In the nearly four years since the first International Monetary Fund-European Union (IMF-EU) support program for Greece in May 2010, the sovereign debt crisis in the euro area has passed through three phases. The first involved the Greek crisis and its contagion to Ireland (late 2010) and then Portugal (early 2011). In the second phase contagion reached the far larger economies of Italy and Spain, where sovereign risk spreads reached 500 to 600 basis points in late 2011 and the second quarter of 2012, threatening to precipitate a self-fulfilling prophecy of insolvency. In this phase there were persistent market expectations that at least one country would exit from the euro. The third and present phase began in mid-2012, when European Central Bank (ECB) President Mario Draghi pledged to do “whatever it takes” to preserve the euro and announced the ECB’s program of Outright Monetary Transactions (OMT) for purchasing government bonds in the secondary market for countries in adjustment programs. By the third quarter of 2013, even though no bond purchases in the OMT had yet been necessary, the results were impressive. Spreads had eased back to the range of 250 basis points for Italy and Spain and also fallen sharply for Ireland and Portugal. By February 2014, spreads had narrowed further.

The crisis has been multifaceted. High public debt and fiscal deficits drove the crisis in Greece. As domestic political instability aggravated the steep economic downturn, it became necessary not only to restructure Greek public debt with a major haircut for private creditors but also to mobilize official support from the euro area and IMF amounting to a remarkable 124 percent of GDP (table 7A.1 in chapter 7 for 2014), making Greece a special case in several dimensions. In Spain and Ireland, the collapse of housing bubbles contributed to recession and a downswing into fiscal deficits, and in Ireland the associated bank bailouts added about 40 percent of GDP to government debt. Italy’s
persistently high government debt even before the Great Recession, along with political uncertainty, heightened its vulnerability even though its fiscal and current account deficits were smaller than those of other periphery economies under stress. Portugal, like Greece and Spain, had been vulnerable to a sudden-stop financial squeeze given reliance on external financing of large current account deficits. A theme common to the five economies, however, is that they have suffered from the paradigm shift from the previous financial market view that industrial countries could not default, and that therefore there was no reason for differences among euro area government borrowing rates once the single currency eliminated currency risk. That paradigm has been shattered by the Greek restructuring, leaving a legacy of market perception that sovereign risk can indeed be severe within the euro area.

Figure 1.1 shows the basic fever chart of the euro area sovereign debt crisis: the size of sovereign spreads above the 10-year German bund for the debt-stressed periphery economies. Greece literally goes off the chart as its spreads soared before debt restructuring, but there has been clear improvement for Ireland, Portugal, Italy, and Spain since the height of the crisis. Moreover, Ireland successfully completed its IMF-EU support program in December 2013, and Portugal is on track to do so in May 2014 (albeit perhaps with the aid of a precautionary credit arrangement). Both countries encountered strong demand for bonds issued in early 2014 on relatively favorable terms. Even Greece was able to reenter the medium-term market in April 2014.1

As of early 2014, the chances thus seem reasonably favorable that the euro area debt crisis can be managed going forward in a fashion that avoids extreme shocks to the euro area and world economies. The seemingly decisive OMT initiative confirms the sense of a conference held in September 2011 by the Peterson Institute for International Economics and Bruegel: that the ECB was the only institution capable of providing the bridge between forceful action needed immediately and the new institutions that would be needed for the euro area but would require a long process of negotiation (Cline and Wolff 2012, 2).

Even so, it is premature to declare that the crisis is “over” (in the optimistic terminology of French President François Hollande already in mid-2013).2 The historical lesson of sovereign debt crises is that they can experience misleading phases of apparent hopefulness only to be followed by deterioration, as occurred in the Latin American debt crisis of the 1980s. Whereas recovery by 1984 from the severe global recession of 1982 raised hopes that export growth

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would enable full debt servicing, by the end of the decade the main debtor nations of the region (except Chile and Colombia) needed substantial debt relief through the Brady Plan.

A fundamental requirement for sustained exit from a sovereign debt crisis is political will, and in particular the ongoing willingness of the public to generate primary (noninterest) fiscal surpluses on the order of 2 to 4 percent of GDP (or more in the case of Italy) to cover interest costs of the debt. In the euro area, only time will tell whether this political sustainability is present in all of the countries that have experienced debt stress.

Other obstacles may also need to be overcome. The effectiveness of the OMT could be undermined by a ruling of the German Constitutional Court, as discussed below. The new round of turmoil in emerging markets in early 2014 could prompt a rebound in sovereign risk spreads in the euro area periphery. A renewed flareup in the special case of Greece, where further relief may be needed and the main opposition party (Syriza) has rejected the IMF-EU adjustment program, could similarly play a destabilizing role.

Nevertheless, this study finds that the economic fundamentals should be broadly supportive of successful management of, and exit from, the crisis going forward. The first part of the book, chapters 2 through 5, sets the stage for the analysis in qualitative terms, by examining several leading functional issues that have dominated the policy debate. The core quantitative framework that provides the basis for the assessment of debt sustainability is a debt simulation model that applies a new methodology to identify the likely range of
outcomes. Chapter 6 sets forth the model and applies it to Ireland, Portugal, Italy, and Spain; chapter 7 applies the model to Greece. The debt simulations explore whether sovereign debt is on track to spiral further out of control or instead revert back toward more sustainable levels. This overview chapter presents a synthesis of policy implications and then summarizes the qualitative analysis of functional issues and the quantitative method and findings.

The purpose of this book is to contribute to policy analysis of the evolution to date of the sovereign debt crisis in the euro area, and of the best strategy for resolving the crisis in the decisions that lie ahead. The analysis focuses on sovereign debt, and does not examine debt problems of the private sector except with respect to the role of bank losses in precipitating public debt problems (and vice versa). The approach is primarily macroeconomic, and does not attempt to provide a close examination of structural reforms achieved to date or those still needed. Nor does the study assess the political dynamics of domestic forces conducive or corrosive to orderly resolution of the crisis. Finally, although the analysis considers major aspects of the evolving institutional framework of the euro area insofar as it affects sovereign debt sustainability, including the development of firewalls, the debate on eurobonds, progress toward banking union, and the debate on a debt restructuring mechanism, the study does not attempt to provide an in-depth examination of the prospects for further institutional change.

The next section enumerates the principal findings and policy implications of this study. At their core is the finding that Ireland, Italy, Portugal, and Spain are solvent and should be able to continue their progress toward fiscal consolidation and a return to more normal financial market access. The corresponding policy implication is that maintaining the potential support of the OMT is crucial but that initiatives such as a debt restructuring mechanism would be counterproductive. As before in its restructuring, Greece could prove an exception in potentially needing more relief.

Policy Implications

The first, highest-level policy implication is that the euro area has made the right decision to do “whatever it takes” to keep the euro area from breaking apart, including avoiding an exit just by Greece. The stakes are too high to risk potentially massive financial crisis effects from a breakup.

The second, crucial policy implication is that the strategy of temporary official assistance to Portugal and Ireland, steady progress toward fiscal consolidation in all of the periphery economies, and the backstop of OMT to deal with adverse swings in financial markets has been working and should be continued as Ireland and Portugal now complete their programs and the periphery economies more generally return toward more normal conditions for market access. Debt ratios in the four peripheral economies excluding Greece can reasonably be expected to trend to the 100 to 120 percent range by 2020. The proper diagnosis for the four economies is that their sovereigns are
solvent, so it would be counterproductive to restructure their debt (thereby imposing credit reputation damage). The OMT in particular is the most important official underpinning of this process, because by preventing a self-fulfilling prophecy of insolvency from a surge in market interest rates, it provides time for the economies to carry out fiscal and structural reform.

A third implication is that Greece may need some further debt relief, this time from the official sector because it is the creditor for most of the debt. Such relief should be contingent on continued progress on fiscal and structural reform.

A fourth implication is that despite critiques of excessive austerity in the euro area crisis, there has been little alternative to fiscal consolidation, and it would be a serious mistake to allow fiscal deficits to widen again (even if the pace of adjustment is eased). The simple arithmetic of debt sustainability turns crucially on attaining a meaningful primary surplus, and the welfare losses that would arise from a collapse into debt default would make any growth costs from seemingly excessive near-term demand reduction from fiscal adjustment seem minimal in comparison.

A fifth implication is that the pursuit of financial integration in the sense of equality of private sector interest rates in the euro area has inherent limits. So long as the nations have separate fiscal authorities, they inevitably will have differences in sovereign default risk premiums, and there is an inevitable relationship of private borrowing rates within the economy to the sovereign borrowing rate. The corollary is that monetary policy can do more to address the euro area debt crisis by offering country-specific OMT to curb excessive country spreads than it can accomplish by general across-the-board monetary ease (through a lower policy rate or quantitative easing with asset purchases proportionate to GDPs).

A sixth implication is that although full-fledged debt mutualization through eurobonds does not seem to be in the cards politically in the absence of further fiscal and political integration, euro area governments might usefully explore as a contingency a bond insurance sinking fund whereby there would be mutual guarantees to peripheral economy borrowing in exchange for a premium paid annually into the insurance fund.

A seventh implication of the findings is that a shift toward restructuring (as seemingly implied by a recent IMF staff study [2013i] favoring early preemptive restructurings) would likely be counterproductive. If going forward it were to develop that the IMF insisted on restructuring for Portugal (for example), the euro area would be well advised to go its own way and manage further adjustment plans for Portugal with its own resources and institutions, including the Enhanced Conditions Credit Line (EFSF 2011).

At a deeper level, the outcome of the euro area sovereign debt crisis will ultimately be determined by the political will of the governments facing debt stress, progress toward structural reform that improves medium-term growth, and progress in reshaping the institutional architecture of the euro area. The central projections of this study should thus be viewed as broadly indicating
that the necessary economic conditions for resolving the crisis are on track, without implying that these conditions will be sufficient, especially if unaccompanied by sustained political will.

**Leading Policy Issues**

**Fiscal Adjustment and Monetary Policy**

Chapter 2 examines one of the most acrimoniously debated issues in the euro area crisis: whether the agenda of fiscal adjustment has been necessary and has contributed to resolution of the crisis, or whether instead it has been misguided and counterproductive. The basic critique is the Keynesian argument that attempts to reduce the fiscal deficit will instead merely cause a reduction in output because of deficient demand.

The fundamental answer to the critics of fiscal adjustment is that there was little alternative because financing was not available for larger deficits. Greece, Ireland, and Portugal became cut off from financial markets, and larger new borrowing from markets was not an option. The magnitudes of official support from the IMF and euro area governments were already large, and political leaders in Germany and other core economies were under pressure from publics to limit such support. Significantly, the path of spreads lends support to the notion that breakdowns in fiscal adjustment prompted new surges in sovereign risk spreads (as discussed for Italy and Spain; see figure 2.2), so a move toward greater fiscal stimulus could have prompted even larger increases in their risk spreads.

The IMF did find that its early adjustment program projections had understated the growth tradeoff from fiscal adjustment because macroeconomic multipliers are larger than usual when unemployment is high and interest rates are already close to zero so the usual monetary stimulus policy of reducing interest rates is no longer available. Output reduction from fiscal tightening is therefore greater than usual. There has accordingly been some pattern of easing the ambitions of the timing of fiscal adjustment in successive program reviews. Nonetheless, a model developed in appendix 2C shows that if the stakes involve the risk of a collapse in confidence in the country’s ability to honor its sovereign debt, the multiplier can turn negative, such that attempts to stimulate the economy through further fiscal expansion can reduce economic welfare by increasing the probability of a catastrophic default.

Other IMF research finds that even though a high multiplier when unemployment is high could imply a perverse increase in the ratio of debt to GDP as a consequence of fiscal tightening (because of the resulting decline in the denominator, GDP), such an effect would likely be only temporary. The benefits of the fiscal adjustment in reducing the deficit and thus the cumulative

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3. For most references pertaining to this overview, see the chapters in question.
debt would successfully reduce the debt ratio over time if not in the first year. A broadly similar model exercise in appendix 2B finds the same result.

It is important to recognize that some of the fiscal corrections have been large; Greece cut its cyclically adjusted primary deficit by 15 percent of GDP from 2009 to 2012. The massive destabilization in expectations from successive political collapses and threats of exit from the euro almost certainly caused output losses to exceed those that might have been expected just from fiscal compression, but again there was little alternative to the cutbacks in any event. Moreover, excluding Greece, there is no clear pattern among the four other peripheral economies relating more severe fiscal adjustment to more severe output contraction (figure 2.3).

The overall diagnosis is that fiscal adjustment and movement toward eventual sizable primary surpluses (fiscal surplus excluding interest payments), on the order of 3 percent of GDP or more, was integral to managing the debt crisis. Importantly, of the total fiscal adjustments needed from 2010–11 to 2017, about two-thirds (Ireland and Spain) to three-fourths (Greece, Italy, and Portugal) were already accomplished by 2012. Consequently, the pace of fiscal adjustment can be eased significantly going forward (from a range of about 2 to 4 percent of GDP per year in 2010–12 to 0.5 to 1.5 percent in 2013–15; figure 2.4), facilitating a recovery in growth.

Chapter 2 concludes with a brief examination of the role of monetary policy. With the benefit of hindsight, during the course of the euro area debt crisis the ECB arguably kept policy interest rates too high for too long, given disappointing growth for the euro area as a whole. However, by late 2013 the ECB had cut the policy rate to 0.25 percent, effectively the zero bound. The question arises whether a shift to aggressive quantitative easing could help spur growth. Although the ECB’s balance sheet has actually risen more than that of the Federal Reserve (by 18 percent of GDP from mid-2007 to end-2012, compared with 13 percent), its acquired assets have mainly been repurchase obligations of banks and bonds of periphery governments, with maturities of three to four years or less. The key to quantitative easing is its influence in reducing long-term interest rates. Based on the US experience, the remaining scope for compressing long-term interest rates (e.g., 10-year maturities) in the euro area appears to be relatively limited, so the potential for quantitative easing to boost output may be limited also.

**Banks and Sovereign Debt**

A second salient issue in the debt crisis has been the “doom loop” between the sovereign and the banks in the country in question. Aside from the historical interest of which party inflicted greater damage on the other, the primary issue is whether looming bank recapitalizations in the future will impose crippling debts on sovereigns. Also at stake are the questions of financial fragmentation, whereby different sovereign strengths translate to differing private sector financial conditions despite the supposed single monetary area, and whether
the emerging euro area institutions (banking union, European Stability Mechanism [ESM]) adequately address the problems.

Banks and sovereigns are joined at the hip. As the peripheral crisis worsened, foreign creditors (including foreign banks) reduced holdings of government obligations while domestic banks increased holdings. Zero risk weighting under Basel standards, plus the greater internalization of an external benefit from shoring up the government to in-country banks, contributed to this dynamic.

Ireland is the clearest case in which collapse in the banking sector imposed severe new debt responsibilities on the sovereign. Run-ups in bank deposits and assets associated with the real estate booms were unsustainable in both Ireland and Spain. In Ireland, government support to the banking system added some 40 percent of GDP to public debt. The absence of any bail-in requirement for creditors (except for the wiping out of stockholders and subordinate creditors) was understandable in the context of the post-Lehman environment of international crisis, but generous from a subsequent vantage point after imposition of massive losses on creditors and even uninsured depositors in Cyprus in early 2013. The impact of the banking problem on sovereign debt was milder in Spain than in Ireland, amounting to about 6 percent of GDP (although more losses could lie ahead).

The Irish case has generated a particularly poignant irony. In the euro area, monetary finance of governments is in principle prohibited. And sovereign debt is considered more risky in the euro area because the single currency means no country can print money to pay its debt in the way most sovereigns can. Yet the burden of the bank-derived debt in Ireland has in fact been handled precisely by monetary finance. The Central Bank of Ireland provided some €40 billion in financing to the government to deal with the losses, and an early 2013 conversion of this debt from promissory notes to bonds paying lower interest will reduce the government’s interest costs by about 1 1/3 percent of GDP annually. So Ireland might be seen as the exception that proves the rule: no monetary finance, unless the causation comes from the banking sector itself rather than general fiscal excess.

Greece is the clearest case of damage imposed by sovereign default on public debt held by its banks. Greek banks held about €60 billion in government debt at the end of 2011, so the haircut of 53 percent in the restructuring of early 2012 eliminated about €30 billion, or 6 percent of their assets and hence almost the entirety of their capital. The resulting need to recapitalize the banks caused substantial leakage to the net reduction in sovereign debt from the restructuring, necessitating additional borrowing of €25 billion. The sovereign haircut in Greece spilled over to heavily exposed banks in Cyprus.

Regarding financial fragmentation, there is indeed a close correlation between sovereign spreads and credit default swap (CDS) rates of the banks in the country and, by implication, the interest rates banks must pay to borrow and must charge on loans. The corresponding implication is that as sovereign risk diverges, so will country lending conditions. The search for uniform
monetary conditions is to some extent inherently chimerical as a result, so long as there is no fiscal union or mutualization of debt. The surprise is that the transmission of the sovereign differential to lending rates seems to be substantially muted and delayed. Thus, whereas quarterly average sovereign spreads above German bunds peaked in the third quarter of 2012 at 430 basis points in Italy and 500 basis points in Spain, in that quarter the spread of interest rates on new bank lending to the private sector in Italy and Spain was only 100 basis points above corresponding rates in Germany. Although these spreads continued to widen to 140 basis points by the first quarter of 2013, they remained lower than the sovereign spreads of 300 basis points in Italy and 350 basis points in Spain at that time (see figures 2.2 and 3.5). Nonetheless, a substantial tightening of borrowing conditions showed up in the reduction of availability of credit, reflecting the phenomenon of credit rationing whereby lenders curb volumes rather than raising rates to levels that only more risky firms might be willing to pay.

As for sovereign debt vulnerability to future bank losses, estimates by the Organization for Economic Cooperation and Development (OECD) and other experts imply that the scope of damages may be more limited than many fear. Using benchmarks of 5 percent of assets or more for the target leverage ratio, these various estimates indicate that capital shortfalls are likely to be on the order of 3.5 percent of GDP or less in Ireland and Portugal, and 2.5 percent of GDP or less in Italy and Spain. Appendix 3A in chapter 3 provides an alternative set of estimates by applying an earlier IMF model relating bank losses to unemployment and growth rates. When the estimated losses are compared with impairments already taken by the banks, it turns out that banks in all four economies have already accounted for losses comparable to or in excess of the predicted amounts, with banks in Spain having taken especially large writeoffs in 2012. Even using the higher end of the OECD and other estimates of capital shortfalls, considering that debt ratios are in the vicinity of 120 percent of GDP in Ireland and 100 percent of GDP in Spain, and considering that much of the needed capital would come from the private sector rather than governments, the extra shock from these ranges of bank recapitalization losses would seem modest.

Chapter 3 closes with a review of institutional evolution in the form of banking union, as well as the ESM’s scope for direct bank recapitalization. There was a brief moment in mid-2012 when it appeared that direct ESM recapitalization of banks could alleviate a debt burden otherwise borne by the government in Spain (and even in Ireland retroactively), but Germany, Finland, and the Netherlands promptly rejected that possibility by ruling out ESM direct recapitalization for “legacy” assets. Subsequently the scope for ESM bank recapitalization was limited to €60 billion, so in any event the scope for its preventing meaningful additions to sovereign debt will be modest. More broadly, the hope that the doom loop will be severed by banking union, because unified supervision will set the stage for mutualized responsibility, seems somewhat detached from the underlying reality that debt mutualization
is unlikely without fiscal and political union. There may be greater scope for ending the doom loop through a tougher stance on imposing losses on creditors and uninsured depositors (as in Cyprus) rather than increasing public debt to recapitalize banks, but realistically public sector support in a crisis cannot (and should not) be ruled out. Similarly, limits to progress on mutualized responsibility are evident in the area of depositor insurance, which seems to have lagged the most in banking union discussions.

**External Adjustment and Breakup Costs**

Chapter 4 considers the relationship of external current account imbalances to the sovereign debt crisis. It argues that those analysts who place external imbalances at the heart of the debt crisis have a good case with respect to sudden-stop causation but are less persuasive with regard to future sustainability of debt now that financing has been arranged and current account deficits sharply narrowed. Current account deficits certainly did reach excessive levels: as much as 15 percent of GDP in Greece, 13 percent in Portugal, and 10 percent in Spain in 2008. The large current account deficits in four of the five periphery economies (Italy being the exception) made them vulnerable to a sudden stop in capital inflows. There is a clear relationship between the size of current account deficits (as a percentage of GDP) in 2007–08 and the size of the sovereign risk spread at the height of the crisis in 2012 (figure 4.1a). But by 2013 there was no longer a relationship between the sovereign spread and the current account, as measured by the actual and expected path for 2012–16 (figure 4.9). Moving current accounts further into surplus is not needed for resolving the debt crisis even if large deficits played a role in causing it.

Although a sudden stop contributed to a liquidity squeeze, two structural features meant that it was not as severe as would have been the case for emerging-market economies. First, because the debt was in euros, so long as the country remained in the single currency there would be no balance sheet impact that has been so severe in emerging-market crises in which a sharp depreciation of the currency causes a much larger burden of debt owed in foreign currency relative to domestic tax revenue (for governments) or earnings (for firms). Second, the Target2 balances assured automatic financing of current account deficits, if not of governments suddenly facing unfavorable credit markets.

Real effective exchange rates did become overvalued, although the focus has been too much on relative unit labor costs against Germany and too little on overall real effective exchange rates against the world as a whole. On the latter measure the periphery has made major corrections. As a group, the four peripheral economies excluding Italy (where current account deficits were smaller) depreciated by 11 percent in real effective terms (averaging the Bank for International Settlements [BIS] index deflated by consumer price indices [CPIs] and the IMF index deflated by unit labor costs) from 2008 to 2012 (figure 4.8). In part this outcome reflects some success in internal devaluation,
especially in Ireland where unit labor costs have fallen sharply as public sector wages were cut by 14 percent (or more for high-end wages). In any event, the current account deficits have disappeared: for the same four economies, the current account has swung from a GDP-weighted 10 percent of GDP deficit in 2008 to a surplus of 1 percent in 2013.

Nor has the elimination of the current account deficit been solely from demand compression and hence just a symptom of recession. For the five periphery economies (this time including Italy), real exports of goods and services rose by 8.4 percent from 2006–08 (before the Great Recession) to 2010–13 (in the midst of the euro area debt crisis). Export gains were especially large in Ireland (24 percent), Spain (17 percent), and Portugal (15 percent). However, real imports did fall, by 6.5 percent for the same grouping over the same period—almost the same proportionate decline as real GDP (which fell 5.8 percent). So the external adjustment was about half on the side of real export expansion and half on the side of import compression. Recessionary contraction of imports was especially pronounced in Greece, where real imports fell by 30 percent from 2006–08 to 2010–13 as real GDP fell by 18 percent (and real exports declined by 7 percent rather than rising as elsewhere in the periphery).

Some seem to think that the net international investment position (NIIP) carries the same weight as the public-debt-to-GDP ratio in driving country risk borrowing spreads. It is true that Spain, Portugal, and Ireland have large net international liabilities, on the order of 150 percent of GDP, and faced relatively high interest rates, in the range of 4 to 6 percent in the first quarter of 2013, whereas the Netherlands and Germany have sizable net international assets of about 50 percent of GDP and enjoyed low interest rates of 1.5 to 2 percent (figure 4.10). But although a cross-country test for 18 industrial countries does confirm a significant negative relationship between the NIIP and the sovereign CDS rate (a proxy for sovereign risk spread), the size of this relationship is relatively small. Reducing the net liability position by 100 percent of GDP would reduce the risk spread by only 70 basis points. So it is not fruitful to conceptualize the challenge facing the peripheral countries as one requiring a major shift to current account surplus so that NIIP positions can be improved substantially, because the NIIPs are not the key to the sovereign risk spread.

Those who emphasize current account imbalances going forward and effective exchange rate overvaluation have a somewhat stronger case working through the relationship of the exchange rate to growth, and thereby to the key growth component of future debt sustainability. There is a long tradition in the international economics literature holding that for a country needing to tighten fiscal policy but already in a position of excessive unemployment and also in a position of excessive external deficit, the proper policy mix is fiscal tightening combined with exchange rate depreciation. Increased export activity will then tend to offset reduced activity from the reduction in domestic demand while also contributing to improvement in external imbalance. The single currency prevents depreciation, but some advocate major expansion of activity and higher inflation in the core northern economies as the means
by which the periphery can carry out an effective depreciation. But even if Germany and the rest of the north accepted inflation of 3 percent over a five-year period while inflation remained at 2 percent in the periphery, the resulting boost to growth in the periphery applying plausible parameters would be too small to boost the output level at the end of the period by more than about 1 percent, too small to meaningfully alter the path of the debt-to-GDP ratio.

A related argument is that there must be this type of reflation in the core to permit rebalancing in the periphery or else the euro area as a whole will enter into a current account surplus position that is intolerable to the rest of the world economy. As it turns out, however, the elimination of the current account deficit of the periphery has coincided with an almost equal reduction in the surpluses of the super-surplus economies of China and Japan alone. From 2008 to 2013, the current account of the five periphery economies swung from a deficit of $320 billion to a surplus of $30 billion. In the same period, the combined surpluses of China and Japan fell from $420 billion to $160 billion. There is no compelling case that the resulting surplus of the euro area as a whole is inconsistent with global balance.4

As for a breakup of the euro, a few leading economists have called for an exit from the euro by Greece or other peripheral economies (or at least a temporary “holiday”) because of their view that growth cannot return without real depreciation and that internal devaluation would be too slow and sacrifice too much output. The majority view, however, is that exit from the euro would be damaging to the country leaving and impose major contagion effects on the other euro members. Public debt would have to be redenominated in a new (or pre-euro) currency, imposing de facto default losses on creditors. In a democracy the decisions would require public discussion, which would trigger preemptive bank runs. Banking crisis and capital flight would prompt contagion to other peripheral economies. The preponderance of this view seems to have brought Germany and some other northern countries back on script, to preserving the euro from a period of flirtation (in late 2011 and early 2012) with the notion that perhaps Greece ought to be forced out of the euro.

Four studies have made prominent estimates of the costs of breakup. One, the winner of a prize formulated in search of the best way to breakup the euro, argues that because the costs of remaining in the straitjacket of being unable to depreciate and grow are extremely high, Greece and some other peripheral economies would be better off exiting (Bootle 2012). Even this study recognizes contagion costs to partners, estimating that exit by all five peripheral economies would cause a loss of about 2 percent of GDP for other members. The other three studies instead find potentially large costs. A study by UBS

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4. The most recent IMF (2013n) projection places the euro area’s current account balance for 2013 at 2.3 percent of GDP, significantly higher than the 0.7 percent of GDP deficit in 2008 but still within the ±3 percent of GDP band considered consistent with fundamental equilibrium of the exchange rate in the series of estimates begun in Cline and Williamson (2008) and updated semi-annually thereafter.
suggests that an exiting country could have a loss of 40 to 50 percent of GDP in the first year alone, but this study assumes the country would be expelled from the European Union and face retaliatory tariffs equal to the depreciation (Deo, Donovan, and Hatheway 2011). A study by ING identifies more moderate costs, with output loss of 9 percent over three years for Greece if it were to exit and spillover losses of 2 percent of GDP for other periphery countries and 1.2 percent for core countries (Cliffe and Leen 2010). The study estimates that core economies have exposure of more than one-third of their GDP to peripheral economies (counting both government loans and claims of their banks). The fourth study, a short box in an IMF report in January 2013 (IMF 2013c), focused on financial risk contagion and concluded that although other peripheral country risk spreads have become less correlated with spikes in Greek spreads, and despite reductions of exposure to Greece, the euro area could lose a cumulative 12 percent of GDP over three years if the financial shock of a Greek exit proved to be comparable to that of the Lehman collapse. The broad implication is that there are potentially extremely high tail-risk costs from a breakup, and it behooves the euro area member countries to pay at least a moderate ongoing premium to maintain catastrophe insurance against this risk.

**Eurobonds, Firewalls, OMT, and Debt Restructuring**

Chapter 5 concludes the survey of key policy issues with discussion of four other subjects. The first, the notion of creating eurobonds to mutualize debt in some fashion so that peripheral economies could avoid the high sovereign risk premiums that threaten debt sustainability, is arguably academic given German opposition in particular to mutualization without full fiscal union. The three most prominent proposals—“blue-red” bonds (with the first 60 percent of GDP in debt enjoying joint guarantee but the rest not), a Debt Redemption Fund (buying up the excess above 60 percent of GDP for redemption over 25 years with collateralized revenue streams), and “ESBies”—an exchange-traded-fund-like pool of government bonds to create a European Safe Bond asset—all fail to come to grips with the central problem of curbing sovereign spreads on new debt (hence debt at the margin) to avoid self-fulfilling market prophecies of default. The discussion includes my own proposal to create a bond insurance fund, in which the euro area would guarantee new periphery sovereign bonds in return for annual payments into a bond insurance fund by the governments in question, in amounts on the order of 250 basis points and hence consistent with manageable ceilings to effective borrowing rates. The bond insurance sinking fund would build up assets that would compensate euro member countries if they had to pay amounts guaranteed because another member defaulted. To be sure, if spreads were to remain as low as their levels in early 2014, on the order of 150 to 200 basis points for Ireland, Italy, and Spain, such an instrument would not be needed for them, although it could still be relevant for Portugal (where spreads remained well above 300 basis points).
mechanism could usefully be explored, however, as a contingent instrument to be deployed should less favorable market conditions return in the future.

For a time, it seemed that the alternative of building large financial firewalls to protect partner economies against contagion from Greece or other euro area economies facing heightened default risk, starting with the European Financial Stability Facility (EFSF), might provide a strong basis for dealing with the crisis. However, with the decision to limit the successor European Stability Mechanism to €500 billion, the euro area has in effect limited this firewall to a scale capable of cleaning up the debt problems of the smaller peripheral economies but completely inadequate to address the much larger magnitudes that would be involved if Italy and Spain were to lose capital market access. The hope for substantial use of the ESM to deal with the banking problem has also been significantly curtailed by a specific limit of €60 billion that may be used for this purpose and only under strict conditions (including prior bail-ins).

The OMT, by contrast, has turned out to be the “mother of all firewalls.” In effect, it provides a vehicle for reinstating the availability of the central bank to backstop public debt for euro area members even though they do not possess their own individual currencies that can be printed by their national central banks. The OMT deserves much of the credit for the major reduction in peripheral country sovereign risk spreads from high levels in the second quarter of 2012 to much more manageable levels a year later, even though no actual market purchases had taken place. As such, it has proven to be an especially effective “financial bazooka,” designed to prevent market runs by intimidating market participants otherwise keen to speculate against an economy.

In early 2014, the German Constitutional Court issued a preliminary ruling that challenged the OMT as “incompatible with primary law” (of the European Union) because it “exceeds the European Central Bank’s monetary policy mandate and ... violates the prohibition of monetary financing of the budget” (Federal Constitutional Court 2014). The court noted that the OMT might be legal if applied without subjecting the ECB to cuts in debt, but that restriction would eliminate the pari passu commitment that has given the OMT credibility in financial markets (which would otherwise fear subordination in the event of OMT purchases). But the court referred the issue to the European Court of Justice, widely regarded as likely to have a much more supportive view of the OMT, with the consequence that financial markets tended to view the ruling as a victory for the OMT accompanied by a principled but not binding objection by the German court.5

Even under the mainstream assumption that the German court challenge will not derail the OMT, the discussion in chapter 5 raises the question as to whether this financial bazooka might backfire if actually deployed. A reason is that it requires that a country be in an adjustment program to be eligible. Yet if the adjustment program were to be supported by the IMF, and if the IMF

were to insist that there be debt restructuring because of doubts about debt sustainability, there could be a counterproductive effect of scaring off private investors concerned about being caught up in private sector involvement (PSI). Indeed, a key feature of the OMT is that the ECB accepts pari passu treatment with private creditors, so this instrument does not raise the specter of subordination that deepens PSI haircuts, thereby avoiding counterproductive flight by private holders. But IMF lending would be senior. One solution would be to have any IMF involvement be strictly to assist in technical design rather than lend its own funds. Another solution could be to have the adjustment program in question be a euro-area-based one such as an Enhanced Conditions Credit Line, without IMF involvement.

Some prominent critics of the ECB argue just the opposite of the German court challenge: that the ECB’s failure was to wait too long to launch OMT. Thus, in mid-2013, UK economist and columnist Martin Wolf judged that “The European Central Bank could have offered two years earlier the kind of open-ended support for debt of hard-pressed countries that it made available in the summer of 2012.”6 However, the assumptions of political economy implicit in this critique strain credulity. As shown in figure 1.1, spreads were still low in mid-2010 except in Greece. The ECB was loath to write a blank check without policy reforms.7 German opposition to monetary financing by the ECB was so intense that it led to the resignation of the German member of the ECB board in September 2011 over even the limited purchases of Italian and Spanish government bonds in the Securities Markets Programme.8 In mid-2010 the EFSF had just been created and the ESM did not yet exist, so the infrastructure for adjustment programs that are required for OMT might have been less credible. More fundamentally, it seems to have taken the specter of an exit of Greece from the euro (in late 2011 and through much of 2012), with unknown but likely costly spillover to the rest of the euro area, to set the stage for the ECB’s decision to mount the OMT in mid-2012, with support even from Germany’s chancellor.9

Chapter 5 next reviews the issue of debt restructuring, notably the IMF’s recent self-critique of having waited too long to restructure Greek public debt, as well as the Fund’s apparent broader conclusion that earlier, preemptive restructurings could be desirable. Although the Fund cites as an argument the greater cost to the public sector resulting from financing exit of private creditors, a close look at the maturities involved in the Greek case suggests that

7. See, for example, Guy Dinmore, “ECB letter shows pressure on Berlusconi,” Financial Times, September 29, 2011.
the amounts coming due prior to the first PSI stretchout (without a haircut) amounted to only about one-fourth of the public funding. The central question is whether damage from unnecessary haircuts exceeds or is less than the cost to the public of funding rather than requiring earlier PSI haircuts. The chapter’s discussion also takes note of the euro area decision that all new public borrowing should have collective action clauses (CACs). It notes the irony that prior G-10 standards (adopted in 2003) had urged CACs for public debt in foreign currency, with the revealing implication that once again euro member countries do not really have their own currency.

The recent experience of restructuring in Greece and court decisions regarding payments to holdouts in Argentina’s 2005 debt restructuring have revived interest in the Sovereign Debt Restructuring Mechanism (SDRM) considered in 2002 as a possible reform of international financial architecture. One recent proposal calls for a European Sovereign Debt Restructuring Regime that would require countries seeking support from the ESM to restructure debt if it exceeded 90 percent of GDP, and that assets of such countries be immune to legal action from holdouts (Buchheit et al. 2013). However, as argued in chapter 5, this approach would undermine the OMT, which takes just the opposite approach (pari passu treatment with private creditors instead of preemptive restructuring, so long as the country enters an adjustment program). Calls for SDRM-type arrangements in the euro area imply that sovereign insolvency is likely to be relatively common. Instead, the Greek insolvency is much more likely to have been unique, and any other episodes would seem more appropriately addressed on a case-by-case basis. The alternative of a major institutional change toward an SDRM structure would instead likely cause increases in spreads for Italy and Spain in particular, both of which are likely for the next several years to have debt ratios exceeding the 90 percent threshold featured in one prominent proposal, risking the unleashing of a self-fulfilling prophecy of default.10

Chapter 5 closes with an initial summary profile of the central question of the second part of the book: evaluation of the sustainability of debt based on prospective paths of debt relative to GDP. A broad-brush diagnosis suggests that there are two polar cases in the euro area crisis, with Greece being one of the poles (with what has turned out to be unsustainable debt) but the four other peripheral economies at the other pole (with sustainable debt). The ratio of debt to GDP reached far higher levels in Greece, and the decline of GDP from its 2007 peak has been far steeper in Greece, than in the other economies (figure 5.2). Differences among the other four countries tend to have offsetting influences, such as the high level of the primary surplus in Italy as an offset to its high debt level, or the larger primary deficit in Spain being an offset to its lower starting point for the ratio of debt to GDP.

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10. As for the Argentine court cases, chapter 5 suggests that their precedential impact is likely to be limited because of the special circumstances of the Argentine restructurings.
Model Projections

Chapter 6 sets forth the European debt simulation model (EDSM) and applies it to make probabilistic projections of the ratio of debt to GDP (and other sustainability metrics) for Ireland, Portugal, Italy, and Spain. The economic framework for the analysis is the proposition that if debt is on track to spiral upward relative to GDP, from already high levels and with no stabilization in sight, it is or will become unsustainable, and some form of restructuring with a haircut is likely to be needed. Conversely, if the debt-to-GDP ratio is likely to stabilize or decline, given the likely terms of market access, then the debt is sustainable. The well-established condition for debt sustainability is that, in order to avoid further increase in the ratio of debt to GDP, the primary fiscal surplus (i.e., excluding interest payments) as a share of GDP must equal or exceed the product of the initial debt-to-GDP ratio times the difference between the interest rate and the growth rate.

In the euro area debt crisis, a benchmark for debt sustainability is that the debt should not exceed 120 percent of GDP. Considering that the traditional Maastricht target for the debt ratio is only 60 percent of GDP, it is not fully evident where this benchmark originated. In pragmatic terms it seems likely that it would have been awkward to be seeking a much lower debt ratio in program design for Greece than already existed in Italy, one of the donors. However, it also turns out that under normal euro area conditions, a level of 120 percent would be compatible with sustainability at plausible growth and interest conditions. Namely, if inflation is 2 percent, real growth is 1 percent, and the real interest rate is 3 percent, it requires a primary surplus of 2.4 percent of GDP to keep the debt ratio from rising above 120 percent.11 Fiscal performance at this level should be achievable under more normal conditions of growth, so the 120 percent threshold has a meaningful analytical underpinning and is used as a benchmark in this study. The key challenge is to ensure that the default risk component of the interest rate is largely absent (as it was when the dominant paradigm was that industrial countries do not default).

The EDSM applies a new methodology to make probabilistic debt projections. It identifies five key variables that affect the path of the debt ratio: the growth rate, the interest rate on new debt, the level of the primary surplus, the prospective amount of “discovered debt” including public debt incurred to recapitalize banks, and prospective receipts from privatization. A simple scenario approach identifies a baseline, unfavorable scenario, and then a favorable scenario for each of these variables. With three scenarios, there are 243 ( = 3^5) possible outcomes. The method then identifies whether the favorable or unfavorable scenarios for one variable are likely to be positively or negatively correlated with the favorable and unfavorable scenarios for each of the other

11. The nominal interest rate is the real rate plus 2 percent inflation. The debt sustainability equation under these conditions would be: 0.024 = 1.2 × (0.05 – 0.03).
variables. For example, privatization efforts seem likely to be a substitute for a higher primary surplus, so the probability of the favorable scenario for privatization is set higher when the primary surplus is low than when the primary surplus is high. The overall effect is to permit the building up of a cumulative probability for the sequence of alternative combinations of scenarios. These probabilities are used to report the projections not only for the baseline but also for the most favorable 25th percentile of cases and the less favorable cumulative 75th percentile of cases, as well as an overall probability-weighted path for the projections. Appendices 6A and 6B set forth the model equations and contingent correlation methodology suggested here.

The baseline macroeconomic assumptions for the projections of chapter 6 are based primarily on the most recent IMF report for each country. The IMF’s large staff and extensive experience make its projections the logical point of departure for the analysis. The probabilistic method of the EDSM then provides a meaningful basis for examining the robustness of the outlook even when the baseline is assumed broadly to track that of the IMF. In addition, application of the EDSM allows for significant departures from the IMF’s assumed baseline, as is done in the incorporation of substantial privatization receipts planned by the government of Italy but omitted in the Fund’s projections.

The favorable and unfavorable scenarios for the variables are chosen with special attention to characteristics, plans, and revealed past performance of the country in question. For the favorable growth scenario, the potential for snap-back growth from severe recession is the basis for placing the growth rate in 2014–20 at the 60th percentile of actual annual growth in 1990–2012 in some of the economies. Scope for privatization is important for Italy, where official plans call for 1 percent of GDP per year in privatization receipts. The unfavorable scenarios include an additional €40 billion in bank recapitalization costs in Spain (in contrast to zero additional amounts in the IMF baseline). In all four countries, the baseline for sovereign risk spreads takes actual levels in late 2013 and early 2014 as the point of departure and involves convergence to 175 basis points by 2018 (or 150 basis points for Ireland, in light of levels already reached). On the other hand, the baseline projection of the German bund rate involves a significant rebound (to 3.8 percent by 2017).12

Figure 6.6 provides a summary of the findings of the model projections. It shows the probability-weighted path of the ratio of debt to GDP for each of the four peripheral economies excluding Greece. It turns out that there is a convergence of debt ratios to a range of 98 to 119 percent of GDP by 2020, with Ireland, Italy, and Portugal all converging downward from initially higher levels and Spain converging upward from an initially lower level. If the 120 percent sustainability benchmark is considered meaningful, then, the principal finding is that debt should be on a sustainable path for the four peripheral economies.

12. The bund rate is based on the IMF (2013g) projection of average real G-7 government bond rates plus the IMF projection of the German inflation rate.
excluding Greece. If so, then the current strategy of treating the problem as one of liquidity and providing lender of last resort financing ( overtly in the program countries Ireland and Portugal, and on a contingent basis through OMT in the cases of Italy and Spain) is the right approach, and the alternative of a debt restructuring with substantial haircuts would be counterproductive. The diagnosis of solvency for these four periphery economies is the central quantitative finding of this study, and the contingent correlation method of probabilistic projection used to arrive at this finding is the principal methodological contribution.

The book concludes with application of the EDSM to the case of Greece. There is first a review of my mid-2011 projections that suggested Greece might be able to manage debt without forgiveness if it achieved an ambitious primary surplus. It turned out subsequently that the decline in GDP was much greater than anticipated, and outcome on primary balance considerably lower. An environment of political chaos, with the collapse of successive governments and widespread fears of exit from the euro, contributed to this outcome. The debt ratio remains surprisingly high considering the 53 percent haircut on private creditors. The baseline debt ratio declines from 175 percent of GDP in 2013 to 127 percent by 2020. Return to private market access in major volumes and for long-term debt may require a lower debt ratio than the regional benchmark of 120 percent because of a damaged credit reputation from deep debt forgiveness in the restructuring. The implication is that some form of official debt forgiveness may be needed in the future. Invisible relief in the form of concessional interest rates and lengthy maturities is more likely to be politically acceptable to euro area partners in the near term than outright principal reduction. Complete elimination of interest on all debt to euro area partners would reduce the 2020 debt-to-GDP ratio from a baseline of 127 to 112 percent, still likely on the high side for a return to capital markets. On the other hand, the low interest rates on the now largely public sector lending to Greece mean that its debt burden as measured by the ratio of interest payments to GDP is considerably lower than otherwise implied by the ratio of debt to GDP. Markets could recognize this fact, especially if Greece builds a track record of meeting its fiscal targets. Indeed, in early April 2014 Greece successfully issued €3 billion in five-year bonds at a yield of 4.95 percent. In

13. As discussed in chapter 6, for Ireland, Portugal, and Spain this diagnosis is robust to a more pessimistic baseline in which political constraints limit the primary surplus to a relatively unambiguous 2.5 percent of GDP (see table 6.6). Spain would be unaffected (its average baseline primary surplus in 2014–20 is only 0.2 percent of GDP). In Ireland and Portugal, debt ratios would still decline substantially but not by quite as much as in the baseline (average baseline primary surpluses in 2014–20 are 2.7 and 2.4 percent of GDP for the two economies, respectively). For Italy, however, such a ceiling would be farther below the baseline primary surplus (which averages 4.5 percent of GDP in 2014–20) and would essentially cause the debt ratio to plateau rather than decline substantially. Arguably even that outcome would constitute solvency given present financial market access (and the decline of spreads by early 2014), but it would imply greater vulnerability to a future adverse swing in market sentiment.
any event Greek debt should now be largely manageable through 2020. The question of whether additional relief will be necessary will only become salient thereafter, especially in the 2030s when large principal payments to the euro area official sector begin to come due.