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The Future of the Currency Union

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The Future of the Currency Union

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Abstract: This note attempts a concise yet comprehensive overview of the crisis still facing the eurozone, in the areas of competitiveness, fiscal policy, and banking. The euro's founding documents enshrined such principles as fiscal constraints, the "no bailout clause," and assignment to the ECB of the goal of low inflation to the exclusion of monetizing national debts. Those principles have been permanently compromised. On the one hand, German taxpayers cannot be expected to agree to bailouts of profligate euro members without end. On the other hand, if they were to insist on those founding principles, the euro would not survive. It is especially important to recognize that the (predictable) impact of fiscal austerity has been to reduce output in the periphery countries, not raise it, and thereby to raise debt/GDP ratios, not lower them. The leaders have finally taken some steps in the right direction over the last year: movement toward a banking union; more adjustment time for Greece, Portugal and Spain; and ECB bond purchases. But for the countries that are to remain in the euro, much adjustment still lies ahead: more debt-reduction (painful for the creditor North) and more internal devaluation (even more painful for the uncompetitive South). As to a long-run fiscal regime that addresses the now-exacerbated problem of moral hazard, the Fiscal Compact is not enough in itself. Two innovations favored by the author are the red-bonds/blue-bonds proposal and the delegation of forecasting to independent fiscal agencies.

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Key words: blue bonds, crisis, ECB, EMU, euro, Eurobonds, Greece, optimum currency area, SGP

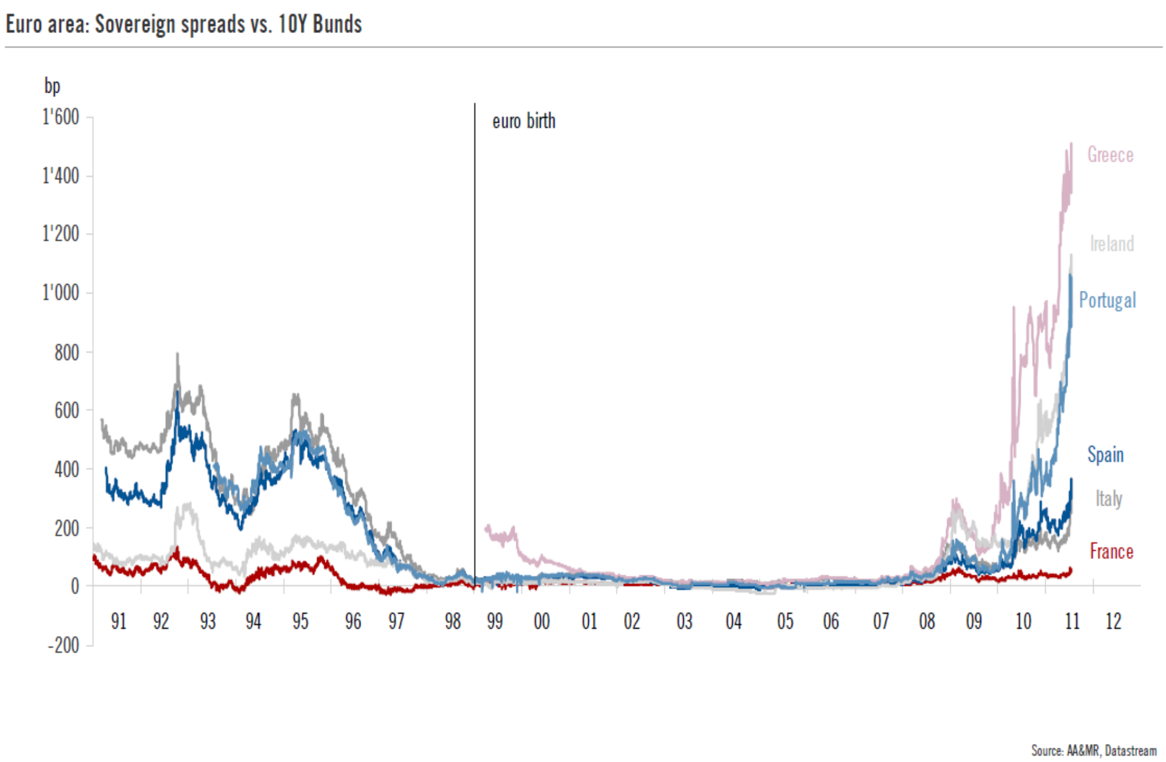
Three distinct sets of difficulties were structurally built into the monetary union from the beginning.[i] Going forward, leaders have to deal with all three, one way or another:

1. The **competitiveness** problem, arising from the inability of members to devalue.
2. The **fiscal** problem, in particular the moral hazard from keeping fiscal policy primarily at the national level when monetary policy was moved to the euro-wide level. And
3. The **banking** problem, similarly keeping banking supervision at the national level while moving monetary policy to the euro level.

Problem 1, **competitiveness**, is inherent in the concept of monetary union, was thoroughly anticipated in the Optimum Currency Area literature of the 1960s, and was the main ground on which a majority of American economists were skeptical of European monetary union in the run-up to 1999.[ii] The literature said that a country shouldn't give up the ability to respond to asymmetric (i.e., idiosyncratic) shocks, e.g. the freedom to respond to a local downturn by easing monetary policy and devaluing the currency, unless it can compensate with other mechanisms such as high labor mobility – mechanisms that Europe lacked.

Problem 2. The architects of the euro in 1991 focused sharply on the **fiscal moral hazard** problem, surprising economists at the time by virtually ignoring problem 1.[iii] They put fiscal and debt limits at the heart of the Maastricht criteria for entry (3% of GDP and 60 %, respectively), they adopted a "No Bailout Clause," and later they agreed the Stability and Growth Pact (SGP) and its successors. They deserve credit for recognizing the moral hazard problem early, because fiscal policy constraints had not previously been featured in the scholars' lists of Optimum Currency Area criteria. Two huge qualifications, however, negate that kudos: (i) The elites were forced politically to do it by voters in Germany [often used in this paper as short-hand for Northern European creditor countries] who were opposed to the euro on the grounds that "we know you will have us bailing out a profligate Mediterranean government before you're done." (ii) Soon after the euro's inauguration it became very clear that the attempt to address problem 2 had failed: that fiscal criteria were being violated continuously, that the SGP had no teeth and no credibility, and that – because Mediterranean country spreads relative to Germany had all but disappeared {Figure 1} – the markets must have believed that the ECB would bail out any countries that got into debt trouble. In other words, the moral hazard problem, though correctly identified, had not been effectively addressed. Virtually all members, big and small, had violated the fiscal criteria, for better or worse, well before the euro crisis began in late 2009.

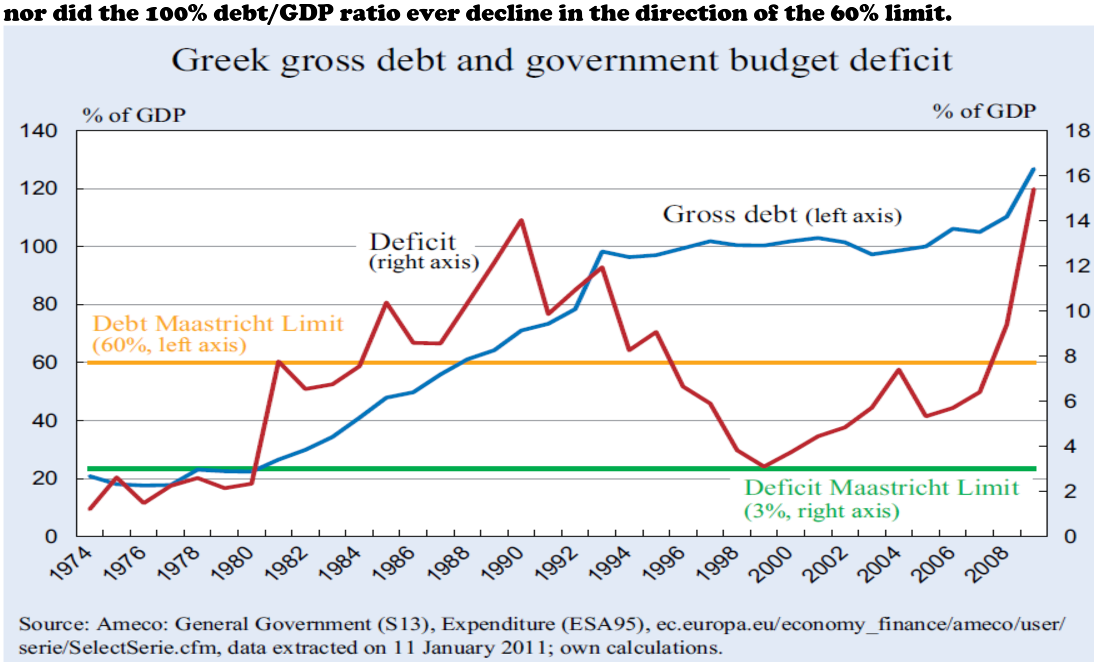
Figure 1: Convergence of periphery-countries' interest rates to Germany's after they joined the euro suggests no perceived default risk



Problem 3, **banking supervision**, was at best mentioned in passing in the 1990s. Almost no thought was given to the possibility of moving deposit insurance, supervision, or bank resolution, to the ECB level.

When crisis struck, the three kinds of failure and the causal connections among them featured with differing degrees of importance in different countries. At one end of the eurozone, Greece was the purest example of a fiscal disaster. The Greek budget deficit in truth had *never* been brought below the 3% of GDP ceiling, nor did the 100% debt/GDP ratio ever even decline in the direction of the 60% limit. {See Figure 2.} And it was in Greece that the sovereign debt problem burst forth in October 2009, kicking off the euro crisis, when the incoming government revealed that the 2009 budget deficit was not 3.7 per cent of GDP as previously claimed, but more like 13.7 per cent. There was a close connection between the Greeks' fiscal problem and the erosion in competitiveness, as the national failure to live within their means translated into higher wages without productivity gains.

Figure 2: The Greek budget deficit in truth had *never* come below the 3% of GDP ceiling, nor did the 100% debt/GDP ratio ever decline in the direction of the 60% limit.



EEAG (2011), *The EEAG Report on the European Economy*, "Greece", CESifo, Munich 2011, pp. 97–125.

At the opposite end of the Eurozone, Ireland was in relatively good shape fiscally going into 2007. Its central problem arose in the housing and banking sectors. Here the inability to set a monetary policy appropriate to local conditions had been a major *cause* of the housing/banking problem: during the bubble period that preceded the 2007 collapse, Ireland clearly had needed tighter monetary policy, but the euro forced on it the interest rates set in Frankfurt. And today's severe fiscal situation is the *consequence* of the banking collapse. The government's ill-fated decision in September 2008 to guarantee all bank liabilities translated the banking crisis into a subsequent fiscal crisis.

Reinhart and Rogoff (2009)'s historical observation that banking crises tend to be followed a few years later by sovereign debt crises gave us perhaps the most clairvoyant of the predictions in their celebrated book.

I have adopted the trinity of structural flaws -- competitiveness, fiscal, and banking – because I think it is a useful way to organize the difficult questions of solutions and future paths. But I have also read of a more colorful tripartite distinction based on national cultural proclivities: Some say that the critical problem is Mediterranean profligacy, others say it is German severity, and still others that it is Anglo-American financial markets. I think it is important to sound a note of American humility and admit that under-recognized shortcomings in our financial markets did indeed give us the housing peak of 2006, the sub-prime mortage crisis of 2007, the global financial crisis of 2008, and the global recession of 2009, and that these events were in turn the trigger for the euro crisis of 2010-12. Having said that, however, let us move on. If the GFC had not been the shock that triggered the euro crisis, sooner or later it would have been something else.

That leaves us with the tension between profligacy and austerity. This tension is indeed central, both to the long-term structural problems, where the issue is preventing profligacy, and to the short-term macroeconomic situation, where faith in austerity has been grossly excessive.

Let us now turn to the questions that were originally posed by the FRB for this session.

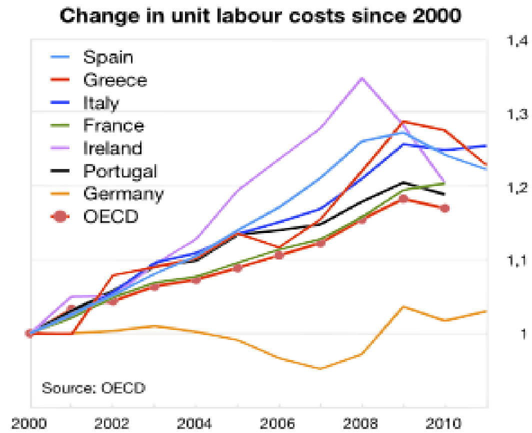
Question: "What changes would be required for a more stable currency union?"

All three structural problems call for wrenching changes.

Just a paragraph on problem 3, **banking**. I see European leaders as having finally begun to take some steps in the right direction in 2012, and one of them is the decision to move banking supervision functions from the national level to the ECB level (even though there is still a lot of resistance in Germany to moving supervision of all banks to the ECB level). Unlike fiscal union, moving banking supervision to a supra-national level is the sort of thing that one can imagine European countries having decided to do even if it were not wrapped up with monetary union.

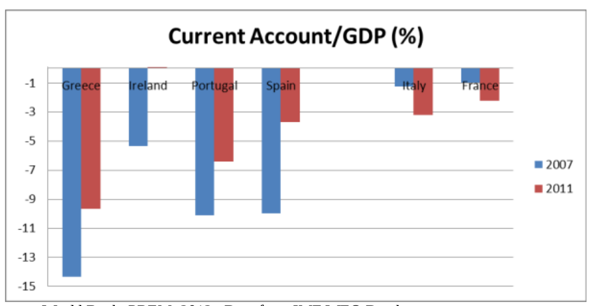
Although federalizing banking supervision won't be easy, addressing the other two problems is far more difficult still.

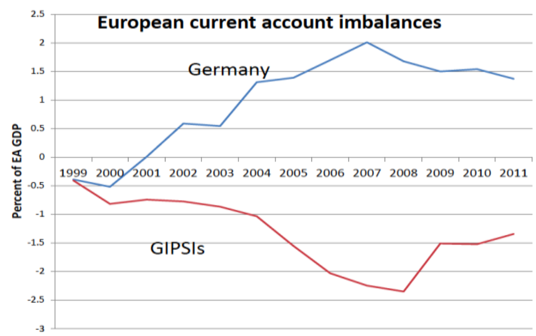
Figures 3 and 4:
During the euro's first decade, wages & ULCs rose far faster in the periphery than in Germany. During 2008-11 only a small fraction of the wage gap was reversed.



Source, IMF/ECB via M.Wolf, *FT* 10/10/12

Figures 5 and 6: Huge current account deficits in periphery countries up to 2007 were regarded as benign reflections of optimizing capital flows, instead of warning signals.





Source: World Bank, PREM, 2012. Data from IMF WEO Database

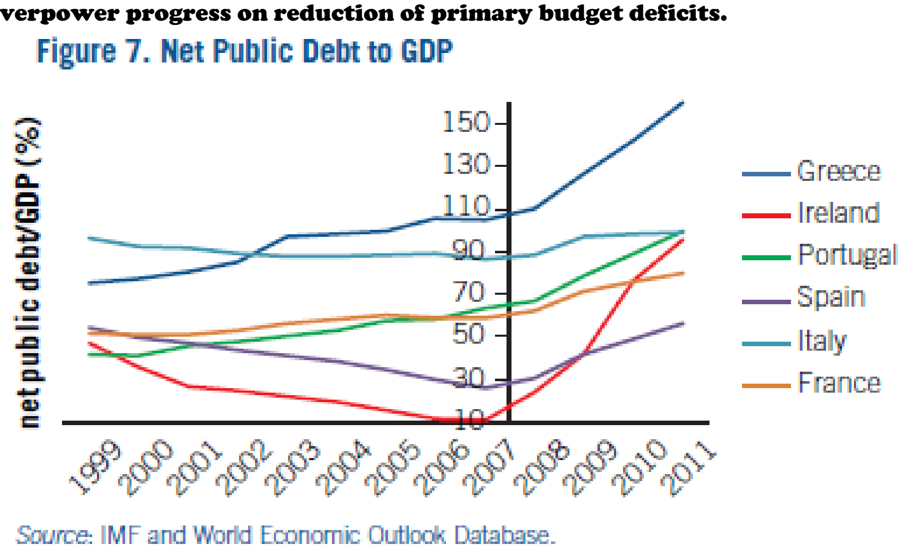
Source: Krugman. "Which Way to the Exit?" Brussels, 2012

Problem 1, the need to restore **competitiveness**. Over the first decade of the euro, wages and unit labor costs in Greece and other periphery countries rose relative to Germany's [Figures 3 and 4]. Their trade and current account balances had deteriorated correspondingly by 2007[Figures 5 and 6], although these huge deficits at the time were widely viewed as a reflection of new optimizing capital flows rather than a symptom of lost competitiveness.[iv] If the periphery countries are to stay in the euro, the only solution to the competitiveness problem is to reverse that decade of widening ULC gaps, through some combination of painful wage reduction and productivity growth. We know it can be done, because the three Baltic countries did it in response to the global financial crisis. (They paid the price in the form of the worst recessions of anybody worldwide; but today output and employment have recovered.) They were willing to sacrifice a lot to join the euro, whereas none of the Mediterranean countries is as unified politically or single-minded in its devotion to the euro. It could take them many high-unemployment years to accomplish what the Baltics did in two years. "Fiscal devaluation" could help, for example a combination of reduction in payroll taxes and increase in Value Added Tax, but such measures are as unpopular as any.[v]

The productivity side is likely to be as difficult politically as the wage side, because it requires things like cutting bureaucratic red tape, opening up the professions, and liberalizing labor markets. The silver lining is that these are reforms that should have been done anyway, but that were not going to get done short of a severe and lasting crisis. I wish they were receiving more attention from the troika relative to austerity, because they are good for output and employment rather than bad for it.[vi] Keynesians often argue that such supply-side reforms can only have a very slow impact over time. But appropriately designed deregulation of taxis in Italy and Greece, to take a small but salient example, would boost employment almost immediately.

The **fiscal problem** is likely to be the most difficult of all. I am tempted to say "impossible," given current economic and political realities. Just as was predicted by most independent economists, the fiscal austerity programs have made the recessions much worse.[vii] As a result, debt/GDP ratios have risen [Figure 7], rather than falling which was supposed to be the point of fiscal austerity in the first place. I see no way to get back to sustainable debt paths in some countries, without further debt reductions like the partial write-down that belatedly came about for Greece. The drawback is that any write-down exacerbates the moral hazard problem.

Figure 7: Debt/GDP ratios are rising sharply, as high interest rates and negative growth overpower progress on reduction of primary budget deficits.



Via: World Bank, PREM, 2012

Another of the questions that I was assigned can help illuminate the way forward:

Question: "Are comparisons with the United States useful?"

Answer: Comparisons with the successful monetary union which is the United States are definitely useful. Let us begin, however, on a second note of American humility: the US has achieved fiscal incompetence over the last decade that is as bad as the eurozone's. We don't even have the excuse of needing to reach agreement among 17 different national legislatures. That said, it is a close contest as to who has made more mistakes since 2001.

The grounds on which many economists (e.g. Eichengreen, 1993) were skeptical of EMU ex ante were specifically the correct observation that the prospective euro members did not satisfy the OCA criteria among themselves as well as the 50 American states did: trade, symmetry of shocks, labor mobility, market flexibility, or countercyclical cross-state fiscal transfers. Some Europeans thought that if they went ahead anyway, the loss of the monetary instrument would force increased flexibility of labor markets. This was mostly wrong -- think of the French 35-hour workweek -- unless the crisis finally helps to bring it about now in such countries as Greece and Italy.[viii]

The issue of fiscal moral hazard has turned out to be at least as relevant as the OCA criteria, however, and this is where I believe that European leaders should have been looking more carefully at the US example. After all, the US federal government has not bailed out a single state since the founding of the republic and nobody expects it to do so now, no matter how dysfunctional the state government in question. How did the US vanquish state-level moral hazard?

The question is especially relevant with respect to recent reforms, championed by German Chancellor Angela Merkel, that seek to give enforceability and credibility to the eurozone targets for deficits and debt, after the repeated earlier failures of the Stability and Growth Pact. The Fiscal Compact is technically in effect as of 2013. It sets deficit targets that are stricter than under the SGP, though at least they are specified in cyclically adjusted terms.[ix] Surveillance of national budgets includes a requirement that they be submitted ex ante to the EU Commission. And, as under its predecessor agreement the 2011 Euro-Plus Plan, countries are required permanently to put the euro-wide targets into their national laws and institutions. As rationale, some point to fiscal rules among the 50 individual American states, believing that they must be the explanation why we don't suffer from moral hazard in state budgets. Others suggest that the explanation is the tendency for interest rate spreads on the debts of spendthrift states to rise, long before debt/income ratios reach anything like European levels.

In my view, the state rules and the existence of spreads are best viewed as endogenous, the outcome of two structural decisions that were made long ago: First was the decision, made simultaneously and integrally with the ratification of the US Constitution in 1789, to move most spending and taxing powers from the states to the federal level. Second was the decision to let 8 states (plus Florida, then a territory) default on their debts in 1841-42 rather than bail them out, a critical precedent. These two structural features of the federal system mean that when the interest spread warning alarm is sounded, a state need only adjust spending or taxes by a few percentage points of income to get back on a stable debt path. In Europe, by the time the interest rate alarm had sounded it was too late: no primary budget surplus would have been big enough to get Greece back on a path of declining debt to GDP.

It is futile to identify as the euro's key flaw the decision not to establish a fiscal union to match the monetary union as the US did in 1789. The 13 founding American states chose to ratify the US Constitution voluntarily, after a vigorous debate. European political majorities did not come close to favoring a fiscal union in the 1990s. Indeed they almost certainly didn't even support the euro, which is the reason why the elites always avoided asking the people's opinion on the "European project" whenever possible. Moreover, it is unlikely that any Federalist Papers, no matter how cleverly written could change European public opinion on this score. After all, the public was right when it feared that they would eventually be asked to bail out a profligate country and the elite was wrong when they said they had it under control.

It is fair game however to argue that everything might have been different if Frankfurt and Brussels had reacted to the Greek debt crisis as Washington reacted to the southern states' crisis in 1841. When the crisis erupted in Athens in late 2009 -- Papandreou announcing the drastic correction to the budget numbers -- the leaders in Frankfurt and Brussels should have seized on it as a golden opportunity, rather than wringing their hands. Why "golden opportunity"? They already knew that their attempts to deal with fiscal moral hazard had fallen short. So even the most optimistic among the leaders must have known that sometime during the first century of the euro's life it would be challenged by fiscal troubles among one or more members. It was important to get the first case right, to set the correct precedent for the future.

Greece was the ideal test case, for two reasons. First, unlike Ireland or Spain, it was egregiously at fault. The Hellenic Republic would have been a natural place to draw a line, and its creditors were the natural ones to suffer losses. Second, unlike Italy, it was small enough that other governments and systemically important banks could have been protected from the consequences of a default with a fraction of the bailout money that has since been put up by the EFSF, the ESM and the ECB itself.

In early 2010 the leaders should have encouraged the Greeks to go to the IMF and, if necessary, to restructure their debts.[x] Instead the ECB and the EC said at the time that going to the IMF or restructuring was "unthinkable." Embarrassed, they swept the problem under the rug, kicked the can down the road, or – my preferred metaphor – stuck their ostrich heads into the sand. Their excuse was fear of contagion. But the result was that they made the contagion much worse than it had to be. Given a small localized Greece fire and a natural fire-break separating it from the forest, they declined to make their stand at the fire-break and instead waited until it had spread far and wide in the forest. By late 2010 the fire had become too big to put out.

But that is looking back. We have been asked to look *forward* in this session.

Noone can predict what will happen. For what it's worth, I think that Greece will probably complete its default -- perhaps around the time it first achieves a primary budget surplus. If so, it might even drop out of the euro, at least temporarily. But the core membership of the Eurozone will survive. It has come too far to turn back now.

Question: "Can the monetary union be achieved in the long run without a significant increase in fiscal unity?"

I would respond, "no." "More Europe" is inescapable. Returning to sustainable debt paths among some Mediterranean countries will require additional purchases by the European authorities (ECB, EFSF, ESM, or EIB) of their bonds and/or write-downs. Given that by now most of the debt is either held by these same agencies or else by private banks that will need to be protected, write-downs will require some further de facto transfers, though it should require national conditionality, as always. This entails a "significant increase in fiscal unity" along some dimensions.

Question: "Is this degree of fiscal unity politically possible?" Full fiscal union on the order of the US is not politically possible in the short or medium run. Again: the German taxpayers who were afraid that the euro would lead to a fiscal bailout were proven right and the elites who assured them they had it all under control were proven wrong Why should they believe them this time? Taxpayers in Germany (and the Netherlands, Finland, and Austria) have been forced to accept steps that look much like

like fiscal transfers, when confronted with the alternative of the breakup of euroland.[xi] The challenge is how to combine transfers today with a credible promise that there won't be a repetition in the future. I would rate this as even more difficult to solve, at this late date, than the competitiveness problem, which is in turn more difficult than the banking problem. But the Europeans have to try, and I have some thoughts on how to go about it, which are explained in an Appendix on Eurobond Solutions.

Question: "In the current environment, how should monetary policy operate given member states are experiencing such diverse shocks…?"

My answer is that the ECB should follow a slightly easier monetary policy than it generally has in these last four years of crisis.[xii] Yes, this would likely mean slightly higher inflation rates and more euro depreciation. But that would be the point: it will be especially difficult for the Mediterranean countries to improve their price competitiveness relative to Germany if they have to do it entirely through deflation. It will be easier if German inflation is allowed temporarily to go above 2%. Furthermore it will be much easier for them to improve their competitiveness globally if the euro depreciates. Northern Europe has too big a trade surplus anyway, not just vis-à-vis Southern Europe but also vis-à-vis the rest of the world. Finally, inflation and depreciation would also gradually help bring down debt/GDP ratios.

Of course these two words give the Bundesbank heart attacks. The Germans would put inflation and euro depreciation on the same list of morally repugnant promise-breaking as debt write-downs, the very existence of the EFSF and ESM, and – worst of all – ECB purchases of troubled bonds. And they would be right. I am not one of those who belittles the Germans' "morality tale" perspective as a cultural oddity. It is understandable, especially given the history. But if the euro is to survive (which, at the very minimum, means that France and Germany both stay in), the Germans must give way on these things, even though they very deliberately did not sign up for them at the beginning. And they especially must give way on the absurd premise that austerity is expansionary, as if we learned nothing from the 1930s. My guess is that they will indeed continue to give way, kicking and screaming the whole time.

Figure 8: Those enacting the biggest fiscal contractions suffered the biggest loss of GDP

Source: Paul Krugman, May 10, 2012, via Richard Portes, May 2013.

Appendix: Eurobond Solutions

Any solution to the fiscal crisis must meet two objectives, which conflict. One is short run and the other is long run.

The first necessary objective is to put Greece, Portugal, and other troubled countries back on a sustainable debt path, defined as a long-term trajectory where the ratio of debt to GDP is declining rather than rising. Austerity won't restore debt sustainability. It has raised debt/GDP ratios, not lowered them. A write-down would do it, but would then create moral hazard and thus make even it even harder to satisfy the second necessary objective.

That second objective is to reform the system so as to make it less likely that similar debt crises will recur anew in the future. Long-run fiscal rectitude is indeed the way to accomplish this. But it is hard to commit today to fiscal rectitude in the future. Rules like the Maastricht criteria, no bailout clause and Stability and Growth Pact (SGP) didn't work, because they were not enforceable. And for that reason, they were not credible from the beginning.

Eurobonds could be part of the solution, if designed properly to take into account fiscal fundamentals. These are bonds that would be the liability of euroland in the aggregate.

The creation of a standardized Eurobond market would bring a boost to help reform plans come together, badly needed in light of the damage that years of failed euro summits have done to official credibility. Even when the euro was at the height of its success five years ago, it suffered from lack of a counterpart to the US treasury bill market. Bonds were issued only individually by the 17 member governments. This fragmentation slowed European financial integration and hindered any bid by the euro to rival the US dollar as international reserve currency. Central banks in China and other big developing countries are still desperate for a form in which to hold their foreign exchange reserves, an alternative to holding US government securities. US Treasury bills pay extremely low interest rates and the value of the dollar has been on a downward trend for 40 years (ever since President Nixon took the dollar off gold and devalued in 1971). Despite all of Europe's problems, a Eurobond would be attractive to central bankers and other portfolio investors around the world, both to achieve higher expected returns and to diversify risk.

But that latent global demand for Eurobonds will not come forth unless they are by design backed up with solid economic and political fundamentals. Germany opposes Eurobonds on the sensible grounds that if individual national governments were allowed to issue them freely, the knowledge that somebody else was paying the bill would make the incentive to spend beyond their means worse than ever. This version of Eurobonds would be guaranteed to fail, both economically and politically. This seems to be the version that some have in mind, such as French president François Hollande, though it is hard to tell.

A different version of the Eurobond proposal began to gain some traction in Germany in 2012. The German Council of Economic Experts – often called "wisemen" -- proposed last year a European Redemption Fund (hence yet another new acronym, ERF; Bofinger, et al, 2011). The plan would convert into de facto Eurobonds the existing debt of member nations in excess of 60% of GDP, the threshold specified in the Maastricht and SGP criteria. The ERF bonds would then be paid off over 25 years, thus settling the huge legacy problem. Steps toward this proposed solution to the short-term debt problem would be paired – politically and logically – with approval of the Fiscal Compact which is supposed to solve the long-term problem.

But this seems backwards. Yes, any solution to save the euro indeed carries a further implicit price tag for German taxpayers. But to use Eurobonds as the mechanism for eliminating the big debt overhang looks like the nail in the coffin of the longer term objective of limiting moral hazard. It offers absolution precisely on the margin where countries in the future will in any case have the most trouble resisting the temptation to sin again, the margin where they cross the 60% threshold.

If the Fiscal Compact could be relied on as a firm constraint on future behavior, then fine. But there is no reason to believe that it would and every reason to believe that it would not. Why should the Fiscal Compact succeed where the Maastricht criteria failed, the "no bailout" clause failed, and the SGP failed? Rules don't work without some enforcement mechanism. The problem with the SGP wasn't that it wasn't written strictly enough. The problem with the SGP was that no matter how many times a member government's deficit or debt exceeded the specified limit, the country's officials could always say that the gap was the fault of unexpected circumstances such as slow growth and low tax receipts and that they expect to do better next time. [xiii] A penalty of having to make up the difference next year does not improve credibility. Even if some court in Brussels or Frankfurt were given life-and-death power to enforce the rules, who exactly would it punish, and how? No version of the SGP or Fiscal Compact has ever provided a credible answer to that question.

The version of Eurobonds that might work is almost the reverse of the German wisemen's proposal. It goes under the name of "blue bonds," proposed two years ago by Jacques Delpla and Jakob von Weizäcker at the think tank Brueghel. Under this plan, only debt issued by national authorities *below* the 60% criteria would receive eurozone backing and effectively become Eurobonds. These are the "blue bonds" that would be viewed as safe by investors. When a country issued debt above the 60% threshold, the resulting "red bonds" would lose eurozone backing. The individual member state would be liable for them. The proposal has been extensively debated in Europe.

As I see it, the private markets could make the judgment as to whether a country was in the process of crossing the 60% threshold, even before the final statistics were available, and therefore whether a new default risk required an interest rate premium. If private investors judged that the new debt had genuinely been incurred in temporary circumstances beyond the government's control (say, a weather disaster), then they would not impose a large interest rate penalty. Otherwise, the sovereign risk premium would operate, much as it does among American states, and much as it did in Italy, Greece and the others before they joined the euro. The point is that the mechanism would be truly automatic, as desired. Perhaps in ambiguous borderline cases the judgment whether a country had truly exceeded the limit would ultimately have to be made by a court. But private investors would not wait; they would act from moment to moment on informed views about the merits. The resulting market interest rates would provide the missing discipline. Compliance would not rely on discretionary letters from Brussels bureaucrats, which have been proven toothless no matter how many exclamation points are put at the end of their penalty threats.

Of course the euro countries cannot jump to a blue bond regime without first solving the debt overhang problem that is front and center. The debt paths that are currently unsustainable in many countries result from the combination of debt/GDP ratios that are already far in excess of 60%, very high sovereign spreads in the most troubled countries, and negative growth rates.

Eurobonds are not the solution to these vexing problems. It is hard to say, at this late date, what the right short-term solutions are. In Greece's case, it may be forced to default and to drop out of the euro. The banks and sovereigns in other countries will then have to be insulated from the conflagration through a combination of "bailout" money and serious policy conditionality, as always. (Creating this fire break between Greece and the heart of Europe would have been far easier two years ago, before debt/GDP levels and sovereign spreads climbed so high, before the fire spread to Portugal, Ireland and Spain, and before the credibility of the euro leaders sank so low.)

But one thing seems clear. German taxpayers will not be happy when asked to put up still more money in the cause of European integration by the same elites whose assurances of the last 20 years have proven false. They will at a minimum need some credible reason to believe that future repetitions in the future have been rendered unlikely, that the bailout is "just this once." Official assurances do not constitute that credible reason. The red bonds / blue bonds scheme just might.

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[i] These are the same as the three crises in Shambaugh (2012).

[ii] Jonung and Drea (2009).

[iii] E.g., Buiter, Corsetti and Roubini (1993); Frankel (1993); Beetsma and Uhlig (1999).
[iv] E.g., Blanchard and Giavazzi (2002).
[v] E.g., Farhi, Gopinath and Itskhoki (2011).
[vi] Alesina and Perotti (2010).
[vii] See figure 8 below. Among much relevant research: Fatas and Mihov (2001), Woodford (2011), Auerbach and Gorodnichenko (2012), Aizenman and Jinjarik (2012), Batini**,** Callegari and Melina (2012), and Blanchard and Leigh (2012) .
[viii] Major labor reforms did take place in the Netherlands, followed in 2002 by Germany's Hartz reforms under Chancellor Schröder. But these are not readily characterized as structural convergence to facilitate EMU.
[ix] E.g., Lane (2012).
[x] This is not hindsight. Wyplosz {2009) and Frankel (2010, 2011).
[xi] E.g.,Eichengreen (2010).
[xii] It has already begun to do so under Mario Draghi, with the Long Term Refinancing Operations and the new Outright Monetary Transactions.
[xiii] Official forecasts are systematically biased in the optimistic direction, even more so among eurozone governments than among other countries (Frankel, 2011; and other references cited therein). When a eurozone government finds itself with a deficit above the 3% limit, it adjusts its forecast to show the deficit coming back down below the limit in the coming few years, without adjusting its actual policies (Frankel and Schreger, 2013). This statistically significant tendency is reduced when the country gives the fiscal forecasting job to an independent agency. This could be an important lesson for the design of institutions under the Fiscal Compact.