

**Testimony to Senate Budget Committee, hearing on “Outlook for the Eurozone,”
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Summary

- 1) Successive plans to restore confidence in the euro area have failed. The market cost of borrowing is at unsustainable levels for euro banks and a significant number of governments.
- 2) Two major problems loom over the euro area. First, the introduction of sovereign credit risk has made nations and subsequently banks effectively insolvent unless they receive large-scale bailouts. Second, the ensuing credit crunch has exacerbated difficulties in the real economy, causing Europe’s periphery to plunge into recession. This has increased the financing needs of troubled nations well into the future.
- 3) With governments reaching their presumed debt limits, the European Central Bank (ECB) is now treading a dangerous path. It feels compelled to provide adequate “liquidity” to avert systemic financial collapse, yet must presumably limit its activities in order to prevent a loss of confidence in the euro—i.e., a change in market and political sentiment that could lead to a rapid breakup of the euro area.
- 4) Five measures are needed to enable the euro area to survive: (1) an immediate program to deal with excessive sovereign debt, (2) far more aggressive plans to reduce budget deficits and make peripheral nations “hypercompetitive” in the near future, (3) supportive monetary policy from the ECB, (4) the introduction of mechanisms that credibly achieve long-term fiscal sustainability, and (5) institutional change that reduces the scope for excessive leverage and consequent instability in the financial sector.
- 5) Europe’s leaders have mainly focused on a potential long-term fiscal agreement, and the ECB under Mario Draghi is setting a more relaxed credit policy; however, the other elements are essentially ignored.

This crisis is unique due to its size and the need to coordinate 17 disparate nations. We give four examples of economic, social, and political events that could lead to more sovereign defaults and serious danger of systemic collapse. Each trigger has some risk of occurring in the next weeks, months, or years, and these risks will not disappear quickly.

¹ This testimony draws on heavily on joint work with Peter Boone, particularly “[The European Crisis Deepens](#),” Policy Briefs in International Economics 12-4, January 2012, Peterson Institute for International Economics, and “[Europe on the Brink](#),” Policy Briefs in International Economics 11-13, July 2011, Peterson Institute for International Economics. For more background, please see also our paper “[Will the Politics of Moral Hazard Sink Us Again](#)” (Chapter 10, in the LSE volume on [The Future of Finance](#), July 2010). I also draw on joint work with James Kwak, including [13 Bankers: The Wall Street Takeover and The Next Financial Meltdown](#) (Pantheon, 2010) and, on the US fiscal outlook, *White House Burning: The Founding Fathers, The National Debt, And Why It Matters To You* (forthcoming, Pantheon, April 2012). Underlined text indicates links to supplementary material; to see this, please access an electronic version of this document, e.g., at <http://BaselineScenario.com>, where we also provide daily updates and detailed policy assessments for the global economy. For important disclosures relative to affiliations, activities, and potential conflicts of interest, [please see my bio on BaselineScenario](#).

1. The Euro Area's Last Stand

For over two years Europe's political leaders have promised to do whatever it takes to save the euro area. Yet problems are growing and solutions still seem far off. The October 27 and December 9, 2011 agreements of European leaders failed to change the dangerous trends in Europe's economies or markets. The implicit risk of default priced in sovereign bond markets reached all-time highs in the last three months. The trend is similar with bank default risk. The crisis is continuing to get deeper, broader, and more dangerous.

A combination of misdiagnosis, lack of political will, and dysfunctional politics across 17 nations have all contributed to the failure so far to stem Europe's growing crisis. I begin with our view on the main problems that are pushing the euro area towards collapse. I then turn to potential solutions (although we are very aware that the complexity of the problems in Europe renders any solution questionable), and finally I outline several factors that could trigger rapid financial collapse in the euro area.

2. Key Systemic Problems in the Euro Area

Within the complex sphere of Europe's crisis, if we had to pick one issue that turns this crisis from a tough economic adjustment into a potentially calamitous collapse, we would argue it is the transformation of Europe's sovereign debt market. We outline this in section 2.1 and then discuss the economic ramifications in sections 2.2 and 2.3.

2.1. European Sovereign Bonds Are Now Deeply Subordinated Claims on Recessionary Economies

In July 2011, Peter Boone and I laid out the case that the euro area's immediate problems, in large part, reflect transition from a regime where sovereign debts were perceived to be sacrosanct ("risk-free") to one in which investors perceived that sovereign defaults were possible.² Neither investors nor Europe's politicians understood the full ramifications of no bailout clauses in the Maastricht treaty until recently. With the new risk premium needed to compensate for default risk, some European nations will need to radically reduce their debt levels and change its maturity structure.

The treatment of private investors in the upcoming Greek debt restructuring has made it ever clearer that Europe's sovereign bonds bear substantial risk. On July 27, 2011, the EU Council of Ministers finally admitted that a Greek default was needed—although to date they prefer to describe this default as voluntary, referring to it as private sector involvement (PSI).³ By choosing a default over bailouts, it is as if the politicians have inserted a new clause into all European sovereign bonds:

In the event that the issuing sovereign cannot adequately finance itself in markets at reasonable interest rates, and if a sufficient plurality of the EU Council of Ministers/Euro

² Peter Boone and Simon Johnson, *Europe on the Brink*, Policy Briefs in International Economics 11-13, July 2011, Peterson Institute for International Economics, available at www.piie.com.

³ For the definition of PSI in the euro area context, see page 18 in *European Financial Stability Facility (EFSF)*, available at www.efsf.europa.eu/attachments/faq_en.pdf.

group/ECB/IMF/the Issuer determine it is economically or politically expedient, then this bond may be restructured.

Soon after this announcement it was apparent Greece could not afford the proposed deal, and more funds would be needed. At the summit on October 27, 2011, Europe's leaders announced that for Greek debt the PSI "haircut" would rise from 21 to 50 percent in order to provide these funds, while the official creditors promised no additional funds specifically for Greece.⁴

Those nonofficial creditors holding Greek bonds learned a new lesson: They are the residual financiers to European issuers when the troika's programs fail.⁵ The Greek press reported that the government was prepared to change laws governing its bonds in order to force nonofficial creditors to bear these losses. For nonofficial creditors, a further clause has thus been effectively and implicitly inserted into European sovereign bonds:

*In the event of default (i) any non-official bond holder is junior to all official creditors and (ii) the issuer reserves the right to change law as needed to negate any rights of the non-official bond holder.*⁶

We should not underestimate the damage these steps have inflicted on Europe's €8.4 trillion sovereign bond markets. For example, the Italian government has issued bonds with a face value of over €1.8 trillion. The groups holding these bonds are banks, pension funds, insurance companies, and Italian households. These investors bought them as safe, low-return instruments that could be used to hedge liabilities and provide for future income needs. It was once hard to imagine these could ever be restructured or default.

Now, however, it is clear they are not safe. They have default risk, and their ultimate value is subject to the political constraint and subjective decisions by a collective of individuals in the Italian government and society, the ECB, the European Union, and the International Monetary Fund (IMF). An investor buying an Italian bond today needs to forecast an immediate, complex process that has been evolving in unpredictable ways. Investors naturally want a high return in order to bear these risks.

Investors must also weigh carefully the costs and benefits to them of official intervention. Each time official creditors provide loans or buy bonds, the nonofficial holders become more subordinated, because official creditors including the IMF, ECB, and now the European Union continue to claim preferential status. Despite large bailout programs in Greece, Portugal, and Ireland, the market yield on their bonds remains well above levels where they are solvent. This is partly due to the subordinated nature of these obligations. De facto, if not de jure, Europe's actions have turned these bonds into junior claims on troubled economies.

Once risk premiums are incorporated in debt, Greece, Ireland, Portugal, and Italy do not appear solvent. For example, with a debt/GDP ratio of 120 percent and a 500-basis-point risk

⁴ At the July 21, 2011 summit euro area leaders called for €109 billion of official assistance. On October 26 they committed to €100 billion of official assistance. The IMF did not provide any additional commitment in October.

⁵ The troika is the informal name given to the European Union, ECB, and the IMF, which negotiates the terms of external assistance to Greece and other troubled peripheral countries.

⁶ To be clear, this "clause" and the preceding clause are just our interpretations – such clauses are nowhere written down, which greatly adds to the prevailing uncertainty.

premium, Italy would need to maintain a 6 percent of GDP larger primary surplus to keep its debt stock stable relative to the size of its economy.⁷ This is unlikely to be politically sustainable.

2.2. Crisis Spreads into Europe's Core Banks and Incites Capital Flight from the Periphery

On August 27, 2011, Christine Lagarde, the managing director of the IMF, shocked European officialdom with a speech decrying inadequate capital levels in European banks.⁸ She referred to analysis by IMF staff showing that, if European banks were stressed for market-implied sovereign default risks, they were €200 billion to €300 billion short of capital. Lagarde's speech was courageous and the logic of her analysis raised deep concerns.⁹ This was the first time the IMF admitted that sovereign default risk needed to be taken into account for the largest banks in Europe. Europe's regulatory regime does not require banks to have equity capital funding for sovereign debt—there is no capital requirement, in banking jargon—so banks accumulated these debts over many years under the assumption no additional capital would be needed. They must now revisit those portfolios to take account for capital needs on risky sovereign debt. However, the IMF analysis of the capital needs to offset this risk was odd. Markets price in a small risk of sovereign default, yet a major sovereign default would be a large, discrete event. Regulators need to decide: Sovereigns are safe, in which case banks need little capital protection against sovereign default, or they are not safe. If they are not safe, then banks need to accumulate adequate capital—raising their equity relative to total assets—to survive plausible sovereign defaults. For example, Bank for International Settlements (BIS) data show French banks in June 2011 had claims worth \$109 billion (on an ultimate risk basis) on Greece, Ireland, Italy, Portugal, and Spain (GIIPS); if these nations were to default on their sovereign claims, then French banks would surely experience large losses on the entirety of this portfolio while the repercussions for France's own economy would add further domestic losses.¹⁰

If sovereign default risk is not removed, then banks need nearly full equity funding to cover plausible states of nature where disorderly defaults do happen. The lesson for banks is clear: They need to reduce exposures to troubled nations and batten down the hatches.

In addition, Europe's peripheral banks are suffering large funding losses as capital moves to safer nations – most notably Germany.

⁷ A 500-basis-point risk premium is consistent with an annual 10 percent risk that something will trigger a decision to restructure and that there would be a 50 percent mark-to-market loss on bonds under such an event.

⁸ Christine Lagarde, speech at Kansas City Federal Reserve conference, Jackson Hole, August 27, 2011, available at www.imf.org.

⁹ European politicians first dismissed Lagarde's analysis and later the European Banking Authority revised down the needs to €14 billion. They argued that the IMF failed to take into account a potential rally in the price of safe haven bonds, such as France and Germany, which banks hold on their balance sheets. We believe the analysis far underestimates the potential capital needs since it does not take into account the full macroeconomic ramifications of sovereign default.

¹⁰ Bank for International Settlements, Table 9D: Consolidated foreign claims of reporting banks—Ultimate risk basis, *BIS Quarterly Review*, December 2011, available at www.bis.org/publ/qtrpdf/r_qa1112_anx9d_u.pdf.

2.3 Macroeconomic Programs: Too Timid to Restore Confidence or Growth

While it may already be too late to avoid extensive defaults, we can still consider what needs to be done to reduce the risk of default. To avoid defaults and restructurings, Europe needs to introduce policies that bring market risk premiums on sovereign (and hence bank) debts down. Investors need to feel confident that, with a 2 to 3 percent risk premium, it is worth the risk to hold onto several trillion euros worth of troubled nations' sovereign debts, as well as the much larger non-sovereign debts.

In a nation with a flexible exchange rate, adjustment is usually achieved with budget cuts and a sharp devaluation. Since euro area nations have forgone their right to devalue, they need to regain competitiveness through price and wage cuts, while even more sharply cutting budget spending. In essence, they need to increase volatility of their wages, prices, and budgets if they are prepared to forgo similar changes that could be achieved through the exchange rate.

The available evidence from the outcomes of the troika programs in Portugal, Ireland, and Greece, as well as the recently announced budget plans in Italy and Spain, suggests current policies will fail at this task. These programs all plan for gradual reductions in budget deficits, implying continued buildup of total government debts, while partially substituting private debt for official debt. In Portugal and Ireland the programs rely on external financing until 2013 when it is anticipated the program countries will reenter markets to finance ongoing budget deficits and ever higher debt stocks at modest interest rates. In Italy, optimistic growth assumptions help bring the budget to balance in 2013, but debt stocks remain far too high. Spain announced it would miss its 2011 budget deficit target of 6 percent, raising it to 8 percent. In Greece, budget revenue and GDP growth forecasts are again proving too optimistic.

Any successful program must recognize the fact that appetite for periphery debt amongst investors will not recover to "pre-crisis" levels, because default risk is now a reality that was not foreseen prior to 2009 and because debt stocks are now higher in the periphery. For example, Ireland is currently running a budget deficit measured at 12.5 percent of GNP.¹¹ The troika program calls for that budget deficit to fall to 10.6 percent of GNP in 2012. Ireland's stock of official debt will reach 145 percent of GNP in 2013, while it also has contingent liabilities to its banking sector that amount to over 100 percent of GNP. An investor looking at these numbers must recognize there is serious risk of default. Since market access is highly unlikely, who will finance Ireland from 2013 onwards?

¹¹ Ireland's GNP is substantially smaller than its GDP. Due to its role as a tax haven, many foreign companies have set up operations in Ireland, with a controlling shell company located in a tax-free nation, in order to take advantage of Ireland's regulations that specify that the controlling owner, rather than the resident company, is subject to tax. For this reason companies such as Google, Yahoo, Microsoft, Forest Labs, and many others channel license revenues and royalties through Irish subsidiaries. These royalties and revenues are in large part excluded from the tax base in Ireland. These companies would move if Ireland changed rules and made such revenues taxable. Since the relevant concept for fiscal sustainability is the taxable base, it makes sense that this should be used to measure Ireland's indicators. No other nation in Europe has a large difference between GNP and GDP. The IMF regularly reported Irish GNP in its staff reports but abruptly removed all reference to GNP in the most recent report. This raises concerns that the IMF is attempting to mask fiscal sustainability problems by not reporting these data.

A successful program must also take steps to quickly improve competitiveness.¹² The only nation that shows moderate improvement in relative unit labor costs is Ireland, but this is largely a statistical artifact driven by the decline of unproductive industry in the weighting.¹³ Italian Prime Minister Mario Monti's program includes no general wage cuts.¹⁴ In Portugal, the government abandoned attempts to engineer unit labor cost reductions through "internal devaluation" after meeting political opposition. In Ireland, the Croke Park accord prevents the government from further reducing public-sector wages.¹⁵ Despite nearly two years of troika programs, Greek unit labor costs have hardly budged.

With sovereign risk premiums rising, and capital flowing out of the periphery from banks while deficits and competitiveness improve little, it is not surprising that peripheral economies are in trouble. The Purchasing Managers' Index (PMI) indicates a bleak picture. It is no coincidence that a new major "downturn" started soon after German politicians made clear they were planning to let Greece default. It is also clear that the troika programs are failing to restore growth.

The stark contrast between unemployment in Germany and the periphery reflects the dynamics of the crisis. The strong core is becoming stronger – German unemployment is lower than it was in 2008 – while Greece, Ireland, Portugal, and Spain have high unemployment that continues to rise.¹⁶ Italy's troubles are recent, so with a sharp recession beginning, we anticipate Italian unemployment will soon rise sharply also.

3. Solutions

Europe may continue to veer towards a major financial collapse. European economies are in decline due to capital outflows from fear of sovereign and bank defaults. Recessions and continued budget deficits only raise the risk of default. Macroeconomic adjustment programs are not strong enough and do not reflect the large measures needed given the lack of exchange rate devaluation. As the GIIPS decline, there is serious risk that other indebted and heavily banked nations in the euro area, such as France, Belgium, and Austria, could be pulled into trouble themselves.

3.1. *The Big Bazooka*

Some analysts are now calling for a massive ECB-led bailout to arrest sovereign risk and stop this dangerous trend. The general hope is that, if the ECB offered to massively finance the

¹² Unit labor costs are the best measure of competitiveness in this context. These also include nontraded goods and are not a perfect measure of competitiveness, but the general pattern is clear – over the past decade Germany has really diverged from its European trading partners by becoming more competitive.

¹³ Ireland's nontraded goods sector is less productive than its traded goods sector (which includes companies such as Google that choose to report earnings in this low corporate tax environment.) As part of the Irish recession, the nontraded goods sector has contracted while "exports" from large multinationals have remained relatively robust.

¹⁴ See, for example, Alex Roe, "Monti's Measures for Italy," *Italy Chronicles*, December 5, 2011, available at <http://italychronicles.com>.

¹⁵ See Harry McGee, "Freeze on cuts after Croke Park accord," *Irish Times*, July 21, 2011, available at www.irishtimes.com.

¹⁶ The latest unemployment numbers are bad, including 22 percent in Spain and 14 percent in Ireland.

periphery, investors would return to buying those sovereign and bank bonds. Lower interest rates would give breathing space for sovereigns to correct budget deficits and banks to build capital.

To see how feasible this is, first consider the sums required. Any bailout would need to unequivocally convince investors that for several years these nations will simply not see serious financial problems. This means the bailout would need to have enough funds to buy up a large portion of the existing stock of “risky sovereign debts” plus finance those nations for, say, five years. The bailout must buy the debt, rather than simply refinance debt rollovers, since otherwise secondary market interest rates would stay high. The secondary market rates will determine the lending capacity of local banks and their creditworthiness.

We have calculated the sums required to purchase 75 percent of the outstanding government debts of the troubled nations (leaving aside debt owed to official lenders), plus finance their deficits over five years. In this base case we assume troika programs are implemented and deficits decline gradually over five years. The total adds to €2.8 trillion, or 29 percent of euro area GDP.

We can then contrast this with alternative assumptions.¹⁷ The most dangerous risk facing the euro area is if a “bazooka” is employed and yet the troika programs fail to restore growth and improve budgets. We assume budget deficits decline only modestly, and we calculate the financing needed to cover deficits until 2020. Our negative outcome implies nearly €5 trillion would be needed just for GIIPS, something the IMF implicitly flagged when they reported recently that Greece alone may need €500 billion (one half trillion) by 2020.¹⁸

Successful “bazooka” interventions often occur when the extra financing is no longer needed, so that the financing acts as a backstop but is hardly used. For example, when Poland launched its stabilization program in early 1990, the \$1 billion stabilization fund was never spent. The US Troubled Asset Relief Program (TARP) was quickly repaid by almost all banks. This is not possible for the euro area. Some euro area nations have too much debt in the new regime with default risk. In the early days of such a program we expect large purchases would be needed. The ECB would have to drive market interest rates down to levels where private creditors would not be well rewarded to hold the debts. As the ECB purchased the debts, private creditors would be further subordinated, and this would add to their desire to sell their bonds.

There are many reasons we believe such ECB “bazooka” programs won’t occur and are potentially dangerous to euro area survival. First, while using the ECB balance sheet may make such risks more opaque, any large bailout still poses potential heavy losses for Germany and other healthy members of the euro area. In the event there is default in the GIIPS, Germany would be responsible for 43 percent of the capital needs of the ECB. Hence with a bailout fund of €2.8 trillion, Germany would be assuming €1.2 trillion, or 45 percent of German GDP, in credit risk. The Bundesbank and other national central banks are likely to refuse.

Second, this measure on its own does not resolve competitiveness problems or large budget deficits in the periphery. It would undoubtedly cause the euro to fall but the benefits of euro depreciation are somewhat muted since Germany would remain relatively competitive compared with the periphery. The periphery will still need aggressive fiscal and wage cuts to improve their deficits and competitiveness relative to Germany.

¹⁷ For more detail, please see Peter Boone and Simon Johnson, “The European Crisis Deepens”, referenced in footnote 1 above.

¹⁸ This is a stress scenario in the IMF’s debt sustainability analysis for Greece. In our view, this scenario could reasonably be regarded as something closer to a baseline forecast.

Third, it would place the unelected ECB governors in a political role they were never destined to play and were legally forbidden to play according to the Maastricht treaty. The ECB could quickly become the largest creditor to peripheral nations, and as their financier it would ultimately need to negotiate budget programs, wage cuts, and structural change. It may choose to relinquish those powers to the IMF, but it would be the true power behind all these negotiations.

Finally, the bazooka could well incite an eventual crash of the euro area. If the ECB embarked on a program to backstop troubled nations, observers would quickly recognize that the potential sums needed to maintain stability could be large. Our bad case scenario implies over 341 percent of the ECB monetary base and 46 percent of euro area GDP might be needed.

For markets, what matters are the perceived future bailout costs. Hence, an announcement of a “bazooka” will lead to varying reactions in markets as the perceived bailout needs rise and fall. Investors could become very afraid if peripheral adjustment programs appear to fail or bailout needs spread to more nations. Such concerns could rapidly cause financial-market turmoil and euro area collapse (see section 4).

3.2 A More Comprehensive Solution

If the bazooka is unlikely and probably won’t work, while the status quo is failing, what is an alternative? The focus needs to be on returning the relevant sovereigns to solvency. Once the sovereigns are solvent, most commercial banks will have breathing space to rebuild capital through operating profits and retained earnings.

However, there is no easy means to achieve this. In our assessment, the GIIPS will need to restructure their debts by extending maturities and reducing coupons to levels that they can afford. There is some scope for official assistance to offset the total costs of such restructuring by subsidizing debt swaps. However, the Greek example suggests Europe’s politicians have little appetite to provide more taxpayer funds for this purpose.

While preemptive restructuring seems attractive, the needed extent and scope is unclear. Carmen Reinhart and Kenneth Rogoff argue that countries with no lenders of last resort typically run into problems when debt levels reach 60 percent of GDP. Even if we assume advanced European economies could manage more debt, it would not be higher than the 90 percent that Reinhart and Rogoff flag as a threshold for developed markets. Such figures imply that greater than 50 percent writedowns of nonofficial debt in Portugal and Ireland may be needed, while Italian debt writedowns might be close to 50 percent.

If the GIIPS followed preemptive restructurings, Europe’s core banks, insurance companies, and pensions funds would need substantial recapitalizations, and the costs of this could draw France and other core nations into debt crises of their own. Hence, any plan to preemptively restructure debts would need to be applied carefully across Europe.

The second ingredient is a far more aggressive program to reduce budget deficits and improve competitiveness in the periphery. These nations need to be highly competitive if they are to generate growth soon given the large risks overhanging their economies. This requires large wage cuts, public-sector spending cuts, changes in tax policy to attract investment and business, and stable politics.

If these two steps were implemented, then a bailout program from the ECB would pose lower risks. The debt restructuring and measures to improve competitiveness would mean far less funds were needed. The ECB’s role could be to provide confidence that stability would be

maintained—a sensible central bank role—rather than to refinance large amounts of debt and deficits.

While these steps would be a major improvement on current programs, they are hardly likely to be implemented. As discussed in section 2, the troubled nations have declined to implement large budget and wage cuts. Political conditions have prevented them. Meanwhile, creditor nations are claiming there will be no more debt restructurings beyond Greece, and at the same time the creditors are refusing to substantially raise bailout funds needed to prevent high interest rates and default. None of this leads to a credible path out of crisis.

4. Playing with Fire: Ways the Euro Area Could Come to an End

Policymakers often have trouble grasping the danger that small tail risks pose to leveraged systems. As we discussed above, a mere 10 percent annual risk of an Italian crisis is already inconsistent with Italian long-term solvency. If Italy has a disorderly crisis, how safe are French banks? And if those banks aren't safe, how safe is France's sovereign debt? Low-probability bad events can very quickly generate a wave of collapse through leveraged systems.

Our concern is that, when compared with financial crises elsewhere, the potential triggers for a euro area collapse are numerous.

4.1 A Unilateral Exit, or the Credible Threat of One

At a midnight press conference on November 2, 2011 in southern France, German Chancellor Angela Merkel and French President Nicolas Sarkozy for the first time entertained the idea that a nation could leave the euro area. Merkel and Sarkozy chose to take a hard line with Greek politicians and their electorate: either complete the existing agreement or leave. The background to this threat was the tough politics in Greece. After 18 months of large budget cuts and some structural reforms, Greece's economy remains in decline. Prime Minister George Papandreou's government was weak, and in a last desperate gesture he attempted to force further reforms through by offering Greek citizens a referendum with an implicit choice of "reform or exit."

An exit from the euro area can be forced in minutes. The Eurosystem only needs to cut off a national central bank from the payments system and prevent that nation from printing new cash euros. Once this is achieved, a bank deposit in Greece would no longer be the same as a deposit in Germany, because one would not be able to get cash for a Greek deposit and one would not be able to transfer it to a non-Greek bank. Of course, the moment people understand such a change could be imminent in their nation, they would run to their banks and attempt to withdraw cash or transfer funds. This is what is now happening in Greece. The country is losing 2.5 percent of GDP monthly in deposits from banks.¹⁹

There would be enormous, painful ramifications for all of Europe if Greece or another nation made a disorderly exit. Since there is no legal basis for exit, all financial contracts and indebtedness between Greek and non-Greek entities would have uncertain value as the parties could dispute whether these are to be paid in drachmas or euros. Trade between the exiting nation and the rest of the euro area would dry up. The mere fact that a country did exit would have ramifications for the other troubled nations, most likely inciting further capital flight from

¹⁹Deposits have declined by €61 billion, or 24 percent of GDP, since spring 2009. See Bank of Greece, "Aggregated balance sheets of monetary financial institutions (MFIs)," available at www.bankofgreece.gr.

those nations and producing sharp economic downturns. This in turn would question the viability of Europe's core banks and some of the core sovereigns. The euro itself would probably weaken sharply, and "currency risk" would be added into the euro.

4.2 The Weak Periphery Lashes Out against Germany, while Germany Fights Back

The political dynamics of crisis invariably pit creditors against debtors, potentially leading to flare-ups that cause creditors to give up. In Ireland, against strong popular opposition, the ECB is forcing Irish citizens to take on further debt in order to bail out creditors of bankrupt banks. In Greece, Prime Minister Papandreou was essentially ordered to revoke his planned referendum, while Greece's opposition leader was ordered to write a letter promising he supported Greece's troika program, despite the fact that he clearly did not support it nor did he participate actively in any negotiations to agree to it. French and German politicians are also playing an instrumental role in supporting Italy's new technocratic prime minister, while they eschewed former prime minister Silvio Berlusconi towards the end of his term. Meanwhile in Germany, "bailout fatigue" has set in as electorates and politicians turn against more funds to nations that, they perceive, are failing to reform sufficiently quickly.

While there are many outcomes of such discord, one possibility is that it leads to a messy grab for power. The troubled nations already have the power to take over decision making at the ECB. They may well usurp control in order to provide much larger ECB bailouts. This would raise concerns in financial markets and could lead to rising long-term yields on all euro-denominated debts. Germany would be forced to pay more to finance itself, and German savers would ultimately be paying for the periphery bailouts through inflation and a weak euro. In Germany this would lead to rising calls to leave the euro area.

Once there is a small risk that Germany could leave, market prices for euro-denominated assets would again change sharply. New risk premiums would need to be added to national debts where nations are expected to have weak currencies, while Germany and other strong nations might see their risk premiums fall even further. Such changes would reinforce the recent trends in which the core nations continue to strengthen relative to the periphery, but those changes would also be highly destabilizing for financial markets.

4.3 Economics of Austerity May Fail

The third risk for the euro area is that economic, political, and social realities eventually prove that the system simply cannot work. After all, the euro area is a dream of political leaders that has been imposed on disparate economies. Few nations sought popular support to create the euro. The German leadership avoided a referendum, and in France the Maastricht treaty was passed with a thin majority of 51 percent. Marine Le Pen, who is third in opinion polls for the spring 2012 French presidential election, is calling for France to leave the euro area and reintroduce the franc. Even though most European leaders are highly committed to maintaining this dream, no one can be sure what the costs are in order to keep it.

A plausible negative scenario is that those costs, in the eyes of the electorate, eventually appear too high. The evidence to date suggests Europe's periphery, even in a fairly benign outcome, will be condemned to many years or even a decade of tough austerity, high unemployment, and little hope for future growth. A good comparison is the "lost decade" of the 1980s in Latin America when nations hardly grew due to the large debt overhangs from

unaffordable debts. However, those nations had the benefit of flexible exchange rates, while Europe's periphery faces a more difficult period with uncompetitive economies. Latin America's problems ended only when the creditor nations accepted large writedowns and debt restructuring.

Another comparison would be the heavily indebted United Kingdom during the 1920s when the government managed policies to restore currency convertibility after the war. Britain suffered with a weak economy for a decade, before ending in the Great Depression, despite a booming global economy throughout the 1920s. However, this too is not a good comparison since Britain had far more flexible wages and prices than Europe's periphery, with nominal wages falling 28 percent during the 1920–21 recession.

4.4 Markets Lose Patience

Our final scenario is the most likely. Faced with the reality of failing adjustment programs, difficult politics, and rising risks that one or more peripheral nations may rebel, or Germany may rescind its support, investors may simply decide that the cumulative risks mean the euro area has a moderate risk of failing.

If investors decide there is a low but significant probability that the euro area might fail, we would encounter another version of Rudi Dornbusch's astute observation: "The crisis takes a much longer time coming than you think, and then it happens much faster than you would have thought." Here's why: The failure of the euro area will be a calamitous financial event. As Dornbusch famously remarked of the Mexican 1994-95 crisis, "It took forever and then it took a night."

If one believes the euro might fail, one should avoid being invested in European financial institutions, and in euro-denominated assets, until the outcome of the new pattern of currencies is clearer. As a result, a large swathe of euro-denominated assets would quickly fall in value. The euro itself would cheapen sharply, but so would the value of European bank debt and European shares, and most sovereigns would see their bonds trade off sharply. This in turn would make it expensive for even the Germans to raise finance in euros. Despite their impeccable credit record, they would be attempting to issue bonds in what is perceived as a flawed currency.

A small risk of the euro "breaking up" would have great importance for the euro swap market. This market is used by Europe's insurance companies, banks, and pension funds to hedge their interest rate risk. A swap contract allows, for example, a pension fund to lock in a long-term interest rate for their investments, in return for promising to pay short-term interest rates to their contract counterparty. It is an important market that underlies the ability of insurance companies, pension funds, and others to make long-term commitments to provide society with annuities, pensions, and savings from insurance policies. The notional value of these swaps is many times euro area GDP.

The euro swap market could quickly collapse if markets begin to question the survival of the euro. Euro swap rates are calculated as the average interest rate paid on euro-denominated interbank loans for 44 of Europe's banks. Approximately half of these banks are in "troubled nations." So the interest rate will reflect both inflation risk and credit risk of the participating banks. If investors decided that the euro may not exist in several years' time, swap interest rates would naturally rise because people would be concerned that banks could fail and that the "euro" interest rate could turn into something else—for example, the average of a basket of new currencies with some, such as the Greek drachma, likely to be highly inflationary.

If euro swap interest rates start to reflect bank credit risk and inflation risk from a euro breakup, then the market would no longer function. A pension fund could no longer use it to lock in an interest rate on German pensions since it would not reflect the new German currency rates. The holders of these contracts would, effectively, have little idea what they would be in a few years' time. Hence, investors would try to unwind their swap contracts, while the turmoil from dislocations in this massive market would cause disruptive and rapid wealth transfers as some holders made gains while others lost. If the euro swap market ran into trouble, Europe's financial system would undoubtedly face risk of rapid systemic collapse.

This example illustrates why a small perceived risk of a euro area breakup could rapidly cause systemic financial collapse. The swap market is only one mechanism through which collapse could ensue.

On November 23, 2011 Germany was unable to sell as many bonds as it wished.²⁰ The auction failure caused an immediate steepening in the German sovereign bond yield curve. Some German officials argued this failure was due to "volatile markets," but there is a more fundamental concern. Germany's ability to pay low interest rates in euro-denominated assets requires the euro area be a financially stable region. Today, German yields remain very low and are not at worrying levels. However, if these rates were to rise due to fears of currency breakup risk, then the euro area would quickly enter deep crisis as even Germany would have trouble financing itself.

5. Dreams versus Reality

There is no doubt that European political leaders are highly committed to keeping the euro area together, and so far, there is widespread support from business leaders and the population to maintain it. There is also, rightly, great fear that disorderly collapse of the euro area would impose untold costs on the global economy. All these factors suggest the euro area will hold together.

However, many financial collapses started this way. A far more dramatic creation and collapse was the downfall of the ruble zone when the Soviet Union collapsed in 1991. Argentina's attempt to peg its currency to the dollar in the 1990s was initially highly successful but ended when its politicians and society could not make the adjustments needed to hold the structure together. The Baltic nations—Estonia, Latvia, and Lithuania—have managed to maintain their pegs but only after dramatic wage adjustments and recessions.

More relevant, the various exchange rate arrangements that Europe created prior to the euro all failed. With the creation of the euro, Europe's leaders raised the stakes by ensuring the costs of a new round of failures would be far greater than those of the past, but otherwise arguably little has changed to make this attempt more likely to succeed than the previous one. Small probabilities of very negative events can be destabilizing. A lot of things can go wrong at the level of individual countries within the euro area—and one country's debacle can easily spill over to affect default risk and interest rates in the other 16 countries. The euro swap market is based, in part, on interest rates charged by 44 banks in a range of countries; about half of these banks may be considered to be located in troubled or potentially troubled countries. If the euro

²⁰ Paul Dobson, "German Auction 'Disaster' Stirs Crisis Concern," Bloomberg News, November 23, 2011, available at www.bloomberg.com.

swap market comes under pressure or ceases to function, this would have major implications for the funding of all European sovereigns—including those that are a relatively good credit risk.

At the least, we expect several more sovereign defaults and multiple further crises to plague Europe in the next several years. There is simply too much debt, and adjustment programs are too slow to prevent it. But this prediction implies that the long-term social costs, including unemployment and recessions rather than growth, attributable to this currency union are serious. Sometimes it is easier to make these adjustments through flexible exchange rates, and we certainly would have seen more rapid recovery if peripheral nations had the leeway to use exchange rates.

When we combine multiple years of stagnation with leveraged financial institutions and nervous financial markets, a rapid shift from low-level crisis to collapse is very plausible. European leaders could take measures to reduce this risk (through further actions on sovereign debt restructurings, more aggressive economic adjustment, and increased bailout funds). However, so far, there is little political will to take these necessary measures. Europe's economy remains, therefore, in a dangerous state.