1. Introduction

Other chapters in this volume consider manmade disasters related to the production of energy – the Santa Barbara and Gulf oil spills and the possibility of nuclear power plant accidents in Japan, Germany and France – focusing on how risks were managed, why dangers were overlooked, and how risk-management practice was revised following incidents. Additional chapters consider financial disasters – the depression and financial crisis of the 1930s and the global credit crisis of 2007-8 – and similarly ask how risks were managed, why dangers were overlooked, and how risk-management practice changed subsequently. This paper considers another manmade disaster, the European sovereign debt and banking crisis. It too asks how economic and financial regulators perceived risks and sought to regulate them before the fact. It discusses why the framework they established and implemented failed to avert the worst. Next it tries to understand the response to the disaster in terms of regulatory, institutional and policy reform and concludes with some speculations about whether the new framework will be more successful than its predecessor in achieving its goals.

Before proceeding, a few clarifications are in order. First, while the preceding paragraph, like much of the literature, refers to Europe, the focus in this paper is on the Euro Area, the 17 countries that (at the time of writing) have adopted the euro. But it acknowledges that the Euro Area is embedded in a larger institutional entity, the European Union, something that presents both constraints and opportunities for risk management and reform. Second, the crisis that is its subject is better referred to in the plural, as crises or at least as a crisis with multiple dimensions: sovereign debt crisis, banking crisis, growth crisis and political crisis. These dimensions, while distinct, interact and reinforce one another in both negative and positive ways.

Section 2 starts with a timeline of the crisis, framed so as to highlight the emphases in subsequent sections. Section 3 then describes how risks to economic and financial stability were perceived prior to the onset of the crisis and the institutions and policies put in place to contain them. Section 4 asks why those institutions and policies failed to avert the worst. Section 5 goes on to describe the institutional and policy reforms undertaken in response to the crisis. Section 6, finally, concludes.

The argument runs as follows. In thinking about the nature and immediacy of the risks confronting their monetary union, the views of the epistemic community of European policy makers were heavily shaped by history, by faith in the operation of financial markets, and by expert opinion from likes of the rating agencies. These three factors caused them to focus on a

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1 Any chronology of the crisis of less-than book length is necessarily partial and selective. In selecting events to emphasize, I am consciously attempting to set the stage for the remainder of the paper, as noted, rather than to be comprehensive. I am also aware that this account fails to capture the high drama of the crisis, but then I am not trying to write a thriller.
narrow and specific set of risks, namely that excessive budget deficits and their monetization would give rise to high inflation, at the expense of other sources of risk, including private debt and high bank leverage. When Europe was then sideswiped by Lehman Bros. and the global financial crisis, these private-debt and high-bank-leverage problems came to the fore, and the monetary union descended into a very serious crisis. While that crisis spawned much discussion of institutional reform, policy makers continue to focus, to a remarkable extent, on excessive deficits at the expense of other risks. This too reflects the powerful role of historical perception as a framing device.

2. Timeline of the Crisis

Initially it was possible for European officials and commentators to regard what was still quaintly referred to as “the Subprime Crisis” as an exclusively American affair. This impression began to change in the summer of 2008 with the revelation that IKB (formally, the Dusseldorf-based Bank für deutsche Industriebonds, or Bank for German Industry Obligations) was heavily invested in U.S. subprime securities and had to be rescued by the German government. This was followed in August with the news that BNP Paribas was suspending three in-house hedge funds due to problems with their holdings of U.S. mortgage securities. Suddenly it was clear that not only the U.S. had a shadow banking system, and not only the U.S. had a shadow banking system heavily invested in subprime-related claims. The infection had not yet reached Europe’s large universal banks, but the news was a reminder that leading banks in a number of European countries, starting with Spain and Ireland, were heavily exposed to the domestic real estate sector.

Further questions then arose in September with the failure of Lehman Bros., which caused securitization and wholesale money markets in the United States and globally to seize up. The fact that Euro Area banks were even more highly leveraged than their U.S. competitors and relied even more heavily on wholesale funding now came into focus as a risk to stability (see Figure 1).

Figure 1. Bank Leverage Ratios in the Euro Area and United States

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2 In fact, IKB had been one of the principal “customers” on the other side of John Paulson’s Abacus trade notoriously intermediated by Goldman Sachs (see Zuckerman 2009).

3 Data for the figures in this paper, other than Figure 6, is from Barkbu, Eichengreen and Mody (2013).
Yet despite these warning signs there was no sense of impending financial crisis. There was, to be sure, an appreciation of the potential for liquidity problems, given that much of the wholesale funding on which Euro Area banks depended was denominated not in euros but in dollars. But this problem was addressed by arranging dollar swap lines with the Federal Reserve System. There was awareness that a deep decline in trade and output might result in more nonperforming loans. But this danger could be contained by avoiding mutually destructive resort to trade protection and arranging an internationally coordinated fiscal initiative, as the G20 did under Gordon Brown’s leadership in November 2008. With hindsight, a more differentiated response would have been better, with more stimulus by countries with relatively strong banking systems and less from countries with large contingent banking and financial liabilities. It would have been better had there been more attention to banking-system vulnerabilities from the start. But European leaders, having been socialized to expect trouble in the fiscal accounts, not in bank balance sheets, failed to anticipate the risks.

More consonant with policy makers’ presumptions was the revelation in 2009 that the Greek government had fudged its budget statistics. Following its October victory in snap elections, the new government of George Papandreou acknowledged that its predecessor had vastly understated the budget deficit. In response to the admission that the Greek deficit for 2009 was in fact 12.7 per cent of GDP, not 3.7 per cent, the rating agencies sharply downgraded Greek bank and sovereign debt. The European Commission also issued a report condemning “severe irregularities” in the Greek government’s budgetary procedures.

With hindsight, it is peculiar that neither the rating agencies nor the Commission had a glimmering that something was amiss. But having received this wake-up call, they now began to

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4 On this previously underappreciated feature of European banking, see Shin (2012).
5 In addition, in November 2009 Dubai World, a conglomerate owned by the government of Dubai, requested a six-month debt moratorium of its creditors. The news unsettled financial markets, leading to an increase in risk aversion.
worry about the finances of other European countries such as Portugal, Spain and Ireland, which it was thought might be harboring similar financial problems.\textsuperscript{6} Contagion had never been high on the watch list of risks to sovereign credit worthiness in the Euro Area. In retrospect, this too seems peculiar, given how interest-rate compression had spread contagiously across member states in the good times before 2008 (see Figure 2). But from this point, with contagion seemingly operating in reverse, the risk was foremost in officials’ minds.

**Figure 2. Sovereign Spread Compression in the Euro Area 1990-2011**

![Sovereign Spread Compression in the Euro Area 1990-2011](image)

There then followed, starting in early 2010, a complicated charade in which Greece sought to restore investor confidence by unilaterally raising taxes and cutting public spending while denying that it would turn to the Commission, the European Central Bank and the International Monetary Fund for assistance. The Commission and the ECB, for their part, denied that emergency financial assistance would be extended by themselves or, worse, in conjunction with an extra-European entity like the Fund. All the while, negotiations proceed behind the scene. Already in February 2010, in response to a public sector wage freeze, mass demonstrations and a 24-hour strike closed schools and halted the air-transport system. This highlighted the political dimension of the crisis; it was a warning that governments pursuing policies of austerity and demanding painful sacrifices of their constituents might not retain political support for long. And if their constituents turned against them, the consequences for the stability and, indeed, the existence of the Euro Area were, at a minimum, uncertain.

On April 11, 2010 EU leaders announced the long-denied bailout for Greece, with a one-third contribution from the IMF. Greece requested activation and disbursement of funds two weeks later, prompting Standard & Poor’s to downgrade Greek debt to junk. For good measure it also downgraded Portuguese and Spanish debt. In May, the 27 EU member states then agreed to create a special-purpose financial vehicle, the European Financial Stability Facility (EFSF), authorized to borrow up to €440 billion to fund this and other loans.\textsuperscript{7} In July, in response to

\textsuperscript{6} The idea of a wake-up call effect originates in the literature on the Asian financial crisis and has been formalized by Ahnert and Bertsch (2012).

\textsuperscript{7} That this was necessarily a facility of the 27 EU member states and not just the 17 Euro Area members was a source of differences of opinion when disbursement decisions were taken. This is an example of the additional complications arising from the fact that the Euro Area was embedded in the European Union.
more bad news about the Greek economy, the package was revised, its size being increased by 40 per cent. In August, with more signs that the confidence crisis was spreading to Italy and Spain, the ECB announced its intention of buying their sovereign bonds in order to put a ceiling on spreads. Italy and other countries passed austerity budgets. The extension of EFSF and ECB support occurred against the backdrop of objections, generally by the political opposition, in other Euro Area countries such as Germany. Those objections again flagged the political dimension of the crisis; they raised unsettling questions about how far and under what conditions stronger European countries would be prepared to aid their weaker brethren.

The answer to this last question came into focus at the end of October, when German Chancellor Angela Merkel’s governing coalition, looking forward to state elections in 2011, endorsed the idea that bondholders should be forced to take losses in any future rescue of a European sovereign. The position may have been expedient politically and admirable economically (many economists would endorse the idea of haircuts for junior creditors on moral hazard grounds). But coming at this point in the crisis it was destabilizing. Bondholders fearing that they would be first to be sacrificed in the event of additional difficulties rushed to dump the bonds of other potential crisis countries.

Ireland, already in the throes of a property market collapse and incipient banking crisis, was affected most immediately, with Irish spreads rising to a 600 point premium over German bunds. No longer able to tap the markets, Dublin was forced into talks with the EU, the ECB and the IMF (the so-called Troika). The Irish program controversially required the government, which had assumed custodianship of its insolvent banks, to service bank debt to senior unsecured bondholders in full, saddling the Irish sovereign with a crushing burden. The bondholders in question were disproportionately other European banks; in addition, banks in other Euro Area countries relied for their own funding on the same kind of senior unsecured debt. Thus, whatever else one might say about it, this decision reflected a new awareness on the part of policy makers of the vulnerability of the European banking system and the danger of contagion.

What investors, regulators and journalists had perceived previously as a crisis limited to Greece was now more than that: the sovereign creditworthiness of Ireland and, prospectively, Portugal and Spain was cast into doubt. Still there was little awareness at this point of the development of a systemic crisis that would ultimately infect the entire Euro Area. Officials could point to the fact that the Euro Area was continuing to grow, by 0.6 per cent in the first quarter of 2011 and 0.2 per cent in 2011Q2. The problem was that growth was on a declining trend; it would go negative in 2011Q4. Moreover, the Euro Area average was held up by strong growth in Germany, which benefited from earlier reforms and strong demand for its exports of capital goods from China. The crisis countries, for their part, were already on the verge of or in outright recession. The adjustment of relative unit labor costs, while underway, was painfully slow, given social resistance to nominal wage cuts (see Figure 3).

**Figure 3. Divergence and Adjustment of Unit Labor Costs**
Meanwhile, policies of fiscal consolidation designed to reduce debt burdens sucked spending out of the economy. This growth crisis reinforced the debt, banking and political crises. Slow growth depressed the real estate market and weakened bank balance sheets; the weak bank lending that resulted then further weakened growth (see Figure 4). Slow growth shrank the denominator of the debt/GDP ratio, frustrating efforts to stabilize and reduce debt ratios; failure to progress on the debt front meant high spreads that in turn made borrowing and investing costly, further depressing growth. Finally, slow growth undermined support for reform and heightened political uncertainty; political uncertainty clouded the policy future, which further weakened demand and growth.

Figure 4. Change in Private Sector Credit, Euro Area and United States
Still, it was Greece that dominated the headlines through the first half of 2011. The country repeatedly missed its budget targets. Public opposition to spending cuts and tax increases continued to mount, fueling speculation that the country might be forced to restructure its debt or leave the Euro Area. In April, Portugal acknowledged that it too had lost access to financial markets and applied for assistance. The EU, ECB and IMF extended it a €78 billion rescue package in May, adopting the 2/3-1/3 formula adopted earlier for Greece. In July, in the face of even more violent demonstrations, the Greek parliament voted to implement an additional round of spending cuts, and further augmentation of the Greek program was agreed.

But if additional money had been committed, nothing fundamental had changed. Institutional investors, aware of the point, now turned their attention to Italy and Spain. Like Greece, Ireland and Portugal, these countries had heavy debts, bleak growth prospects and banking-sector and political weaknesses. But unlike Greece, Ireland and Portugal, they were too big to save by existing rescue mechanisms, given political resistance in Germany to debt mutualization and ongoing transfers. Yields on Spanish and Italian government bonds rose sharply starting in August. Higher debt service costs implied even larger deficits, creating the danger that investor fears might prove self-fulfilling. Rising spreads and falling bond prices also posed problems for banks holding reserves in the form of government bonds – reserves that they could now only turn into liquid form at the cost of major losses.

The autumn saw no let-up in the drumbeat of bad news. S&P downgraded seven Italian banks and the Italian government in September. It cut Spain’s credit rating by one notch and put the country on negative outlook in October. In response to protests and demonstrations against the budget cuts required to keep official assistance flowing, on November 1st Greek Prime Minister Papandreou announced a referendum on the agreement between the Greek Government
and its creditors. He revoked the proposal two days later in response to pressure from French and German governments, which feared that a negative result might create expectations of similar outcomes elsewhere. Political noise then grew louder when Italian Prime Minister Silvio Berlusconi announced his resignation on November 8th, heightening uncertainty about what kind of Italian government would follow. The cacophony diminished only slightly when the economist Mario Monti was asked to form a technocratic government a week later.

Much of the strain fell on the Euro Area’s wholesale-funding-dependent banks. With the development of doubts about the staying power of the Euro Area, the interbank market dried up, as Northern European and U.S. banks with available liquidity increasingly hesitated to place it with their illiquid Southern European counterparts. To prevent the run by wholesale depositors from becoming self-fulfilling, the European Central Bank stepped into the breach. It offered to provide liquidity to financial markets through a program of Long-Term Refinancing Operations, extending funding to the banks at concessional interest rates of 1 per cent for up to 3 years. The banks used their excess liquidity to purchase government bonds, which lowered spreads for the moment. The central bank’s action was controversial. It was criticized in some circles for recapitalizing the banks through the back door and surreptitiously taking the pressure off governments. In other circles it was applauded as a first step toward transforming the ECB into a true lender of last resort.

Despite these actions, economic and political crises only worsened in 2012. Growth was worse, with GDP growth Euro Area-wide turning sharply negative after the first quarter. Unemployment was worse, averaging more than 10.9 per cent Euro Area-wide in the first half of the year and 11.5 per cent in its second. The credit situation was worse, as the rating agencies downgraded additional members of the core (France and Austria) and cut Portuguese government debt to junk-bond status. S&P twisted the knife by downgrading the European Financial Stability Facility, raising questions about whether it would be able to finance additional rescues.

Political uncertainty was also worse. In early May a majority of Greeks voted for parties that rejected the country’s rescue agreement with the Troika; inability of the parties to form a coalition forced a second election in June. In the second election, New Democracy, which supported the rescue package and Euro Area membership, received the most votes of any party, walking the country back from the brink. But there was no let-up in political uncertainty with the election in France of the Socialist candidate Francois Hollande, whose rhetoric was pro-growth but whose intentions remained obscure.

Nor was there a decline in economic and financial uncertainty. In March Greece took a modest step forward by restructuring the debt of its government to private creditors. In doing so it took advantage of the fact that most of that debt had been issued under Greek law, permitting the bonds to be retrofitted with restructuring-friendly collective action clauses by an act of Parliament.8 Officials insisted that the Greek case was *sui generis*; there would be no more restructurings either in Greece or in other countries. This assertion, however, belied the fact that a significant fraction of the government’s debt was in official hands, not least as a result of the ECB’s Long-Term Refinancing Operations, making the actual reduction in the debt burden much

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8 A small share of the debt had been issued abroad under English law, but following convention in the London market, these already included collective action clauses. For details see Zettelmeyer, Trebesch and Gulati (2012).
less than the headline figure of 74 per cent and suggesting that further restructurings might ensue. The pronouncement also ignored that the finances of other countries bore an increasing resemblance to Greece.

Spain was a prime case in point. In May the Spanish government was forced to nationalize the country’s largest mortgage lender, Bankia. Spanish government debt was then downgraded by the U.S. rating agency Egan-Jones, which pointed to the so-called “diabolic loop” running from banking sector problems to sovereign debt problems and back. On June 9th the Spanish government requested €100 billion of emergency assistance from the European Union to recapitalize its banks. Spanish Prime Minister Mariano Rajoy attempted to differentiate his country by arguing that its problems were limited to the banking sector. He sought political cover for his government by suggesting that the full conditionality of a Troika program was not justified. His first argument was undermined not just by the diabolic loop between the banks and the sovereign, but also by the large ongoing deficits of the country’s provincial governments. His second argument foundered on the unwillingness of the creditor countries, for political reasons, to offer support without full IMF and EU conditionality.

The second half of 2012 was then dominated by two events that diminished the risks of sovereign default and Euro Area break-up. The first was agreement at an EU summit on June 29th to establish a banking union, complete with single supervisor, common deposit insurance scheme and bad-bank resolution mechanism. This agreement was seen as permitting the direct injection of EU funds into the banks from the European Financial Stability Facility and subsequently the European Stability Mechanism. Since the banks would now be supervised and regulated by an agency of the EU, it would be possible to relax existing practice whereby all funds supplied for bank recapitalization, as for other purposes, were obligations of the sovereign. In turn this promised to break the diabolic loop between sovereign and bank credit worthiness.

But as the year progressed it became clear that a vision of banking union constituted at best a long-term prospect. The member states with the least pressing problems were reluctant to cede supervisory authority to the EU. It was not clear that an EU entity – ultimately the ECB was designated – could quickly develop the capacity to supervise scores of systemically significant banks. It was not even clear that EU leaders fully understood what they had signed up for, under duress, at their emergency summit in late June. For all these reasons, backtracking on the June 29th commitment proceeded apace.

The second key event was ECB President Mario Draghi’s statement to an investor conference on July 26th that the central bank was ready to “do whatever it takes to preserve the euro.” What it might take wasn’t specified, but the implication was that the central bank was prepared to purchase sovereign debt in unlimited quantities on behalf of countries requesting assistance. The details emerged in September with the announcement of the bond-buying program, known as Outright Monetary Transactions, or OMT. The ECB Governing Council explained that it would purchase bonds of one to three years maturity, but on the secondary market only, thereby paying obeisance to the provision in the central bank’s statute prohibiting direct money financing of governments. The rationale, again designed to conform to the ECB’s mandate, was that unreasonably high bond spreads were disrupting the transmission of monetary policy. Purchases would be conditional, however, on a country requesting assistance, negotiating a precautionary arrangement or adjustment program with the European rescue fund, and adhering to the terms of that agreement.
This commitment settled the markets even in the absence of an application from Spain or another embattled member state. By the end of November, Spanish bond spreads had fallen to an eight-month low. European leaders asserted that the crisis was over. Yet none of the underlying conditions had been cured. The recession continued to deepen: new data in February showed that Euro Area GDP fell by 0.3 per cent in 2012Q4, far exceeding official forecasts. With disappointing growth came disappointing progress on restoring debt sustainability. Banking problems then surfaced in Italy’s oldest bank, the Banca Monte dei Paschi di Sienna, and in the Dutch financial services group SNS Reaal. And political noise rose in advance of the Italian elections scheduled for February.

Neither the debt crisis, nor the banking crisis, nor the growth crisis, nor the political crisis had been solved. It was far from clear that the patient was cured. Indeed, at this point it was no longer clear that the patient was even in remission.

3. **Perceived Risks to Economic and Financial Stability Prior to the Crisis**

In November 2007, looking forward to the 10th anniversary of the euro, the European Commission convened a conference to commemorate the first decade of the single currency. The subsequent volume, presumably intended to appear in 2009 on the anniversary in question, was published as Buti, Deroose, Gaspar and Martins (2010). The timing of the convocation was notable: the Subprime Crisis had erupted in the United States, as falling real estate prices had begun creating problems in securitization markets, leading to the collapse of prominent investment funds with positions in mortgage-related securities. But, at this point, financial instability was still seen as limited to the U.S. It had not yet migrated to Europe.

The Buti et al. volume thus provides a window into contemporaneous perceptions of the risks to Euro Area stability. At one level, it points to the perception that serious risks were absent. There was no discussion of a crisis of sovereign debt sustainability of the sort that could lead a Euro Area government to restructure its debt — no discussion of “modalities” such as whether official as well as private debts should be restructured.9 There was no discussion of the special difficulties of containing and resolving a banking crisis in a monetary union, or of whether the absence of a banking union with a single supervisor, single deposit insurance scheme and single resolution mechanism was a key shortcoming.

Nor does the volume in question consider the role that might be played by the European Commission, the European Central Bank and the International Monetary Fund in organizing an emergency response to a European financial crisis. There was no discussion of the role of the ECB as lender of last resort. There was no analysis of “convertibility risk,” of the possibility that a participant might choose or be forced to leave the monetary union, or what this might imply for the stability of the other members’ finances. There was no discussion of TARGET 2 imbalances, the assets and liabilities accumulated by the members of the European System of Central Banks through the operation of their real-time gross-settlement system, imbalances that grew explosively once private capital flows shut down.

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9 An issue that proved especially controversial in the context of the Greek sovereign debt restructuring of 2012; see above.
The absence of discussion of these questions in the Buti et al. volume appears remarkable, with benefit of the hindsight that subsequent experience provides. It is indicative of the failure of the epistemic community of Euro Area experts (the transnational network of knowledge-based experts helping decision makers managing the monetary union) to define the problems they faced and devise solutions to them. Instead, contributors built on the theory of optimum currency areas (OCAs) to describe how unemployment and inflation differentials across Euro Area member states might be higher than analogous differentials across the 50 U.S. states, reflecting lower levels of labor mobility in Europe and the absence of federal taxes and transfers to compensate for the loss of monetary independence at the member-state level. They focused on the ECB’s monetary policy operating strategy comprised of two pillars—a de facto inflation target and, in Bundesbank tradition, a monetary target—asking how the two guideposts might be reconciled, and on the credibility and transparency of the central bank’s communications strategy. The focus was on inflation risk, that is, on whether the ECB had established a credible commitment to low inflation and what sacrifices might be required to maintain it. Chapters on enlargement and governance considered whether the conduct of monetary policy would become more complex and potentially unmanageable as additional member states joined the currency area, given the representation of every national central bank on the ECB board and its system of unweighted voting. The chapters on the euro and financial markets were triumphal; they described how the advent of the single currency worked to facilitate the construction of uniform benchmarks and well-defined yield curves and to foster the emergence of deeper and more liquid bond markets. They described the process of the euro in attaining an international- and reserve-currency role. The chapters on structural reform, if not exactly triumphal, left a positive impression. The euro, they concluded, had been a force for reform. Members of the euro area had been impelled to redouble their efforts to reform product and labor markets, given the absence of the exchange rate as an instrument of adjustment at the national level, although it was acknowledged that more remained to be done.

The closest the authors came to anticipating serious risks was in the chapters on fiscal policy and on growth and volatility. The concern with fiscal policy hardly comes as a surprise, since this source of risk had been a preoccupation of the euro’s founders. Fiscal preconditions for membership (the “convergence criteria”) had been included in the Maastricht Treaty, sealing the agreement to move to monetary union in 1993. They required aspiring national participants to bring their sovereign-debt-to-GDP ratios down to 60 per cent (that being the EU average when the treaty was negotiated) and their consolidated-deficit-to-GDP ratios down to 3 per cent (that being the level needed to keep debt ratios stable given conventional assumptions about nominal interest rates and income growth.). But there was wiggle room in the application of the criteria. That they were then waived to permit the participation of Italy, Belgium and other high-debt countries as founding members of the Euro Area only reinforced the concerns of policy makers and experts over fiscal risks.

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10 This definition of epistemic communities is from Haas (1992). Some readers may think that I make too much of one conference volume. But not only is Buti et al. a publication of the European Commission, but this close-to – thousand-page tome arguably assembles the collective wisdom of virtually all the leading thinkers on the single currency at the time the conference in question was held. I was there; I plead guilty.

11 The locus classicus of the theory of optimum currency areas is Mundell (1961).

12 See Buiter, Corsetti and Roubini (1993).
The result was the Stability Pact (subsequently the Stability and Growth Pact), negotiated in 1997 and entering into force in 1998, empowering the European Commission and Council of Ministers to monitor the fiscal performance of members after joining the monetary union and to issue recommendations for policy action to keep debts and deficits within their respective limits. But when France and Germany violated the 60 and 3 per cent reference values in 2004 and no action was taken, and similarly when punitive proceedings were started against Portugal in 2002 and Greece in 2005 but no financial penalties were levied, academics, investors and other commentators raised questions about the effectiveness of the process. In response, the enforcement criteria were adjusted. Specifically, they were adjusted to account for the business cycle, acknowledging that excessive debts and deficits might reflect unfavorable external conditions rather than the decisions of national governments. But in practice, the additional discretion only made the pact more difficult to enforce.

This preoccupation with the risks of excessive deficits was rooted in the belief that they might create pressure for the European Central Bank to monetize public debts. The consequence would be high inflation, the worst fear of the German and, in particular, the Bundesbanker in the street. With hindsight we can say that this fear was exaggerated. Although the euro crisis has had many adverse consequences, high inflation is not one. The possibility that excessive deficits might require restructuring that can damage bank balance sheets and expose the absence of an adequate mechanism for recapitalization was not meaningfully discussed. The fact that large deficits ultimately posing a threat to debt sustainability might result not from the profligacy of governments but from a banking crisis and associated recapitalization costs was not part of the conversation.

The key chapters of Buti et al., with hindsight, were those by Barrell and coauthors on convergence and growth and by Gerlach and Hoffman on implications for international stability. Barrell et al. acknowledged that the growth performance of the Euro Area was mixed. They then went on to consider channels through which the single currency influenced growth outcomes. They suggested that, past disappointments notwithstanding, the single currency was likely to exercise a positive impact on growth in the future, especially in the larger countries at the core of the monetary union.

Figure 5. Convergence Before, During and After Maastricht

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13 Failure to do so having been one of two factors that had led officials to hesitate in applying penalties to previous national violators, the self-interested political power of the large member states France and Germany being the other.

14 It can always be objected that the inflationary explosion is just around the corner, but with the crisis in its fifth year at the time of writing, the case is becoming progressively harder to make.

15 See Barrell et al. (2010) and Gerlach and Hoffman (2010).
What was absent was an awareness that the “cohesion process” (the convergence of levels of per capita income and economic structure through fast growth in the poorer members of the Euro Area periphery) was at this very time grinding to a halt. The second generation of work
on the theory of optimum currency areas had pointed to the endogeneity of the OCA criteria. As incomes and economic structures converged, a common monetary policy would become more appropriate for the member states, and the monetary union would operate more smoothly, this new literature suggested. A leading indicator of mounting strains would have been evidence that convergence had halted and, indeed, shifted into reverse (see the bottom panel of Figure 5). But this evidence, while accumulating, was not marshaled.

Gerlach and Hoffman’s conclusion was that “macroeconomic stability ha[d] increased since the inception of EMU” (p.648). They drew this conclusion both for nominal stability – for the volatility of interest rates and inflation – and for real stability, notably the stability of consumption. The greater stability of consumption was in turn attributed to improved macroeconomic policies and to a monetary policy that was synchronized across countries. Euro-related increases in financial integration, moreover, were credited with enhancing opportunities for international risk sharing. That is to say, as a result of the euro’s role in fostering an integrated capital market, households were better able to borrow and lend so as to buffer the impact on consumption of idiosyncratic income and output shocks. This analysis, encapsulating the conventional wisdom circa 2007, did not anticipate that capital flows within the Euro Area might amplify imbalances. It may be too much to ask, as Queen Elizabeth II did, why economists failed to anticipate the risks to economic and financial stability. But the absence of any discussion of those risks in a capstone chapter on stability and volatility in the Euro Area is striking.

Two summary impressions flow from this account of the views of the epistemic community of expert analysts and policy advisors on the eve of the crisis. First, opinions were heavily informed by past risks, notably risks of inflation and excessive deficits, that had pre-occupied policy debates during the formative years when key officials had received their educations and cut their teeth as policy-makers. Inflation had been a problem prior to the advent of the single currency, in the Euro Area periphery in the 1970s and 1980s and in Germany in earlier decades. The inflation in question was ascribed to pressure on central banks to monetize government budget deficits, in turn focusing attention on the risks of excessive debts. This backward-looking analysis caused the epistemic community of analysts and policy makers to inadequately appreciate more serious risks emanating from other sources.

Second, the relatively smooth performance of the Euro Area in its first ten years led analysts to focus on minor dangers rather than catastrophic tail risks. That the theory of optimum currency areas directed attention to “run of the mill” business cycle disturbances, as opposed to full-blown financial crises, further encouraged this perspective. Analysts focused on the ups and downs of business cycles and the convergence or divergence of inflation and interest rates, not on the risk of a catastrophic financial crisis.

4. Bases for Risk Assessment

One cannot understand the halting, slow motion character of European responses to their sovereign debt crises without coming to terms with historical perceptions. History played an important role in shaping how the epistemic community of analysts and policy makers perceived risks to the stability of the currency area. Specifically, historical experience with inflation rooted

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16 See Frankel and Rose (1996).
in chronic public-sector imbalances pointed to debts and deficits as the principal source of risks. There was nothing unusual about the influence of history in this context. Experience with high inflation in the 1920s, a phenomenon also linked to chronic budget deficits, similarly informed and constrained policy responses to the Great Depression of the 1930s (Eichengreen 1992). The fact that the second half of the 20th century was a period of relative stability for banking systems in Europe – though there were bank failures, none was serious enough to pose risks to systemic stability – encouraged policy makers and analysts to minimize this source of stability risk.

Financial market outcomes further shaped views of potential risks. So long as market prices – interest rates on government bonds for example – indicated that investors were sanguine about the prospects, policy makers concluded that those prospects must be good. In part, their faith in market discipline reflected intellectual trends, for example the spread of the efficient-markets hypothesis in academia. In part, it reflected the rapid growth of the financial sector, its profitability and its political influence in the years leading up to the crisis. And, in part it reflected fading memories of earlier periods like the late 1920s and early 1930s when financial markets had malfunctioned with disastrous consequences.

To the extent that information on economic and financial conditions was costly to assemble and process, analysts relied on “delegated monitors” that had sunk the costs of investing in a monitoring technology and were in the business of selling assessments based on this expertise. These were the credit rating agencies. Ratings were seen as providing a leading indicator of future problems. They were incorporated into regulatory practice: they were the basis for attaching risk weights to complex securities on the balance sheets of Euro Area banks. The longer European banks and government bonds were rated AAA, the more remote the risk of serious problems and losses appeared.

With hindsight it is clear that these were thin reeds on which to hang assessments of stability risk. A substantial literature, motivated initially by experience during the Asian financial crisis, questions the value-added of credit ratings. It suggests that ratings respond to events in financial markets and the economy rather than anticipating them. They have little predictive content relevant to the future evolution of asset prices and economic and financial conditions above and beyond that contained in current asset prices. Ratings tend to be lagging rather than leading indicators and as such can have a self-reinforcing impact on crisis risk. Partnoy (1999) provides an early post-Asian-crisis critique of the rating agencies, while De Haan and Atenbrink (2011) review their operation from a specifically European perspective.

Similarly, the efficient-markets hypothesis should have been thought of as no more than a point of departure for thinking about financial markets and their information content. Subsequent research has not been kind to the most basic tenet of the hypothesis: namely, that future asset prices should not be predictable on the basis of current asset prices but rather should follow a random walk. Detailed empirical work has turned up a substantial number of “anomalies” in the behavior of asset markets and prices hard to square with the presumption of

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17 See inter alia Fama (1970).
18 The seminal work on delegated monitoring (e.g. Diamond 1984) focuses on banks, but much the same argument can and has been made about rating agencies.
20 A compendium of the recent evidence is Lo and MacKinlay (2001).
market efficiency. Those anomalies in turn have spawned a subfield of behavioral finance in
which scholars study how investors use rules of thumb, past experience and intuition as guides to
decision making, leading to overconfidence, projection bias and related behaviors and to market
outcomes at variance with the efficient-markets view.\footnote{For an introduction see Shleifer (1999).}
The bottom line is that current market conditions are not always a reliable guide to what comes next.

The abrupt and violent reaction of sovereign spreads across Southern Europe to news
about the size of the Greek budget deficit is hard to square with the efficient-markets view.\footnote{But not with prior historical experience: in an early contribution to the literature Sy (2001) similarly found that Asian spreads were excessively low relative to fundamentals before the Asian crisis and then excessively high immediately following its outbreak. Mishkin (2003) similarly points to the role of asymmetric information that led investors to magnify relatively small risks in all Asian countries during the crisis.}

It is not as if there was simultaneous news of larger than expected budget deficits in other
countries. The more plausible interpretation is that news that the published Greek figures were
less reliable than previously thought led investors to question the reliability of the figures
published by other Southern European governments. This reaction can be related to theories of
herding and “informational contagion” in financial markets (see e.g. Dungey et al. 2005), where
market participants with incomplete information or facing costs of processing it reassess the
situation of a country on the basis of new information about other countries, or where market
participants reassess the condition of a financial institution on the basis of new information about
other financial institutions.

The “wake-up call hypothesis” -- the idea that investors devote costly time and attention
to assessing risks to stability only when the immediacy of those risks is brought to their attention
-- finds support in the data on sovereign spreads in the Euro Area. These have been analyzed
previously by a number of investigators such as Alessandrini et al. (2012). Their analysis is
updated and extended in Tables 1 and 2 below. There I estimate a standard model of the
determinants of sovereign spreads (ten-year government bond spreads for Euro Area members
relative to German bunds) on quarterly data since 2005.\footnote{Sources and definitions of variables are in Appendix 2.}

Table 1, with estimates for the entire period 2005Q1 through 2011Q4, seemingly supports the hypothesis of market discipline: spreads fall significantly with the primary budget balance (larger budget surpluses make for lower
spreads); they rise with the public debt ratio (heavier debts make for wider spreads); they decline
with economic growth (faster growth makes servicing debt easier); and spreads rise with the bid-
ask spread (shallower markets with larger transactions costs make for higher spreads).

But Table 2, where these same variables are in addition interacted with a dummy variable
for 2088Q3 and the remainder of the sample, shows that the explanatory power is entirely
concentrated in the period following the failure of the two BNP Paribas funds in the summer of
2008. The primary balance, debt ratio and growth rate are all significant and matter in the
expected way after 2008 but not before. It is as if investors suddenly awoke to the relevance of
such factors to default risk, where they had been sleeping soundly through their signals before.\footnote{In related work, Georgoutus and Migiakis (2010) consider the behavior of sovereign spreads (relative to bunds) from 1992 through 2009 -- that is, both before and after monetary unification -- using regime-switching regression. They allow the data to tell them when the switches occurred -- they do not simply assume that the answer is 1999. They find a switch to a low volatility regime in 1997 and a switch back in 2008. Estimating a cointegrating}

\footnote{For an introduction see Shleifer (1999).}

\footnote{But not with prior historical experience: in an early contribution to the literature Sy (2001) similarly found that Asian spreads were excessively low relative to fundamentals before the Asian crisis and then excessively high immediately following its outbreak. Mishkin (2003) similarly points to the role of asymmetric information that led investors to magnify relatively small risks in all Asian countries during the crisis.}

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The same is true of informed press commentary. Prior to 2009, the major financial news organs in the United States and Britain contained no mentions of the possibility of a Euro Area debt crisis; Table 3 lists the first mentions of this and related phrases in *The Financial Times*, *New York Times* and *Wall Street Journal*. Similarly, there was little mention of this possibility prior to 2009 on the Internet, but an explosion of references thereafter (see Figure 6).

Finally, while historical experience can provide a useful frame through which to assess current circumstances and risks, history does not speak for itself. There exist a plethora of potential historical analogies with which current circumstances may be compared. Cognitive scientists and others who have studied analogical reasoning have sought to understand why specific historical analogies or precedents are chosen by policy makers to the neglect of others. They point to the disproportionate influence of “searing” or “molding” events of “transcendent importance” (Zelikow 1999). From this point of view it is unsurprising that the German hyperinflation of 1922-3 continued to shape the outlook of policy makers and analysts – especially in Germany – fully eight decades later. Analysts similarly point to the failure of policy advisors, who are in the business of providing simple messages, to provide decision makers with a portfolio of potential historical analogies pointing to a range of potential risks.

With hindsight, then, it is not entirely surprising that the nature and extent of potential risks was less than adequately appreciated.

5. The Institutional and Policy Response

The most controversial aspect of the response to the materialization of crisis risk has been policies of austerity and structural reform. Impassioned debate continues, in the journals and at the polls, about whether fiscal consolidation, achieved through a combination of tax increases and spending cuts or spending cuts alone, can be expansionary, or whether the fixation on balancing budgets has consigned the Euro Area to a self-inflicted Depression.25 Analysts similarly disagree on whether measures deregulating labor markets and increasing competition in product markets increase productivity and growth in the long run but cause dislocations and the separation of employees in the short run.26 The literature on these questions is vast, and I do not attempt to add to it here. Rather, I focus on institutional and policy initiatives at the level of the Euro Area and ask whether they are likely to significantly diminish crisis risk going forward.

A first set of institutional reforms seeks, predictably, to strengthen oversight of national fiscal policies. To facilitate surveillance, member states have agreed to a “European semester” with common timelines for the formulation of fiscal policies. This has led to agreement on a so-called “six pack” of legislative measures adopted by the Commission in December 2012. The

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26 OECD (2012) is probably the most comprehensive compendium of evidence on the short-run effects of labor market reform. A more technical approach is Veracierto (2007).
six pack provides for more automatic application of the EU’s fiscal rules – stronger enforcement of the Stability and Growth Pact. It adds a rule for the growth of government expenditure to existing regulations pertaining to deficits and supplements the deficit criteria with rules for the level and rate of change of debt. It unpacks the procedure for the application of fines, with the goal of making financial penalties more realistic. It encourages the adoption of national fiscal frameworks and procedures that emphasize transparency and medium-term planning. Finally it creates a Macroeconomic Imbalances Procedure that widens the remit of surveillance to encompass external as well as internal imbalances.

The six pack was then supplemented by a “two pack” of regulations designed to further strengthen budgetary surveillance. Its first element requires member states to publish medium-term fiscal plans and for those plans to be assessed and conformance to be monitored by the Commission. The Commission is then empowered to request, where necessary, a revision of the national budgetary plan. The second regulation envisages new provisions allowing the Commission and the Council to engage in even closer surveillance of countries in economic or financial difficulty.

Finally, all EU members other than the UK and the Czech Republic have signed a Treaty on Stability, Coordination and Governance that provides for a “fiscal compact” obliging the signatories to adopt balanced budget rules at the national level. The incentive to comply is that only countries that have ratified the treaty and adhere to its terms will have access to the European Stability Mechanism.

This is not the first time member states have sought to strengthen the Stability and Growth Pact or to increase its automaticity. Experience shows that governments are reluctant to sanction their neighbors, given the solidarity and consensus decision making that characterizes EU affairs. In addition they fear the precedent; they worry that they might be next. Delegating these decisions to an independent entity is the textbook solution to this time-consistency problem. Unfortunately, the obvious delegate, the Commission, is not independent of politics. Commissioners are appointed by agreement with their governments, following a long-established formula designed to ensure balanced national representation. There are proposals for Europe-wide election of the president of the Commission that envisage giving her the power to appoint a team of commissioners. Other proposals imagine delegating responsibility for enforcing the Stability and Growth Pact to an independent committee of experts with dedicated funding, serving long terms in office, and enjoying the autonomy necessary to enforce its provisions. But national governments remain jealous of their fiscal prerogatives. And there is the worry that a proliferation of independent economic agencies – the ECB is one, the committee of fiscal experts would be another – will only widen Europe’s democratic deficit. As a result, there has been a reluctance to go down this road.

Commentators despairing of the capacity of the European Union and Euro Area to conduct meaningful surveillance and impose sanctions on its members sometimes recommend relying on market discipline. Currently, investors are acutely aware of the fiscal shortcomings of member states. Lacking a national central bank to backstop national debt markets, members of the Euro Area feel market discipline intensely. The only problem, in this view, is that the EU

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27 See for example Berglof et al. (2003).
28 An example of the market discipline approach is Mangenelli and Wolswijk (2007).
has not stood behind the no-bailout clause of the Maastricht Treaty. It has repeatedly bailed out member states in difficulty, which weakens the response of financial markets when problems appear on the horizon. The resulting recommendation is that members should recommit to the no-bailout rule. Governments that have run irresponsible fiscal policies should be allowed, indeed forced, to default. Know that this is the practice, market discipline will be strong and suffice to head off problems in all but the most extreme cases.

This approach involves a heavy dose of wishful thinking, for two reasons. First, fear of contagion and systemic repercussions, justified or not, render Euro Area members reluctant to contemplate default by one of their number. In some circumstances, default (neé “restructuring”) may be unavoidable. More often, however, it is ruled out first as impossible and then as exceptional. The consequences of default are necessarily uncertain. The non-zero probability of an undesirable outcome encourages officials to put off the day of reckoning in the hope that favorable news averting the need to restructure may turn up. It is unrealistic, in other words, to imagine that recourse to multilateral rescues can be ruled out.

In addition, the idea that market discipline is always and everywhere effective is fanciful. As we saw in Section 4, market discipline is sporadic. Investors may have been awake to the risks in 2009-12, but they were blissfully unaware of them for much of the preceding decade.

A further approach to fiscal discipline in the Euro Area has emphasized strengthening the national institutions and procedures through which budgetary decisions are made. Academics and officials have recommended that governments should be required to publish consistent medium-term plans; budgeting procedures should be transparent; and more agenda-setting power should be delegated to the prime minister or finance minister in order to address the common-pool problem in which every spending ministry seeks more resources without adequate regard to the implications for the overall balance. Some observers have even suggested that in the extreme, key fiscal decisions, such as the overall size of the deficit, could be outsourced to an independent fiscal commission following practice in countries like Chile.29 Some analysts have recommended this approach for years.30 The six pack alludes to the desirability of these reforms. The Treaty on Stability, Coordination and Governance potentially takes a step in this direction by linking access to emergency assistance to institutional and procedural reform at the national level, although it focuses too much on balanced budget rules and too little on more flexible but equally effective approaches like the establishment of fiscal councils.

This focus on fiscal issues in post-crisis reform efforts suggests that the Euro Area’s disproportionate concern with budget deficits is not yet a thing of the past. Narrative framing, reflecting earlier preoccupations and problems, continues to incline European officials toward addressing past problems as opposed to likely future risks.

More promising from this point of view, in principle if not in practice, is the effort to create a new supervisory framework for financial institutions and markets, the financial sector having been deeply implicated in the crisis. Before 2009, financial surveillance was the province of national authorities with relatively weak incentives to share information on potential risks in their financial sectors. February 2009 saw the initiation of a new European System of Financial

29 A good summary of the Chilean approach is Frankel (2012).
Supervision with two pillars: a micro-prudential pillar comprised of three new supervisory authorities, the European Banking Authority, the European Insurance and Occupational Pensions Authority and the European Securities and Markets Authority; and a macro-prudential pillar concerned with systemic issues and placed in the European Systemic Risk Board. Time will tell whether these new structures succeed in exercising sufficiently vigorous surveillance of financial institutions and markets and in requiring prompt corrective action. But by design they are squarely directed at the key risks that were unappreciated in the run-up to the recent crisis.

Problems of excessive leverage and undercapitalization in the banking sector are to be further addressed by the EU’s new Capital Requirements Regulation and Capital Requirements Directive IV, which will hold banks to stricter capital standards by transposing the Basel III Capital Accord into EU law. Problems of excessive leverage and undercapitalization in the banking sector are to be further addressed by the EU’s new Capital Requirements Regulation and Capital Requirements Directive IV, which will hold banks to stricter capital standards by transposing the Basel III Capital Accord into EU law. Under these regulations, banks will be required to hold higher-quality capital (more common equity and fewer “hybrid instruments” that are not truly loss absorbing in a financial crisis). This is a useful increase in capital standards from previous levels, at least in comparison with independent proposals.

But adherence to the new capital standard would have done little to effectively insulate troubled banks in the recent financial crisis. The new Capital Requirements Directive continues to rely on credit ratings and risk weightings. Insofar as credit ratings are procyclical, so is the new capital-requirements regime. The problems created by the existence of the shadow banking system, highlighted by the failure of the two BNP Paribas hedge funds in 2008, remain unaddressed. In any case, the new requirement will be phased in over a ten-year period.

Regulators were conscious of the tradeoff between strengthening the banks’ capital position now to render them more resilient to crises, on the one hand, and the fact that forcing banks to raise more capital now would limit their lending and hinder recovery from the crisis. Observers disagree about whether they got the balance right. Critics of the Basel III approach continue to press for more radical reforms, ranging from narrow banking and measures designed to break up too-big-to-fail banks to the adoption of a U.S.-style Volcker rule limiting proprietary trading by deposit-taking financial institutions. For reasons that are not self-evident, these radical proposals have gained more purchase outside the Euro Area in countries like the UK and Switzerland.

For the moment, responsibility for implementing the new capital regulations and directives continues to reside with national authorities. Thus, the risk remains that national regulators will fail to take into account the Euro Area-wide implications of their decisions. They may delay imposing more stringent requirements on their banks in an attempt to give them a competitive advantage relative to their foreign competitors. They may hesitate to share information that paints domestic banks in an unfavorable light, the existence of the European

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31 The basic reference on Basel III and its progress is Basel Committee on Banking Supervision (2012).
32 In addition, the directives provide for a liquidity coverage ratio, under which banks are required to maintain liquid balances (“liquidity reserves”) to protect against net liquidity outflows and difficulty-causing maturity mismatches. The liquidity standard is a positive response to the previously underappreciated risk posed by reliance on short-term wholesale funding.
33 For a review see Casselmann (2013).
34 One might argue that the reasons referred to in this sentence include policy makers clinging to the dominant conceptual frameworks of the earlier period, the influence of big banks on policy, or a desire to protect domestic banks against foreign competition and therefore a reluctance to subject them to more demanding capital standards. But the point is that none of these arguments plausibly applies less powerfully to the UK and Switzerland than the members of the Euro Area.
Banking Authority notwithstanding. The only reliable solution to these problems is a single supervisor with authority over the banking system of the entire area. And, as noted in Section 2, resistance to the creation of such a supervisor is considerable. In addition, there is the further complication of whether banks inside the single market but outside the monetary union, UK banks in particular, should be subject to common supervision.

A final institutional reform, noted in Section 2, was the creation of the European Financial Stability Facility, now the European Stability Mechanism in its permanent incarnation. This was a response to the recognition that, for reasons of history and design, the European Central Bank is limited in its ability to act as a lender of last resort to sovereigns and banks. Yet the crisis, by pointing up the risk of self-fulfilling debt and bank runs, underscored the critical need in a monetary union for a lender-of-last-resort facility. The ESM is now available to carry out this role. It can provide loans and precautionary assistance (the promise of loans). It can purchase bonds on both the primary and secondary markets and, in principle, inject capital directly into Euro Area banks. Loans are contingent on the negotiation of an adjustment program with the Commission, the ECB and the IMF. The ESM has a paid-in capital of €80 billion and €620 billion of callable capital, both from Euro Area countries, giving it a lending capacity of some €500 billion. To some eyes these might seem like impressively large numbers. But, in fact, they are only 4 to 5 per cent of Euro Area GDP – less, in other words, than an adequately funded lender of last resort may require.

The Commission and ECB acceded to the involvement of the IMF in the Greek and Irish rescues only reluctantly, but this has turned out to be a happy arrangement from the European point of view. The Europeans have been able to delegate much of the high-visibility day-to-day monitoring of program countries to the Fund, deflecting some of the associated political controversy, without having to give up much in terms of program design. The arrangement has been less happy from the Fund’s standpoint. It has contributed money and taken political flack without having much capacity to shape program design. Some critics have suggested that the IMF should, in the future, avoid putting itself in the position where it is a minority participant in a program arranged jointly with a regional entity like the EU. The Fund has become more insistent in raising objections to the European approach to structural adjustment over time. This raises questions about whether the existing division of labor between Euro Area and multilateral institutions will prove stable.

6. Conclusion

Not all risks that materialize can be anticipated, and not all risks that are anticipated can be avoided. The Euro Crisis reflects the materialization of a set of risks that was neither anticipated nor avoided. In thinking about the nature and immediacy of the risks confronting their monetary union, the views of the epistemic community of European thought leaders and policy makers were heavily shaped by history, by faith in the operation of financial markets, and by expert opinion from inter alia the rating agencies. The first factor directed their attention to a narrow and specific set of risks, namely that excessive budget deficits and their monetization would give rise to high inflation. The response was a set of mechanisms and procedures intended to provide surveillance and force corrections when deficits were excessive – mechanisms and procedures that, in the event, fell short. The second and third factors reinforced

35 This is the recommendation of Goldstein (2011).
their neglect of other sources of risk and led them to underestimate their immediacy. The result was that when Europe was sideswiped by the subprime meltdown and the failure of Lehman Brothers, it descended into a very serious crisis.

That crisis spawned much talk and some progress in the direction of institutional and policy reform. Policy makers continue to focus on excessive deficits. They have further strengthened procedures for identifying such deficits and correcting them. We will see how effective the traditional approach, so strengthened, is the next time it is tested. In addition, they have strengthened oversight of European banks and financial markets and created an unprecedented rescue mechanism, the European Stability Mechanism, for banks and governments that lose access to the markets. These innovations go at least some way in addressing sources and forms of crisis risk that were neglected before.

But earlier problems remain. Rules for capital adequacy continue to rely on commercial credit ratings, which are less than reliable. Policy makers continue to rely on the disciplining role of the market, which is sporadic at best. The focus on excessive deficits remains excessive. In all these respects old habits die hard. It is not surprising, in this light, that four years on Europe has still not succeeded at drawing a line under its crisis.
Figure 6. Internet Incidence of Euro Crisis Related Terms (Google Trends)
<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Risk Aversion</td>
<td>-0.29</td>
<td>4</td>
<td>-0.074</td>
</tr>
<tr>
<td>Primary balance</td>
<td>-8.73</td>
<td>1.445</td>
<td>-6.04***</td>
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<td>Public debt</td>
<td>0.80</td>
<td>0.24</td>
<td>3.29**</td>
</tr>
<tr>
<td>Growth</td>
<td>-21.34</td>
<td>2.58</td>
<td>-8.27***</td>
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<tr>
<td>Bid-ask</td>
<td>7.93</td>
<td>0.27</td>
<td>28.9***</td>
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</table>

$r^2=0.8526$
Adj. $r^2=0.8499$
$F(5,274)=316.9$
p-value<2.2e-16***

Significance codes: 0 ‘****’ 0.001 ‘***’ 0.01 ‘**’ 0.05 ‘.’0.1
Constant term included but not reported.
Source: See text and Appendix A.

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>T-statistic</th>
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</thead>
<tbody>
<tr>
<td>Global Risk Aversion D</td>
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<td>16.57</td>
<td>0.421</td>
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<tr>
<td>Primary balance D</td>
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<td>Public debt D</td>
<td>0.22</td>
<td>0.34</td>
<td>0.635</td>
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<td>Growth D</td>
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<td>Bid-ask D</td>
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<td>18.59</td>
<td>0.494</td>
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<td>D</td>
<td>17.5</td>
<td>15.59</td>
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<td>Global Risk Aversion: D</td>
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<td>16.96</td>
<td>-0.268</td>
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<td>Primary Balance: D</td>
<td>-10.13</td>
<td>3.09</td>
<td>-3.28**</td>
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<tr>
<td>Public Debt: D</td>
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<td>0.43</td>
<td>4.74***</td>
</tr>
<tr>
<td>Growth: D</td>
<td>-27.99</td>
<td>4.76</td>
<td>-5.87***</td>
</tr>
<tr>
<td>Bid-ask: D</td>
<td>-2.07</td>
<td>18.59</td>
<td>-0.111</td>
</tr>
</tbody>
</table>

$r^2=0.9135$
Adj. $r^2=0.9099$
$F(11,268)=257.3$
p-value<2.2e-16***

Significance codes: 0 ‘****’ 0.001 ‘***’ 0.01 ‘**’ 0.05 ‘.’0.1
Constant term included but not reported.
Source: See text and Appendix A.
Table 3. First Mention of Crisis Phrases

Greek Debt Crisis

But there is a catch: Germany's membership in the euro zone. This presents complications because of the perilous fiscal and economic positions of several other members. Portugal, Greece and Spain have had their debt downgraded recently by Standard & Poor's and have payments deficits around 10 percent of G.D.P., while Italy has enormous public debt and poor budgetary control.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4VF4-XKN0-TW8F-G16F&csi=6742&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

‘Once a Boon, the Euro is Now a Burden for Some’, the New York Times, 1/24/2009
Last week, Standard & Poor's downgraded Greek debt to A--, and the gap between the interest rate it pays on its bonds, versus what richer countries like Germany pay, is nearly 3 percentage points, the widest in the euro zone.


‘Credit Risk Diverges Across Eurozone’, the Financial Times, 7/21/2008
CDS prices have risen since June 5, when Jean-Claude Trichet, European Central Bank president, stepped up warnings on inflation. Since then, the cost to insure German debt against default has risen by EUR1,000 to EUR6,000 for EUR10m of debt. In contrast, the cost to insure Greek debt has risen EUR16,000 to EUR51,000. It has risen EUR15,000 for Italy, EUR14,000 for Portugal, EUR13,000 for Spain and EUR10,000 for Ireland.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4T1N-8FY0-TW84-P00H&csi=293847&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

Italian and Greek bond yields widened sharply in relation to German yields this week as investors grew wary of buying securities of governments with high levels of debt.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4TYW-VMB0-TW84-P15W&csi=293847&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

‘Emerging Market Assault Comes to Euro Zone’, the Wall Street Journal, 10/24/2008
Greek government bonds are the latest target. Ten-year Greek debt yielded 1.18 percentage points more than similar German debt on Friday. That spread was in double digits as recently as Monday.

http://blogs.wsj.com/economics/2008/10/24/emerging-market-assault-comes-to-euro-zone/?KEYWORDS=Greek+debt
Portugal Debt Crisis

But there is a catch: Germany's membership in the euro zone. This presents complications because of the perilous fiscal and economic positions of several other members. Portugal, Greece and Spain have had their debt downgraded recently by Standard & Poor's and have payments deficits around 10 percent of G.D.P., while Italy has enormous public debt and poor budgetary control.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4VF4-XKN0-TW8F-G16F&csi=6742&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

Portugal's debt is expected to rise to 85 percent of gross domestic product this year, from 76.6 percent in 2009, because of rising unemployment and government spending on infrastructure projects like dams, hydroelectric power systems and a high-speed rail line to Madrid.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=7XS2-NGB0-Y8TC-S343&csi=6742&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

‘Capital Rules Undermine Banks’, the Financial Times, 1/16/2010
The stock fell nearly 5 per cent on Friday on concerns about Portugal's debt burden and budget deficit.


‘Portugal Debt Chief: We’re Not Greece’, the Wall Street Journal, 3/1/2010
The European Commission has given Portugal until 2013 to bring its deficit below the 3%-of-GDP threshold required by European Union rules. In recent months, rating agencies have warned of possible downgrades to Portugal's ratings, citing rapid deterioration of public accounts and historically low economic growth.

http://online.wsj.com/article/SB10001424052748703943504575095621002082944.html?KEYWORDS=%22Portugal+debt%22

Spain Debt Crisis

But there is a catch: Germany's membership in the euro zone. This presents complications because of the perilous fiscal and economic positions of several other members. Portugal, Greece and Spain have had their debt downgraded recently by Standard & Poor's and have payments deficits around 10 percent of G.D.P., while Italy has enormous public debt and poor budgetary control.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4VF4-XKN0-TW8F-G16F&csi=6742&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

The advance ended a day of back-and-forth trading Wednesday as investors grew cautious about
ranging government debt levels in Spain, Greece and other countries. Investors have been looking for safety after the credit rating agency Standard & Poor’s reduced the outlook on Spain’s debt rating Wednesday.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=7X8V-D8G0-Y8TC-S24N&csi=6742&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

‘Eurozone Exports Plunge 4.7% in month’, the Financial Times, 1/17/2009
Standard & Poor’s, the rating agency, has said it might downgrade Spain’s debt ratings because of deteriorating public finances.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4VD2-62H0-TW84-P06F&csi=293847&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

‘Euro-zone Countries Feel the Debt Crunch’, the Wall Street Journal, 9/30/2008
FRANKFURT -- European governments are finding it harder and more expensive to issue debt as investors become choosier about which governments they fund. The Belgian and Italian governments both barely got through their latest bond issues Monday, with Belgium selling only the minimum it had intended and Italy attracting weak demand. Spain and France may face similar struggles at their government bond auctions Thursday.

http://online.wsj.com/article/SB122271427415586731.html?KEYWORDS=Spain+debt

Ireland Debt Crisis

The debt rating of financially stricken Ireland was downgraded Monday by Standard & Poor’s for the second time this year as concerns grew about the cost of the government’s bailout of banks.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=7VWK-MMF0-Y8TC-S0B4&csi=6742&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

‘Dublin’s Dilemma’, the Financial Times, 1/16/2009
Last week, Standard & Poor’s downgraded Ireland’s debt outlook from stable to negative and warned it might cut its sovereign debt rating.

http://www.lexisnexis.com/lnacui2api/api/version1/getDocCui?lni=4VCV-6Y00-TW84-P16G&csi=293847&hl=t&hv=t&hnsd=f&hns=t&hgn=t&oc=00240&perma=true

Has Ireland done enough? Last week's emergency budget and new bank-bailout plan has created some room to maneuver its economy and banking system to safer ground. But it is unlikely to be enough to spare Ireland from a debt crisis if the world economy doesn't start to pull out of its slump early next year.

http://online.wsj.com/article/SB123966815674115381.html?KEYWORDS=%22Ireland+debt%22
## Appendix A. Variable Descriptions, Sources and Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Source</th>
<th>Mean 2000q1-2011q4 (480 obs.)</th>
<th>Mean 2005q1-2011q4 (280 obs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spread</td>
<td>Difference in yields to maturity of 10-year government bonds of the Euro member countries relative to Germany’s; (Country x’s bond yield-German bond yield)*100; Quarterly averages from daily data</td>
<td>Global Insight</td>
<td>67.52</td>
<td>102.17</td>
</tr>
<tr>
<td>Global Risk Aversion</td>
<td>Negative of 1st Component of the PCA of 4 measures of risk: OEX volatility index, BofA Merrill Lynch US Corporate AAA effective yields, BofA Merrill Lynch US Corporate BBB Effective Yields and Euro-Yen Implied 3-month exchange volatility; Quarterly averages from daily data</td>
<td>OEX volatility index and Euro-Yen exchange volatility from Bloomberg; Corporate bond yields from FRED</td>
<td>0.0766</td>
<td>-0.168</td>
</tr>
<tr>
<td>Bid-Ask</td>
<td>Bid-ask spread in 10-year government bond market relative to German values; Ireland uses 9-year government bond; Bid-ask spread=(bid-ask)*100; Country x’s value-German value; Quarterly averages from daily data</td>
<td>Bloomberg</td>
<td>2.078</td>
<td>3.561</td>
</tr>
<tr>
<td>Primary Balance*</td>
<td>Quarterly primary surplus as a % of GDP; Country x’s value-German value; the variable is a (2-1-2) moving average; Not seasonally adjusted</td>
<td>Eurostat-Quarterly non-financial accounts for general government-Net lending/Net borrowing;</td>
<td>-0.82</td>
<td>-2.39</td>
</tr>
<tr>
<td>Public Debt</td>
<td>Quarterly gross government debt as a % of GDP; Country x’s value-German value</td>
<td>Eurostat</td>
<td>3.69</td>
<td>2.71</td>
</tr>
<tr>
<td>Growth</td>
<td>Quarterly GDP at market prices; % change compared to corresponding period of the previous year; Country x’s value-German value; not seasonally adjusted</td>
<td>Eurostat</td>
<td>0.36</td>
<td>-0.61</td>
</tr>
<tr>
<td>Inflation</td>
<td>Monthly HICP Index, 2005=100; Quarterly averages from monthly data; country x’s index-German index</td>
<td>Eurostat</td>
<td>-0.48</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Quarterly data; Real labor productivity per employee; % change on previous period; seasonally adjusted and adjusted by working days; Country x’s value-German value</td>
<td>Eurostat</td>
<td>0.03</td>
<td>-0.03</td>
</tr>
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</tr>
<tr>
<td>Current Account Balance</td>
<td>Quarterly data; Net current account balance, as a % of GDP; Partner=all countries of the world; Country x’s value –German value</td>
<td>Eurostat</td>
<td>-5.69</td>
<td>-8.25</td>
</tr>
<tr>
<td>Liabilities to German banks</td>
<td>Quarterly data; Country x’s financial liabilities vis-à-vis German banks over German GDP</td>
<td>BIS-International bank claims, consolidated; Ultimate risk basis; Type of reporting banks: Domestically-owned banks; Reporting country: Germany; Foreign claims</td>
<td></td>
<td>14.16</td>
</tr>
<tr>
<td>PRR</td>
<td>Political Risk Rating (0-100) Quarterly averages from monthly data: Country x’s value-German value</td>
<td>The PRS Group</td>
<td>-1.49</td>
<td>-2.44</td>
</tr>
</tbody>
</table>

* Primary Balance data for 2012Q1, Q2 is available from the German statistical office in their press releases.
References


