovereign Default*

As soon as the agreement on PSI for Greek bonds was agreed, Euro area leaders were at pains to emphasise that the Greek default was a unique event never to be repeated. While (at the time of

writing) no other euro area member has restructured its sovereign debt, the institutional structures put in place over the past few years are consistent with the likelihood of future defaults.

There are a number of reasons for this. First, the new euro area bailout fund, the European Stabilisation Mechanism (ESM), has been put on a permanent statutory basis and its underlying treaty states

In accordance with IMF practice, in exceptional cases an adequate and proportionate form of private sector involvement shall be considered in cases where stability support is provided accompanied by conditionality in the form of a macro-economic adjustment programme.

In this sense, PSI is now official Eurozone policy.

Second, there is little reason to think the ECB is going to use its money-printing powers to prevent future sovereign defaults. Financial markets have placed great weight on Mario Draghi's commitment in July 2012 to do "whatever it takes" (within the ECB's mandate) to preserve the euro. And indeed, the Outright Monetary Transactions programme introduced after Draghi's famous speech provides more comfort for sovereign bond investors than the Securities Markets Programme (SMP) that it replaced. The rationale for which bonds would be purchased by the SMP was unclear, purchases were sporadic, information about quantities purchased for each country were not available and the programme always seemed to be on the verge of disappearing. In contrast, OMT purchases would take place after a country has agreed an adjustment programme with the ESM and the ECB has made clear that there would be no quantitative limits to the size of potential purchases.

Still, as of yet, we have little idea how OMT purchases would work in practice. In particular, we don't know how the ECB would react if countries fail to meet the fiscal targets set down in the conditionality programmes agreed with the ESM. With the euro area mired in a deep recession and fiscal austerity and tight credit likely to continue for a number of years, many of the countries currently in difficulty will find it hard to stabilise their debt levels. It seems unlikely, at present, that the ECB would continue bond purchases in a situation in which a country has systematically failed to meet the terms of the policy conditionality set down by the ESM.

Finally, there is growing evidence of "bailout fatigue" in the euro area's creditor states. Events surrounding the Cyprus bailout in March 2013 provide a number of hints as to the pattern future bailouts may follow. European sovereign debt investors may have welcomed the statement from euro area leaders in June 2012 that it was "imperative to break the vicious circle between banks and sovereigns." However, what many had in mind from this statement was that the ESM would be used to recapitalise failing banks in euro area states. It turns out, however, that Germany and other countries appear to have little interest in allowing ESM to be used for such bailouts. Instead, they view the commitment to break the vicious circle as a commitment to ensure that bank creditors lose out when banks fail, with uninsured depositors in Cyprus experiencing very large losses.

A key motivation for the decision to haircut bank creditors in Cyprus was that euro area members are no longer willing to provide bailout loans that see countries debt-GDP ratios rise well above 120 percent, as happened in Greece. This decision set an upper limit on the amount of EU and IMF money that was available for Cyprus. It also signals that countries whose debt ratios drift upwards away from this level are unlikely to receive much official funding in the future.

At the same time, it is not clear that the Greek model of sovereign default inside the euro has set a template that other countries would be willing to follow. For example, a default on Italian sovereign bonds would likely see the capital of many leading Italian banks wiped out. As with the Greek case, the size of the haircut on sovereign debt would need to be calibrated to allow new debt to be taken on to recapitalise these banks, with many big banks likely being nationalised. There would be strong vested interests in Italy among banks and other domestic institutional holders of Italian debt to avoid such a default. Instead, there could be pressure to exit the euro, redenominate the sovereign debt into lira and have the Banca d'Italia honour existing bonds by printing money.

5. The Return of Self-Fulfilling Crises?

One element of currency crises that Europe's leaders thought they had left behind with EMU was the prospect of a self-fulfilling run that led to currency devaluations. Euro area member states have central banks that can print euros and so cannot "run out" of the currency of other member states. Recent events have shown, however, the combination of free capital movements, nervous investors and rules of the Eurosystem may still lead to the euro breaking up with the mechanisms ultimately not being too different from those described in the 1980s currency crisis models.

As the euro crisis has gone on, faith in the currency as a fixed and irrevocable construct has gradually waned. The Greek and Cypriot crises have seen European politicians casually discuss the prospect that some of the member states may leave the euro. Even though such an event would cause enormous technical and legal difficulties (Eichengreen, 2010) and may not be possible without the exiting country also leaving the European Union (Athanosiou, 2009) the idea a country could leave the euro has become widely accepted.

The fear of countries leaving the euro has played an important role in triggering large-scale capital flows out of the euro area's biggest debtor countries in recent years. Capital outflows from Spain and Italy in 2011 and 2012 was largely facilitated by the ECB's willingness to provide loans to banks. Without these loans, it is likely that banks in Spain and Italy would have had to engage in asset sales that could have undermined solvency and perhaps ended up with losses for bank creditors.

Provided the ECB is willing to provide sufficient liquidity to banks to honour all deposit withdrawals, there should be little reason for depositors to be concerned. However, despite Draghi's "whatever it takes" language, the ECB has regularly shown itself to be unhappy with allowing lending to banks in crisis countries that may be insolvent.

To understand why, it is worth briefly explaining the mechanics of how the Eurosystem makes loans to banks.¹⁷ The creation of base money in the Eurosystem is decentralised to the national central banks. So when money is created to provide loans to Italian banks, this loan is an asset of the Banca d'Italia while the credit to the reserve account of the bank obtaining the funds shows up as a liability for the Banca d'Italia.

If deposit flight leads Italian commercial banks to move this money abroad, say to Germany, the Eurosystem operates an accounting system that sees the Banca d'Italia's reserve liability change to

¹⁷ See Whelan (2012) for a more detailed discussion of the mechanics of money creation in the Eurosystem.

what is known as an Intra-Eurosystem liability which is a debit to the ECB. At the same time, the ECB supplies the Bundesbank with an Intra-Eurosystem credit which is offset by a new reserve liability to the German commercial bank that has received the new deposits. These Intra-Eurosystem balance sheet items have come to be known in recent years as TARGET2 credits and liabilities after the real-time payments system that transfers money around Europe. The liabilities pay interest at the ECB's main policy rate and this interest is then redistributed to those national central banks that have TARGET2 credits.

Deposit flight of this sort, financed by loans from the Eurosystem, has led to significant changes to the balance sheets of some of the central banks in the system. Figure 7 shows how lending by national central banks in Spain, Italy, Portugal and Ireland has driven increases in TARGET2 liabilities. At the same time, the German TARGET2 claim has grown to the point where it accounts for the majority of the assets of the Bundesbank.

Now consider the question of what happens if a Eurosystem central bank made large loans to depositors and then chooses to leave the euro and renege on its TARGET2 interest payments. This situation would see the ECB collecting less interest on TARGET2 liabilities than it owes on TARGET2 assets, thus effectively causing the ECB itself to make losses.

It is perhaps with this scenario in mind that the ECB has generally been reluctant to provide too much credit to banks in crisis countries where an exit from the euro is possible. Again, the Cyprus situation has provided an example of how future banking\sovereign debt crises may play out. In March 2013, the ECB refused to allow further provision of emergency credit to the Cypriot banks by the Central Bank of Cyprus unless there were large write-downs for bank creditors.

Crucially, before and after the deposit write-downs were imposed in Cyprus, capital controls were imposed, thus restricting the possibility of substantial deposit outflows. Euros in Cypriot bank accounts ceased to have the same properties as a medium of exchange as euros elsewhere. Investors have been put on notice that the tools to allow a country to leave the euro (starting with shutting down banks and imposing capital controls) are in place and the European authorities are willing to use them.

These considerations bring up a scenario raised in a remarkable 1999 paper by Peter Garber which outlined a way in which the euro could break-up due to speculation by creditors. In particular, Garber discussed a situation in which depositors suspected a country might leave the euro and its national central bank was facilitating deposit flight by creating new money to loan to banks and running up ever-larger TARGET2 liabilities. If the national central bank of the country experiencing the deposit flight became reluctant to accumulate ever-larger TARGET2 liabilities denominated in euros because it anticipated exiting and owing large amounts of high-value foreign currency, then it may decide to leave the euro. Alternatively, if the central banks of the remaining euro countries anticipated that a country was about to exit and not honour its TARGET2 liabilities, they may decide to revoke its ability to create money.

Garber noted that as long as the commitment to keep the euro together was accepted by all, then deposit flight of this type could not trigger a break-up of the euro. However, we appear to be creeping closer to his scenario in which investors suspect that some countries may be willing to leave and doubts creep in about their willingness to honour TARGET2-related liabilities. In this case, deposit

runs predicated on potential euro exits could prove to be self-fulfilling. In this sense, the debate about currency crises has come back full circle to the models of the 1980s.

6. Conclusions

The euro project was born from dissatisfaction with the economic problems associated with exchange rate instability in Europe as well as a desire on the part of many European leaders to take an important step on the path to greater economic and political union. By eliminating the exchange rate crises that had afflicted the European Monetary System, it was hoped to create a zone of monetary stability and further encourage European integration.

Unfortunately, the introduction of new monetary arrangements did not turn out to be sufficient to eliminate the consequences of the economic differences across the participating member states. Indeed, the concern about asymmetric shocks that was widely discussed in the pre-EMU academic debates failed to anticipate two huge asymmetric shocks that would hit the euro area: The near-harmonisation of sovereign and private borrowing rates during the early years of the euro and the subsequent reversal of this pattern. The asymmetric shocks that critics predicted would afflict the euro have occurred in a deadlier form than most people anticipated.

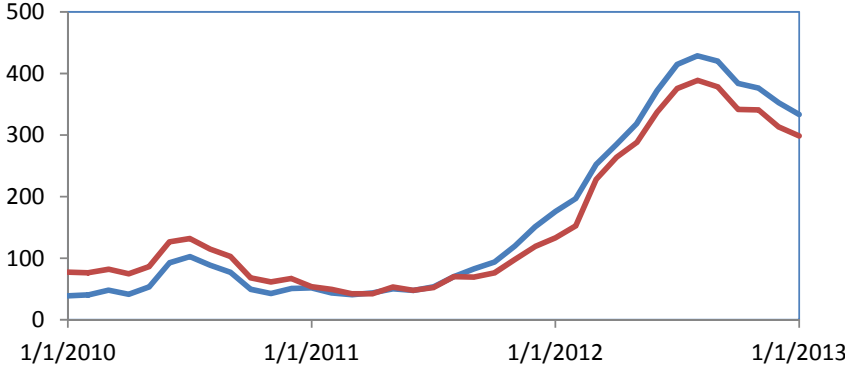
While countries could no longer devalue once they joined the euro, the absence of devaluation greatly raised the prospects of sovereign default. The Greek default has shown that a sovereign default can occur while a country remains in the euro. But it is not clear that it has set a template that could be copied in other countries. And while substantial capital flight no longer leads to countries running out of foreign currency reserves and thus devaluing, this has not prevented capital flows of this sort afflicting the common currency area and causing substantial tensions.

As of yet, Europe's leaders have failed to arrive at the appropriate set of institutions and compromises that will allow so many countries to share a common currency while avoiding chronic instability. Given the severe political difficulty involved in setting up these institutions and the cumbersome nature of the EU and Eurozone's decision-making procedures, the odds are perhaps against this outcome.

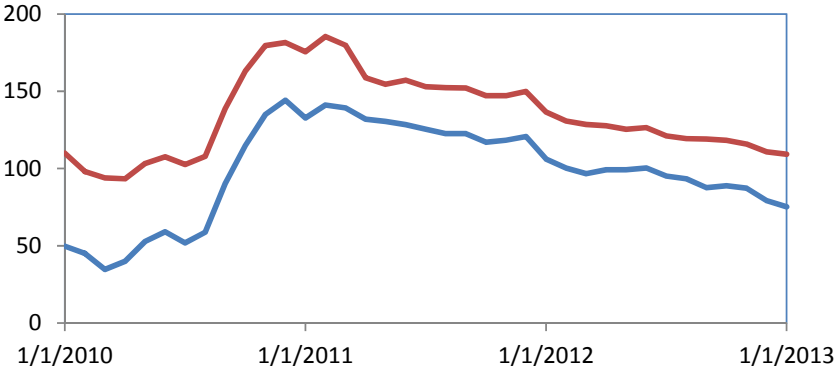
Figure 7: Target2 Liabilities (Blue) and Loans from Central Banks (Red)

Billions of Euros

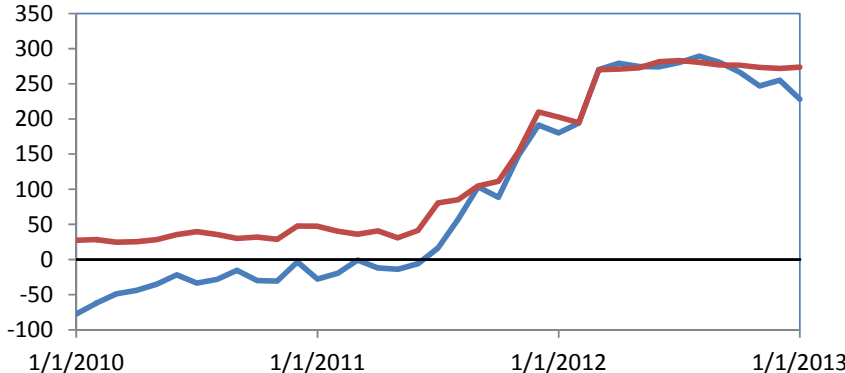
Spain



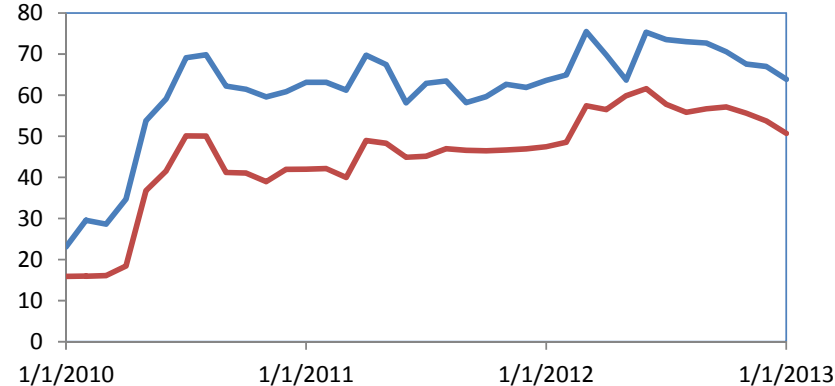
Ireland



Italy



Portugal



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