An orderly sovereign debt restructuring should place the debtor nation’s public debt on a sustainable trajectory while minimizing procrastination and contagion. However, the experiences with the debt crisis of the 1980s, Russia 1998, Argentina 2001, and Greece 2010 indicate that orderly debt restructurings remain elusive, even with high-powered official intervention. When solvency problems are present, the chances of success increase if official money is lent at the risk-free rate, reflecting its low risk, and if private creditors receive an upfront haircut. The paper examines the obstacles, which include moral hazard, difficulty in distinguishing between solvency and liquidity crises, and the “political economy” resistance to upfront haircuts. Orderly sovereign debt restructurings are likely to remain elusive notwithstanding recent evidence that the official mindset may be changing. Sovereign Debt, Debt Restructuring, Solvency, Liquidity, Seniority, Sector Board, Economic Policy (EPOL). JEL codes: E61, E65, F34

Introduction

This much we know from the experience of emerging market countries from the 1980s onwards: except for a few small cases, sovereign debt restructurings have tended to be costly and chaotic, with orderly sovereign debt restructurings seemingly impossible to achieve. This holds even when high-profile official intervention occurs. We explore why this happens and identify the impediments to an orderly debt restructuring (ODR).

The finding from emerging markets (EMs) about ODRs being elusive carries over to Greece 2010. In March 2010, it became clear that Greece’s fiscal fundamentals
were weak and that it would need official assistance to avoid a default. Discussions on a bailout began. A counterintuitive feature was that market sentiment worsened as negotiations proceeded between Greece and the European Union-European Central Bank-IMF troika. The spread on Greece’s bonds rose significantly, though the size of the bailout package was upped substantially. Remarkably, the two-year bond spread shot up, though Greece was effectively being “taken out of the market”, that is, the announced bailout funds were more than enough to pay off maturing short-term private creditors in full. This situation suggested deep-seated market skepticism about solvency and the feasibility of the fiscal program accompanying the bailout.\(^1\)

Notwithstanding these negative market signals about solvency, the authorities made it abundantly clear that any haircut for Greece’s private creditors was out of the question. The troika’s gamble was that structural and fiscal reforms would restore Greece to a sustainable debt path that would lower interest rates to non-default levels without a debt write down, which was believed would have costly contagion effects.

Barely a year later, in July 2011, the official position reversed dramatically. By that time, contagion from Greece, Ireland, and Portugal (the latter two countries had also received official bailouts by then) had begun to spread to the core of the European Union (EU). A July 21, 2011 Eurozone summit announced support for a haircut for Greece’s private creditors while also agreeing to a major softening of loan terms to bring official EU lending rates closer to the risk-free rate while lengthening maturities significantly. A subsequent summit in October 2011 announced that private Greek bondholders would receive a 50 percent write down on principal and that the European Financial Stability Facility (EFSF) would be leveraged to €1 trillion to support Italy and Spain. Stock markets reacted euphorically, but Greece announced and then withdrew a referendum on the bailout toward the end of 2011, while Italian 10-year bond yields approached the 7 percent threshold at which other countries had been bailed out. The ECB saved the day by injecting liquidity via two tranches of a Long-Term Refinancing Operation (LTRO). This lent commercial banks huge sums at 1 percent for 3 years, which they used to buy Spanish and Italian sovereign bonds, lowering their yields substantially and boosting confidence.\(^2\)

In February 2012, the EU approved a second bailout for Greece amounting to €130 billion but required a PSI (private sector involvement) debt exchange, which inflicted losses of some 70 percent in net present value (NPV) terms on €197 billion in privately-held debt, equivalent to approximately 97 percent of the projected 2012 Greek GDP. Even so, the government debt-to-GDP ratio under the program assumptions at the time was expected to fall to only 120 percent by 2020. The subsequent bond price movements indicated that the debt deal had done little to alter market perceptions about Greece’s credit standing. Figure 1 plots the 10-year Greek bond price
and its spread from January 1, 2010 to the end of May 2012, noting key events. Subsequent developments in the Eurozone are summarized in Section 3.

As the Greek crisis indicates, sovereign debt restructuring is complicated, official intervention notwithstanding. Does this mean that official intervention does more harm than good? It is difficult to answer this question conclusively because of the difficulty in developing a counterfactual. The major lesson from the debt overhang of the 1980s (Krugman 1988; Sachs 1986) is that such intervention is needed to solve coordination and free-rider problems among creditors.

Apart from the inherent complexity in sovereign debt restructuring, two reasons may explain why official intervention (OI) tends not to work well in prominent sovereign debt crises, such as the debt crisis of the 1980s in Latin America, Russia in 1998, Argentina in 2001, or Greece in 2010. The first is a seeming inability to distinguish between liquidity and solvency crises, that is, situations where a sovereign may be unable to rollover maturing debt versus one where the debt has simply become too large to be serviced. Although the catalytic effect of official finance may

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**Figure 1.** Greece’s 10-Year Bond Prices and Spreads, January 2010–May 2012

*Source: Bloomberg, IMF Staff Reports*
work well in persuading short-term creditors to roll over their loans in countries with acceptable fundamentals (as in Morris and Shin 2006), these elegant results tend to break down once one acknowledges that official loans may be senior to private loans and that the country is facing a solvency instead of a liquidity problem (Kharas, Pinto, and Ulatov 2001; Chamley and Pinto 2011). The second reason is legal impediments to a smooth bankruptcy process for sovereigns.³ Our focus will be on the basic economics of and political obstacles to an ODR.

Section 2 presents the motivation for ODRs based on a survey of EM sovereign debt restructuring and the part played by official intervention. This is followed by a discussion of procrastination in sovereign debt restructuring in Section 3. Section 4 builds on Sections 2 and 3 to tease out the desirable attributes of an ODR. However, the track record inevitably raises a question about the feasibility of an ODR. Hence, Section 5 discusses the obstacles, which include political economy and the difficulty in distinguishing between liquidity and solvency problems for countries. Section 6 concludes.

Context and Motivation for ODRs

The sovereign debt literature concerns itself with fundamental questions, such as why sovereign debt exists in the first place, considering difficulties in enforcing contracts; why default by a sovereign does not mean permanent exclusion from future borrowing; and why countercyclical fiscal policy (saving during good times, depleting accumulated saving during bad times) and self-insurance against shocks cannot substitute for borrowing. An excellent survey is presented in chapter 2 of Sturzenegger and Zettelmeyer (2006), which also contains a concise account of the seminal papers.

Our goal is different. We want to review the empirical experience with sovereign debt restructuring since the landmark EM debt crisis of 1980s and use this as a forward-looking platform for discussing the desirable attributes of an ODR. The first point to note is that the vast bulk of EM sovereign debt restructurings since the 1980s have involved private creditors (Table 1). Some US$325 billion in principal owed to private creditors has been restructured, compared to just US$29 billion with official creditors via the Paris Club.⁴

In contrast, official (including bilateral and multilateral, such as IMF, World Bank, International Development Association (IDA), African Development Fund) creditors have accounted for the lion’s share of sovereign debt restructurings for low-income countries, which typically have limited access to the international capital markets. As of February 15, 2012, the Paris Club had treated debt amounting to US$556 billion for 88 developing countries under 423 agreements.⁵ Multilateral creditors have provided debt relief through the Heavily Indebted Poor
Countries (HIPC) Initiative and the Multilateral Debt Relief Initiative (MDRI). However, this initiative is available only to low-income countries, and eligibility criteria are restrictive. Given the eligibility requirements for HIPC and MDRI, none of the EMs has benefitted from multilateral debt restructurings.

The rest of the review considers the origins of debt crises and goes on to the role of official intervention. The 1980s experience showed that it is difficult to design efficient official intervention. This was confirmed by the subsequent experience with Russia in 1998 and Argentina in 2001, which illuminated another important issue: why official intervention may not be catalytic in terms of persuading private creditors to roll over their loans.

**Origins of Debt Crises**

One set of constants has marked all serious EM debt crises since the 1980s: fixed exchange rates, open capital accounts, weak growth prospects, and concerns about fiscal solvency. Fiscal fundamentals play a crucial role, either at the outset or eventually, as a result of bailing out the domestic private sector. In addition, though the crisis itself typically involves an abrupt economic disruption, its seeds tend to be sown over long periods, reflecting policy and political economy.

Heavy external borrowing preceded the 1980s debt crisis. Such borrowing may have been motivated by the need to finance development, sometimes via ill-advised public investments; by social spending needs; and even by the desire to enrich well-connected groups. Money-center banks were happy to roll over maturing principal and even interest payments because the key creditworthiness indicator at that time was the external debt-to-exports ratio, and nominal export prices in dollars continued to rise faster than the nominal interest rate, keeping this ratio under control.

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**Table 1. Sovereign External Debt Restructurings with Private Creditors – 1980s and After**

<table>
<thead>
<tr>
<th>Plan/Country</th>
<th>Amount restructured (in US$ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brady Plan (1989)</td>
<td>200</td>
</tr>
<tr>
<td>Russia London Club (2000)</td>
<td>32</td>
</tr>
<tr>
<td>Argentina (2005 &amp; 2010)</td>
<td>76</td>
</tr>
<tr>
<td>Ukraine (2000)</td>
<td>2.3</td>
</tr>
<tr>
<td>Uruguay (2003)</td>
<td>5.1</td>
</tr>
<tr>
<td>Others</td>
<td>7.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>322.6</strong></td>
</tr>
</tbody>
</table>


**Notes**: For the 1980s, the 1985 Baker Plan is not included because the restructured debt amounts are subsumed under the Brady Plan. The Russian and Argentine pre-crisis swaps are not included but are discussed below. US$6 billion of defaulted debt owed to Argentina’s private creditors is still unresolved.

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Canuto et al.
Sachs notes (1990, p. 8), “During the heady days of the 1970s... countries and their banks had the illusion of an unending Ponzi game...”. Eventually, with their terms-of-trade declining sharply in the early 1980s along with the record rise in interest rates in the US—a combination we shall refer to as the “twin shocks”—the bubble burst, and countries now had to service their debt the old-fashioned way: by generating current account surpluses to pay down their debt. This meant politically unpalatable fiscal austerity and cuts in real wages.

Three complications frequently arose. First, with fixed pegs to the dollar the norm, the private sector began speculating against their home currencies once they realized that the exchange rate was becoming overvalued. This led the government and central bank to borrow overseas in support of the peg. The acceleration of private capital flight exacerbated the eventual public debt burden while exerting ruinous effects on domestic banks and the financial system.

Second, some central banks imposed restrictions on convertibility in an effort to prevent foreign exchange reserve depletion, leading to a high black market premium on foreign exchange. In this milieu, foreign banks were reluctant to keep rolling over loans, forcing governments to switch to monetary financing of the fiscal deficit. Furthermore, the rate of inflation to generate a given amount of seigniorage for financing the fiscal deficit went up as the population’s ability to shift into dollars raised the inflation elasticity of domestic money demand.

Third, inflation may have become entrenched as a result of the indexation of wages and asset prices, as in Brazil during the 1970s and 1980s, making extrication from high inflation all the more difficult. Not surprisingly, the major Latin American countries entered a rut of repeated failures in stabilization, ever higher public debt, and severe costs for growth and economic welfare, especially for vulnerable groups.

The link between stabilization programs and debt crises provides a natural bridge from the 1980s debt crises to those of Russia in 1998 and Argentina in 2001. Russia achieved single-digit inflation in early 1998 but suffered a devastating triple exchange rate-public debt-banking sector crisis less than six months later. This 1998 crisis had echoes in the 2001 crisis in Argentina. Both involved fixed (managed in the case of Russia, constitutionally mandated in the case of Argentina) pegs to the dollar, which had been chosen to squeeze inflation out; both eventually developed unsustainable debt dynamics (masked by real appreciation of the exchange rate in conjunction with a significant share of public debt denominated in dollars); and in both cases, banks became vulnerable to sovereign risk. In addition, Argentina’s banks became vulnerable to currency mismatches, having borrowed in US dollars but on-lent to companies with local currency revenues. The net result was a downgrading of growth prospects and a rise in interest rates, which eventually fueled a meltdown. We shall not go into the details of these crisis episodes, which
have been well-documented elsewhere, but we use these as a springboard for a discussion of the implications for sovereign debt restructuring later in the paper.\textsuperscript{12}

\textit{Official Intervention: Insights from the 1980s}

Following Mexico’s announcement in August 1982 that it could no longer service its external commercial bank loans, 27 countries owing US$239 billion had either rescheduled their bank loans or were engaged in doing so by October 1983. Sixteen were from Latin America; of these, the four largest debtors, Mexico, Brazil, Venezuela, and Argentina, owed US$176 billion, or 74 percent of the total outstanding EM debt.\textsuperscript{13} Although it was evident by 1985 that the debtor countries were not recovering, debt reduction remained politically unacceptable. Instead, the Baker Plan, named after US Treasury James Baker, was launched in October 1985. It emphasized new lending from commercial banks in exchange for market-based reforms. The 10 Baker Plan agreements rescheduled US$165 billion of debt. The World Bank was expected to play a large role with “structural adjustment loans” in helping implement the market-based reforms. However, the plan did not work, and with the decade being inexorably lost, the US government finally threw its weight behind debt reduction. The Brady Plan was announced by US Treasury Secretary Nicholas Brady in March 1989, with Mexico becoming the first major test. In total, US$60 billion of debt was forgiven, and US$200 billion of bank claims were converted into US$154 billion of Brady bonds.\textsuperscript{14}

From the perspective of achieving an ODR, three questions stand out: (i) Is official intervention needed? (ii) When is official intervention most likely? and (iii) does official intervention help? We consider each question in turn.

Is official intervention needed? Krugman (1994, 710) noted with regard to the Brady Plan that the idea of a voluntary approach was soon dropped, and a “combination of legal maneuvering and pressure on banks” left no option but to participate in a debt reduction program. The notion that a voluntary approach would not work is intuitively plausible: no creditor would willingly write down their claims, and this could scuttle what is a collectively superior outcome. This understanding is reinforced by the events during the Baker Plan intervention. Though commercial banks were supposed to come up with new money, Krugman (1994) and Dooley (1994) note that the main outcome was that they managed to substantially reduce their exposure to the debtor countries over the course of the 1980s and that loans from official creditors rose sharply. Therefore, official intervention is needed for an ODR because otherwise an impasse would result.

When is official intervention most likely? The economic self-interest of the more advanced and influential countries plays a powerful role. The immediate response after Mexico’s default announcement in 1982 was to provide government-to-government bridge loans so that debtor countries could remain current on their
interest payments and thereby avoid imperiling the US banking system. The four largest debtors, Mexico, Brazil, Venezuela, and Argentina, owed $37 billion to the eight largest US banks, which amounted to 147 percent of these banks’ capital and reserves. At the time, the US was in a deepening recession, and there were widespread fears that a debt default could trigger another Great Depression. The bridge loans eventually led to the Baker Plan. The need for concerted lending stemmed from the “free-rider” problem; each bank on its own would have preferred to reduce its exposure, but every bank doing so might have forced a default and, eventually, an international financial meltdown. Solving this collective action problem provided the rationale for intervention by the US.

Once the need for debt reduction was recognized, a beneficial solution for both debtors and creditors would have been for the commercial banks to voluntarily accept a haircut in the hope of lowering the probability of default and raising the market value of the remaining debt as per the debt overhang argument (Sachs 1986; Krugman 1988). In other words, indebtedness had reached a crippling level which, in the event of a default, would lead to such a low recovery value for creditors that it would be better for them to forgive part of the debt and recover a larger amount as the country resumed growing and restored solvency—an outcome that would be facilitated by the partial debt forgiveness. However, such forgiveness was unlikely to happen spontaneously because individual creditors would be tempted to hold out under a voluntary scheme to gain on their entire holding of the country’s debt. Solving this free-rider problem provided the rationale for the Brady Plan. Thus, the economic arguments for official intervention—solving the collective action problem and lowering transactions costs—are clear. However, the question remains whether such intervention will materialize without the interests of influential countries being at stake.

Does official intervention help? Dooley (1994) conjectures, “It is difficult to rule out the possibility that all the direct benefits of the Brady deals to date went to the banks. Moreover, it is generally agreed that the direct benefits of Brady restructurings have been too small to account for much of the increase in the secondary market prices since 1990”. The specific case of Mexico is insightful. While acknowledging the official arm-twisting needed for debt reduction, Krugman nevertheless notes (1994, 702), “Mexico achieved a reduction in the present value of its debt of approximately $14 billion or 14 percent. This was clearly insufficient . . .”.

Krugman (1994) describes the outcome of Baker and Brady as exhibiting two features: financial stability was maintained, but the debtor countries did badly. He cites Cline (1990) as arguing that the debtor countries were going to do badly on growth anyway, so saving the financial system was a signal success. However, Eichengreen and Portes (1989) showed that countries willing to default early and massively during the 1930s crisis did better than those not willing to do so. This eventuality was pre-empted by the Baker and Brady Plans during the 1980s.
Turning to the last round of EM crises during 1997–2001, the experiences of Russia in 1998 and Argentina in 2001 clearly show that the intervention of the IFIs in situations of low foreign exchange reserves and unsustainable debt dynamics carries a serious risk of prolonging crisis, eventually requiring the country to address a much larger debt problem. This is what Rogoff (2003), former chief economist of the IMF, had to say about the Russian rescue package of 1998:

As a result, the official lending community, typically led by the IMF, is often unwilling to force the issue and sometimes finds itself trying to keep a country afloat far beyond the point of no return. In Russia in 1998, for example, the official community threw money behind a fixed exchange-rate regime that was patently doomed. Eventually, the Fund cut the cord and allowed a default, proving wrong those many private investors who thought Russia was “too nuclear to fail.” But if the Fund had allowed the default to take place at an earlier stage, Russia might well have come out of its subsequent downturn at least as quickly and with less official debt.

Interestingly, Rogoff (2003) attributes procrastination in Russia 1998 to the fact that “...current international law makes bankruptcies by sovereign states extraordinarily messy and chaotic”. However, the analysis in Kharas, Pinto, and Ulatov (2001) points to mistakes in diagnosis that resulted in a rescue package that emphasized liquidity over solvency and eventually led to a much larger problem.16

In its post-mortem of Argentina 2001, the IMF’s Independent Evaluation Office noted that official rescue packages are unlikely to be catalytic in insolvency situations, that financial engineering in the form of voluntary debt swaps is ineffective, and that procrastination is costly.17 These were very much the lessons from Russia 1998. The first two lessons, on why rescue packages may not be catalytic and the inefficacy of sovereign debt swaps, are discussed below. The third, on procrastination, is discussed in Section 3.

Official intervention that is catalytic could mean one or all of three things: (i) private holders of government bonds are persuaded not merely to rollover maturing loans but also to increase their exposure to the debtor government; (ii) the government implements fiscal and structural reform as part of the official rescue package that places government debt on a sustainable trajectory and improves growth prospects; and (iii) interest rates come down because risk spreads relative to the benchmark country (for example, the US or Germany) decline.

It should be obvious that all three would be much easier to achieve if the government faced a liquidity but not a solvency problem. In fact, one could argue that in the case of a pure liquidity problem, only (i) would be needed as part of the catalytic effect (as in Morris and Shin 2006). However, in a solvency problem, an official rescue loan package could worsen the situation due to the seniority of official loans in conjunction with certain design aspects of the package, which we
discuss later. This brings us to why sovereign debt swaps tend not to work when fiscal fundamentals are weak.

Neither the 1998 Russian swap out of GKO (ruble T-bills) into Eurobonds nor Argentina’s 2001 mega-swap, which were designed to lower borrowing costs and lengthen maturities, worked. Even worse, they backfired. The reason is that in a market-based voluntary debt swap (the case both for Russia 1998 and Argentina 2001), investors work to protect the value of their assets. For debt swaps to work, they have to reduce the debt burden of countries. Creditors are unlikely to let this happen in a voluntary fashion—a result that the reader will recognize as a variant of the Modigliani-Miller Theorem from corporate finance. Indeed, creditors could demand additional compensation that would worsen the fiscal situation. For example, Argentina’s swap was concluded at a spread of 1,100 basis points, whereas according to Mussa (2002), calculations showed that at spreads of over 1,000 basis points, Argentina’s debt dynamics were “virtually hopeless”. After the swap, meltdown proceeded as tax collections continued to flag, bond spreads rose further, and bank runs intensified because of concerns about the viability of the hard peg. Six months later, Argentina defaulted on its debt, including the bonds restructured as part of the mega-swap.

**Procrastination in Sovereign Debt Restructurings**

Procrastination is a major impediment to ODRs. We discuss two points: first, why procrastination is costly; second, we attempt to understand why procrastination occurs.

*Why Procrastination Is Costly*

With adverse debt dynamics and diminished chances of a positive catalytic effect of official bailout funds due to official seniority and debtor country solvency concerns—illustrated most vividly by Russia 1998 and the common lessons from this crisis and Argentina 2001 that were discussed above—procrastination becomes costly. This is because the ratio of debt-to-GDP continues rising until a default or debt restructuring becomes unavoidable. The official bailout funds only enable short-term creditors to exit at 100 cents on the dollar. The costs to the debtor nation and creditors can then rise substantially, except for the short-term creditors. The long-term prospects for the debtor country and for the remaining private creditors are likely to worsen. To the extent that private creditors hold both short- and long-term claims, they are liable to lose on the latter whatever they gain on the former. Greece is the latest illustration of this point and is discussed further below.
Returning to the 1980s, an FDIC study (FDIC 1997) noted that the four largest debtors, Mexico, Brazil, Venezuela, and Argentina, owed $37 billion to the eight largest US banks, which amounted to 147 percent of the banks’ capital and reserves. Suppose the banks had to take a 25 percent haircut on these loans. This would have amounted to $9.25 billion and wiped out some 37 percent of these banks’ capital. However, even their total exposure, $37 billion, was less than 1 percent of the US GDP in 1985. Different and less costly strategies were conceivable that would have benefited millions of poor people in Latin America, who eventually bore the brunt of its lost decade even as official intervention kept the banks going. Borrowing access by the debtor countries would most likely have been disrupted. However, such a hardening of their budget constraint was needed to address the underlying fiscal and governance problems, as the country studies by Sachs (1990) indicate.

Similarly, in Russia’s case, it became obvious by mid-May 1998 that government debt was on an unsustainable course and that the ruble was hugely overvalued. Suppose the official community had persuaded Russia at that point to float the ruble, backed it in seeking a haircut for private creditors, and given it an official rescue package at the risk-free rate (reflecting its seniority and risk status). The situation would still have been difficult, and the U.S. most likely would still have had to bail out the systemic hedge fund operated by Long Term Capital Management (LTCM), which fell victim to contagion from the Russian default (Dungey et al. 2006). However, the problem would have been smaller, as noted by Rogoff. Dollar-denominated public debt had increased by $16 billion, or 8 percent of the post-crisis GDP, over the 10 weeks preceding the date of the crisis.20

In the case of Greece, the October 2011 EU Summit announcements on the need for haircuts for private creditors were in line with the conclusion in Chamley and Pinto (2011). They were eventually implemented in March 2012, two years after negotiations on a bailout began. In the meanwhile, a debt problem amounting to 3-4 percent of the euro area GDP in Greece had mushroomed by the summer of 2011 into a situation in which “nearly half of the €6.5 trillion stock of government debt issued by euro area governments . . .” was at risk, with the crisis having spread to Italy and Spain (IMF 2011, p. 16). As a result, the euro area has become locked into an interacting vulnerability linking sovereign debt and exposed banks.

This situation raises a tantalizing question: had the haircut for Greece’s private creditors been imposed upfront in March 2010 when the solvency problem was first detected and the vulnerable foreign banks ring-fenced, would the wider contagion have been avoided? A speculative attack on the debt of other vulnerable sovereigns might well have followed, but this could have also spurred a more decisive response by the official community, including the major central banks. The back-to-the-wall effects of crises in concentrating the mind and a two-year head start in implementing fiscal, banking, and structural reforms in the vulnerable Eurozone countries...
should not be dismissed. As it turned out, contagion spread to the core of the Eurozone. Notwithstanding the palliative effects of ECB’s LTRO interventions (see Introduction), Italian 10-year bond yields were once again approaching the 7 percent “bailout” threshold by June 2012.

Two subsequent events have kept a lid on the spreading sovereign debt crisis in the Eurozone. The first was a now-famous announcement at the end of July 2012 by Mario Draghi, President of the ECB, that the ECB would do “whatever it takes” to support the euro and keep the Eurozone together. The second was an announcement in September 2012 by the ECB about its government bond buying program, Outright Monetary Transactions (OMT), provided the country concerned agreed to a corrective program. At the same time, attention turned to creating a fuller fiscal and banking union to save the euro. As of November 2013, the fiscal and banking unions as well as the OMT program remain works in progress. In its April 2013 Fiscal Monitor, the IMF observed that of the ten advanced countries with a debt-to-GDP ratio over 90 percent and with adverse dynamics, seven are in the Eurozone. The sovereign debt situation has noticeably worsened in the euro periphery.

Why Is There Procrastination?

Let us return to the 1980s. It took seven years to accept that debt reduction was needed. It took a few years more to negotiate and implement the Brady debt deals based on the menu of options available. However, even if the Brady deals had been negotiated and implemented instantaneously, seven years would still have been lost. Thus, the first impediment to an ODR seems to be an inbuilt bias towards procrastination. Where does this procrastination come from? One might think that politicians in the debtor country have an incentive to procrastinate rather than to admit that mismanagement on their watch led to a default. However, Mexico was quick to admit in 1982 that it could no longer service its external debt. Similarly, Russia pulled the plug on its international rescue package by devaluing and defaulting on August 17, 1998, less than a month after it had been approved by the IMF.

Do private creditors have an incentive to procrastinate? If the prospects for the country are bad and the debt dynamics adverse, then individual creditors have an incentive to sell and exit before the others do to minimize their own losses in line with the prisoners’ dilemma. This would bring matters to a head, but might not happen for two reasons. First, if all creditors exit simultaneously and panic results, everyone loses much more, as in a fire sale. This might keep creditors from exiting. A second pivotal reason is the anticipation of an official bailout package. However, creditor reaction would also depend on the maturity of the debt held. If it is short term, there is a clear incentive to hang on if the probability of a large rescue package is high and exit at 100 cents on the dollar. However, this would be at the expense of long-term bondholders.
What about economists? Implicit in the preceding Rogoff quote on Russia 1998 is that economists should know when a currency is overvalued and when there is a solvency rather than a liquidity problem. In fact, Rogoff was arguing that economists knew it all in the case of Russia 1998 but were driven to continue with the (unsustainable) status quo because there was no easy bankruptcy process for sovereigns.\textsuperscript{21} We sympathize with the view that economists should be able to assess whether a currency is overvalued and whether the public finances are salvageable without a debt write down.

What about the official community, including the IFIs? One would have to admit that the record is mixed, with Russia 1998 and Argentina 2001 as examples of procrastination and the flawed design of rescue packages.\textsuperscript{22} The latter, in particular, means one of two things: either (a) that the economists involved were not sufficiently astute in assessing the sustainability of the fixed exchange rates or of the public finances or (b) that debt reduction is anathema and that the official community will do whatever it takes to bail out private creditors and avoid setting a moral hazard-inducing precedent for debtor countries. Although one might have believed that (b) was true, the experience from Russia 1998, Argentina 2001, and Greece 2010 suggests that it must be revisited.

**ODRs – What Should They Look Like?**

Successful ODRs have been few and far between, typically involving tiny amounts of debt. One was Ukraine’s debt exchange offer of February 2000 involving $2.6 billion, which achieved an NPV reduction of 22 to 35 percent (Table 5.4, Sturzenegger and Zettelmeyer 2006) and elicited a high participation rate.\textsuperscript{23} Ukraine was then under the IMF’s three-year US$2.2 billion Extended Fund Facility (signed in September 1998), and the IMF made it clear that Ukraine could not use its low reserves to service maturing debt and that the IMF program depended upon a satisfactory debt restructuring.\textsuperscript{24} This unambiguous signal of “no bailout” persuaded private creditors to agree rapidly to a deal. In addition, Pakistan’s debt restructuring of 1999 involving $610 million (Table 6.3, Sturzenegger and Zettelmeyer 2006) was in large part due to a comparability requirement imposed by the Paris Club, which had rescheduled Pakistan’s loans in January of that year.\textsuperscript{25} The swap offer attracted a participation rate of close to 99 percent, partly because of default concerns with the original bond, and it achieved a reduction of 30 percent in NPV terms.

However, lingering dissatisfaction with the process and outcome of debt restructurings in more complicated cases has prompted a few corrective proposals. Sachs (1995) proposed an international bankruptcy mechanism to achieve ODRs that would entail a payment moratorium by the debtor country during debt
The Sovereign Debt Restructuring Mechanism (SDRM) was proposed by the IMF in 2001 to facilitate creditor coordination in the event of debt restructurings for bond debt, the holdings of which are much more dispersed than the concentrated syndicated bank loans that featured in the debt crisis of the 1980s. In addition, a voluntary code of conduct was proposed by Jean-Claude Trichet in 2001 that spelled out nine principles governing creditor-debtor relations during debt restructurings. However, none of these proposals has gained traction.

The only mechanism that has been widely accepted by the market has been Collective Action Clauses (CACs). These are part of the terms and conditions governing a bond issue and can be invoked by the debtor government. The most frequently used CAC is one that entails a modification of payment terms requiring a favorable vote by a majority of the outstanding bond holders (75 percent, typically; 85 percent in some cases, but it could be lower). Empirical evidence on the impact of CACs on bond pricing has been inconclusive, and their usefulness in achieving an ODR is questionable.

How should the way forward look? Based on Sections 2 and 3, we posit three conditions that an ODR should fulfill at a minimum, with which we believe most economists would be comfortable:

- Restore the debtor country’s government debt to a sustainable trajectory;
- Minimize procrastination and costs for both the debtor country and its creditors; and
- Minimize any harmful contagion effects in our interconnected world.

However, the cumulative EM experience augmented with Greece 2010 demonstrates that the preceding conditions are seriously incomplete when there is official intervention in an insolvency setting, that is, when the present value of primary surpluses is less than the present value of outstanding debt obligations. In this case, either primary surpluses will need to be raised (“fiscal reform”) or debt will have to be written down (“haircuts”) to restore solvency. Suppose the market does not believe that primary surpluses can be raised to restore solvency. In this case, a numerical example based on Chamley and Pinto (2011) in Annex 1 shows that two additional conditions are needed: first, there should be an upfront haircut for private creditors to help restore debt sustainability; second, official funds should be lent at the risk-free rate, reflecting their seniority. These two conditions will lead to a less onerous and therefore more credible fiscal program to restore solvency because there is less debt to address and a smaller official loan will be required. Moreover, an upfront haircut imposed on all private creditors is more equitable than a situation in which short-term creditors gain at the expense of long bondholders. This might induce long bond holders to hang on instead of selling off. It could also have political economy benefits: with private creditors receiving an
upfront haircut, the less severe fiscal austerity program becomes easier to sell to the public.

Obstacles to an ODR

The most controversial aspect of an ODR discussed above is likely to be the idea of an upfront haircut for private creditors in the event of a solvency problem for the debtor country. Three objections could be raised: moral hazard, the difficulty in distinguishing solvency from liquidity problems, and political economy considerations.

Moral Hazard

For governments, moral hazard implies that countries deliberately and irresponsibly run up debt to precipitate a solvency problem in which private debt will be written down. Although it is conceivable that countries have behaved in this manner in the past and could do so again in the future, such behavior is unlikely to be the norm. Three points are worth noting in the specific context where the IFIs (international financial institutions, such as the IMF and World Bank) are brought in to orchestrate a rescue aiming to restore the government to solvency.

First, consider who is really being bailed out. It cannot be the country because any official funds received have to be paid back in full, and such debt is difficult to renegotiate. Therefore, engineering a situation in which official loans are obtained to pay off maturing private debts at 100 cents on the dollar does not “subsidize” the country’s “bad” behavior, although one cannot rule out unfair redistributions within the country itself as well-connected people benefit from the external loans that are then serviced by the taxpayers, as frequently happened in Latin America during the 1970s and 1980s.

Second, moral hazard implies a proclivity by countries to default strategically, that is, to default based on unwillingness to pay rather than an inability to do so. Once again, there is little evidence to support such a position. Countries typically default only as a last resort.

Perhaps the most compelling argument against moral hazard by debtor countries is the unambiguous trend toward self-insurance by EMs, documented in Aizenman and Pinto (2011, 2013) and Pinto (2014, chapter 9). By definition, a country prone to moral hazard will not self-insure because this would be contradictory to the idea that someone else is insuring the country’s behavior. However, EMs moved aggressively to self-insure at three levels after their 1997–2001 crises, taking steps to (a) restore sustainable public debt dynamics by raising primary surpluses and strengthening fiscal institutions; (b) insure against shifts in market sentiment and sudden stops by building up foreign exchange reserves and restricting
currency mismatches on government and private balance sheets; and (c) lower contingent liabilities from the private sector by shifting to flexible exchange rates, monitoring private external borrowing, and strengthening financial institutions.

What about moral hazard for private creditors? First, these creditors price risk and are diversified. Nevertheless, as documented in Kharas, Pinto, and Ulatov (2001, Box 2), private creditors are often in the forefront of the drumbeat for big bailout packages. What would be better than to price government debt at default levels and exit at 100 cents on the dollar? In other words, they are not innocent bystanders. Second, the economic benefits of external financial integration for developing countries are seriously questioned (Aizenman and Pinto 2011, 2013), and one should take threats that haircuts for private creditors will have disastrous effects for EMs (by shutting off market access) with a grain of salt. If anything, experience shows that disruptions in market access force countries to finally address the fundamental fiscal problem at the root of sovereign debt crises. The self-insurance by EMs after 1997–2001 discussed above is an extreme manifestation of precisely such behavior. Third, where official funds are used to bailout private creditors, the primary fiscal surplus targets needed to assuage default fears on the remaining private debt might simply be out of reach, as argued earlier.

Ultimately, the prospect of an upfront haircut for private creditors is a matter of pragmatism because it increases the chances of a successful and credible fiscal program and implies equal treatment for short- and long-term creditors. Otherwise, it makes little sense to inject senior official funds into an insolvency situation. The knowledge that they would be subject to an upfront haircut in the event of insolvency would also make private creditors exercise greater caution *ex ante* in lending to sovereigns, reducing an important source of moral hazard, which is in line with the *caveat emptor* principle.

**Solvency versus Liquidity**

The seriousness of insolvency can be gauged from two vantage points. First, what are the market signals? If bond spreads indicate a high probability of default and keep rising even as official bailout discussions continue (the case with Russia 1998, Argentina 2001, and Greece 2010), then this should be considered a red flag. Second, what are the country’s fiscal and growth prospects as conveyed by an assessment of its fundamentals by economists at the IFIs? How likely is the country to generate the needed primary surpluses to stabilize and even lower debt? If the chances are slim, accompanying official loans at the risk-free rate with an equal upfront haircut for all investors will enable more credible fiscal targets and lead to lower long-bond spreads, minimizing reputation costs.

However, we admit that it is not always easy to judge whether a country is dealing with multiple equilibria (liquidity and confidence) or a fundamental
(insolvency) problem. A case in point is Brazil in the summer of 2002, just before Luiz Inacio Lula da Silva, the candidate of the Brazilian Workers’ Party, was elected president. Bond spreads reached 2000 basis points that July as presidential election polls “indicated that Lula would win the presidential election . . . can [investors] be certain that a Brazil run by a president with a past record of sympathizing with default will not take the easy way out?” In the article from which this quote was taken, Williamson (2002) argued that fundamentals were sound: primary fiscal surpluses had been raised substantially, and budget constraints hardened for the state governments. Additionally, the real had been floated in 1999.

In his classic on multiple equilibria, Obstfeld (1994) recognizes, “Ultimately, crises based on limited foreign reserves [liquidity] must also be based on overall fiscal weakness: [otherwise] . . . it would be . . . feasible to borrow sufficient reserves to . . . fend off any attack [on the fixed exchange rate]” (material in square brackets added). Brazil was different in that it had taken clear steps to strengthen its fiscal fundamentals. Not only was it running significant primary surpluses, it had raised these substantially compared to the period prior to the float of the real in January 1999. Adopting a float while moving to address currency mismatches (the government was simultaneously shifting toward local currency debt) would substantially alleviate the international liquidity problem because the central bank would no longer be in the position of having to defend a fixed peg. Therefore, at the time that the bond vigilantes went after it in the summer of 2002, Brazil’s problem was one of political risk and confidence, which was boosted, albeit feebly, by the announcement of a $30 billion loan from the IMF. In the case of Greece, bond spreads continued rising with each successive bailout augmentation.

Hence, if a country is taking steps to self-insure along the comprehensive lines discussed above (including the adoption of flexible exchange rates and hardening budgets), then one might be a bit more cautious about confusing a liquidity with a solvency problem. However, this was not the case with Russia 1998, Argentina 2001, or Greece 2010, which were much more clear-cut ex ante on both market signals and fundamentals.

Political Economy

We interpret “political economy” as anything that would lead to procrastination. The greatest resistance is likely to come from the creditors themselves. For example, the large commercial banks holding Greek debt were in the forefront of warning against any Greek debt restructuring because of the contagion risks. It was in their interest to allow official creditors to replace exiting private creditors at 100 cents on the dollar while fiscal and structural reforms were implemented.

However, three caveats are in order. First, creditors are not a homogeneous bunch. They are distinguished by the maturity of the debt they hold, with
short-term creditors benefiting most from the strategy of taking the sovereign out of
the market for a few years with official creditors replacing exiting private creditors;
by the size of their exposure; and by whether they are covered by insurance, for
example, in the form of credit default swaps, especially if such insurance was pur-
chased before the solvency problem was detected. Second, replacing exiting private
lenders with official lenders does not lower the country’s debt burden in a present
value sense and results in more ambitious fiscal targets to restore solvency, which
are by definition unattainable; otherwise, we would be dealing with a liquidity and
not a solvency problem. Therefore, there is a risk that the country could abandon
the program for political reasons before short-term creditors have exited. This was
definitely the case in Russia 1998 and, judging by the extraordinarily high two-
year bond spreads (see Introduction), appeared to be the fear in the case of Greece
2010 as well. Third, creditors may hold both short and long maturity debt. In this
case, provided the official loans are priced in accordance with their risk (and the
interest rate should equal the risk-free rate in the case where official loans are first
in the queue and small enough to be paid in full), creditors could lose on their hold-
ings of long-term debt what they gain on their short-term debt holdings. This is
because in an insolvency case, a default and debt write down become inevitable,
with all the burden of the restructuring falling on the remaining private debt.

Therefore, an upfront haircut is simply a way of distributing restructuring costs
more fairly across creditors in the event of insolvency. It is the analog of the “con-
certed lending” approach applied to the money center banks during the 1980s
crisis to pre-empt the free-rider problem—that is, some banks reducing their expo-
sure as others roll over their loans—once a debt overhang develops.

Conclusions

The record on official intervention in sovereign debt crises is not flattering, whether
it be the 1980s, Russia 1998, Argentina 2001, or Greece 2010. An important
reason is the tendency to procrastinate, treating solvency problems as liquidity
problems even when the distinction between the two is clear. If the goal of official
intervention in such circumstances is to teach debtor countries a lesson, nothing
needs to change. However, if the goal is to increase the likelihood of an orderly debt
restructuring, then pricing official loans at the risk-free rate (in line with their
more-or-less zero risk) and insisting on an upfront haircut—when the bargaining
power of the official sector is the greatest—for private creditors will help.\textsuperscript{38} It will
also share the burden more equitably between short- and long-term creditors.
Although this may appear to be a recipe for moral hazard, the aggressive self-insur-
ing behavior of emerging market countries after their crises of 1997-2001 suggests
behavior diametrically opposed to what one might expect from countries confident
of being bailed out should they run up debt irresponsibly. Additionally, private creditors are hardly innocent bystanders; they are sophisticated investors who price risk and are diversified. Therefore, an upfront haircut in the event of a solvency problem should not come as a total surprise to them and could make their *ex ante* lending behavior more diligent.

Ultimately, there is a stark choice between two strategies: gambling for redemption as in Conesa and Kehoe (2011), in which an immediate haircut is avoided, and insisting on an upfront haircut for private creditors while keeping in mind that the cost of default is large and that the chances of a default increase with procrastination, as in Chamley and Pinto (2013). The approach to sovereign debt restructuring favored by official agencies has been to gamble for redemption, reflected in the use of official funds to take the country out of the market while implementing fiscal and structural reform to raise primary fiscal surpluses and spur growth. It has tended not to work—Latin America in the 1980s, Russia 1998, Argentina 2001, and Greece 2010 are examples.

However, the official mindset may be changing in favor of inflicting upfront haircuts on private creditors when a country is obviously insolvent. The official approach to the Cypriot banking crisis, which came to a head in March 2013, was to insist on losses for bank depositors because the size of the banking system (800 percent of GDP) precluded a government bailout. Indeed, in a May 2013 draft law on bank resolution, the EU embraced the idea that in future banking crises, burden sharing might be needed with shareholders, bondholders, and uninsured depositors. On June 5, 2013, the IMF published its post-mortem of the Greek bailout, noting that (IMF 2013, 28; words in square brackets added) "not tackling the public debt problem decisively at the outset or early in the program created uncertainty about the euro area’s capacity to resolve the crisis and likely aggravated the contraction in output. An upfront debt restructuring would have been better for Greece . . .. A delayed debt restructuring also provided a window for private creditors to reduce exposures and shift debt into official hands . . ..[which] occurred on a significant scale and limited the bail-in of creditors when PSI eventually took place, leaving taxpayers and the official sector on the hook."³⁹

In conclusion, we have laid out the desirable attributes of an orderly sovereign debt restructuring (ODR) when a solvency problem is involved. In addition to ensuring that government debt attains a sustainable trajectory and that procrastination and contagion costs are minimized, pricing official funds in line with their risk and using official bargaining power to insist on an upfront haircut for private creditors would be desirable. However, there is no perfect formula for distinguishing between liquidity and solvency problems and upfront haircuts are going to encounter stiff political resistance.⁴⁰ Therefore, ODRs are likely to remain elusive, recent signs of a change in the official mindset notwithstanding.
Notes

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2. The ECB lent 523 banks €498 billion in December, with another €530 billion to 800 banks at the end of February 2012.

3. The New York Federal District Court ruling in November 2012 on the Argentine default is a case in point. The ruling required Argentina to honor the pari passu clause, which means equal treatment of all bondholders. Hence, it required the Argentine government to make payments to holdout creditors if the restructured bonds of 2005 and 2010 were honored. The U.S. Federal Appeals Court upheld this decision in August 2013. However, as noted by Pinto (2014) and in contrast to the discussion on self-insurance later in this paper, Argentina is an exception to the rule that EM government behavior changed for the better following the crises of 1997–2001.

4. A detailed account of specific country episodes involving sovereign debt restructuring is contained in the work of Sturzenegger and Zettelmeyer (2006). Pinto and Tanaka (2005) describe the various instruments and options availed of during these restructuring episodes, starting with the 1980s debt crisis.


7. This statement applies to the period under review. This does not rule out macroeconomic crises with flexible exchange rates. For a theoretical example of the latter, see Kumhof, Li, and Yan (2007).


9. An exacerbating factor was that although they were of long maturity, these external hard currency debts had floating rates, with the interest rate adjusted every six months based on a market index. Therefore, once the U.S. started raising interest rates, the interest burden of the developing countries quickly increased.


11. See, for example, the case study on Argentina by Dornbusch and de Pablo (1990). Brazil had several stabilization programs during the 1980s and until 1994. In July 1994, after six failed price stabilization plans over the previous ten years, Brazil finally initiated a successful stabilization effort embedded in the Real plan. It lowered consumer inflation from 2287 percent in 1994 to 71.9 percent in 1995, 18.2 percent in 1996, and finally to 7.7 percent in 1997. See Blanco et al. (2011).


16. The arguments that follow were made prior to the crisis in real time by the economics unit of the World Bank office in Moscow, which the second author of this paper then headed.

18. For a description of the swaps and a formal argument for why they backfired, see Aizenman, Kletzer, and Pinto (2005). In a similar vein, the Mexican Government began rolling over its short-term peso-denominated debt (Cetes) into short-term dollar indexed debt (Tesobonos) after March 1994 to avoid raising interest rates to deal with rising devaluation risk. This became a major source of financial vulnerability. See Sachs et al. (1996).

19. In the sovereign case, the market value of the debt is determined by the present value of the future primary fiscal surpluses. As long as this is fixed (when discounted at the risk-free rate), shuffling the mix of debt instruments through market-based swaps will not change the present value of the debt burden.

20. Details may be found in Kharas, Pinto, and Ulatov (2001) and Pinto and Ulatov (2012).

21. Although Rogoff’s is an excellent point, the absence of an easy bankruptcy procedure was not the only reason the doomed Russian rescue package of July 1998 proceeded. There was a strong belief in influential quarters that with Russia having achieved single-digit inflation in February 1998, these hard-won stabilization gains had to be preserved, and that with Russian government debt much less than the Maastricht criterion of 60 percent of GDP, the market was overreacting.


23. In contrast, the debt amount involved in Russia 1998 was $77 billion ($45 billion in ruble debt, $32 billion owed to the London Club). Pinto, Gurvich, and Ulatov (2005, 431).


25. See Pinto and Tanaka (2005).


29. For example, it was reported in the news on March 9, 2012 that Greece was able to secure a 95.7 percent participation rate among private-sector creditors in its bond exchange by invoking CACs to make the deal binding on holders of Greek-law bonds (until the bailout began, much of Greek debt was under Greek law). However, by then, severe damage had been done to the Greek economy and the wider euro area.

30. For technical details, see Burnside (2005).

31. See, for example, de Bolle, Rother, and Hakobyan (2006).

32. Sturzenegger and Zettelmeyer (2006, 4, 38) argue that most sovereign defaults since the 1970s were driven by interactions between domestic policies and economic shocks (including exogenous shocks), sometimes worsened by political shocks. In this sense, ability and willingness to pay are difficult to disentangle. However, Ecuador’s default of 2008 on its US$3.2 billion Eurobonds was a rare instance of a country that did not repay its debt even though it had the resources to do so. The Eurobonds were declared “illegitimate”, and the government bought back 91 percent of the defaulted debt in the secondary market at 35 percent of face value.

33. Tomz and Wright (2007) find a negative but weak relationship between economic output and default on external loans from private creditors. Eden, Kraay, and Qian (2012) also come to a similar conclusion that defaults are more likely to occur during growth slowdowns in countries with weak policy performance and that have seen rapid debt accumulation.

34. This is further corroborated by Aguiar and Amador (2011), who build on the debt overhang argument and find that countries that grow rapidly are those that accumulate net foreign assets because growth in capital requires a reduction in the stock of debt.

35. See Canuto, Pinto, and Prasad (2012, 22–3) for some pointed examples.

36. For example, Eichengreen and Ruhl (2000) argued, in the context of Ecuador, Pakistan, Romania, and Ukraine following the East Asian and Russian crises, that IFIs acted to avoid “a costly,
extended interruption to market access” and were therefore not credible when they sought to impose haircuts on private creditors.

37. Williamson (2002) was partly responding to an estimate by Morris Goldstein that there was a 70 percent chance that Brazil would be forced to restructure its debt by the end of 2003. See Goldstein (2003) and the excellent overview in Giavazzi, Goldfajn, and Herrera (2005).

38. With adverse debt dynamics and the growing risk of contagion, the official sector may find its bargaining power eroding as time passes.

39. These conclusions were anticipated in Chamley and Pinto (2011) and Canuto, Pinto, and Prasad (2012), the working paper version of this publication.

40. Even the official sector may find it difficult to assume a fully objective stance. For example, the interests of the US in the 1980s debt crisis and those of the ECB and EU in the ECB-EU-IMF troika in the Eurozone crisis may not always coincide with what a dispassionate body like the IMF is likely to recommend.

Annex 1: Numerical Example on Official Intervention in Insolvency Situations

Consider the 2-period situation in Annex Table 1. The debt service due in each period is shown in the second row of the table. The risk-free sovereign yield in a benchmark country such as the US or Germany rate is assumed to be 5 percent. In Scenario 1, the government faces a liquidity problem because the debt service payments falling due of 100 in period 0 exceed the primary surplus of 75. However, it is solvent in the sense that the present value of primary fiscal surpluses equals that of the debt to be repaid; both equal 250 when discounted at the risk-free rate of 5 percent. In this case, the government can borrow 25 at the risk-free rate of 5 percent either from the markets or the IMF to make up the difference. The total amount it must repay in period 1 is 25X1.05 + 157.50 = 183.75, which can be exactly met out of the primary surplus in period 1.

Now suppose an adverse shock occurs and the period 1 primary surplus falls to 175, as in Scenario 2. The government now has a solvency problem in the sense that the present value of the primary surpluses at the risk-free discount rate of 5 percent falls to 241.67. Equilibrium can be restored to the government’s intertemporal budget constraint if the price of the debt were to fall from 1 to 0.967 (the ratio of the present value of primary surpluses to that of debt service due at the risk-free discount rate).

Annex Table 1. Two Hypothetical Fiscal Scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Period 0</th>
<th>Period 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (liquidity)</td>
<td>Debt service due</td>
<td>100</td>
</tr>
<tr>
<td>2 (solvency)</td>
<td>Primary surplus</td>
<td>75</td>
</tr>
</tbody>
</table>
discount rate = 241.67/250). Even with this haircut, the government would still need to borrow an amount given by 96.7-75 = 21.7 in period 0 to pay off the maturing debt. In other words, it has both a liquidity and solvency problem.

Suppose it were to go to the market to borrow this amount of 21.7. What would it be charged? Anticipating the haircut, the market would charge an interest rate \( i \) given by the arbitrage condition: \( 0.967(1 + i) = 1.05 \). This can be solved to give \( i = 8.58 \) percent. \(^1\) The spread jumps from 0 to 358 basis points. The amount of 21.7 can also be sought from official sources, such as the IMF. In this case, the amount due in period 2 is \( (21.7 \times 1.05 + 0.967 \times 157.5) = 175 \), where the IMF’s seniority means it gets repaid in full; but in line with the Modigliani-Miller theorem, this effect is offset by its charging the risk-free rate. However, the amount due to period 1 private creditors is still subject to the same haircut imposed on period 0 creditors.

This brings us to the situation reflective of Greece 2010, as well as both Russia 1998 and Argentina 2001. Anxious to avoid a first period default, the government goes to official creditors and borrows 25 at the risk-free rate to pay off period 1 creditors in full. The big difference is that the size of the official loan goes up from 21.7 to 25. In this case, the price of second-period debt falls from 0.967 to \( (175 - 25 \times 1.05)/157.5 = 0.944 \). This is equivalent to an interest rate of 11.2 percent, or a spread of 620 basis points. This is exactly what we have witnessed in practice, with long bond spreads rising substantially and persisting at elevated levels following the announcement and implementation of the bailout for Greece.

A crucial difference in the two responses to the insolvency situation is that in one case, an upfront haircut is imposed on all creditors, leading to a smaller official loan. In the second case, the one witnessed in practice, short-term creditors get paid in full, leaving less for long-term creditors. The point of bringing in official creditors is to engender positive catalytic effects, namely, persuading private creditors to roll over their loans instead of exiting; and putting pressure on the debtor country for fiscal reform and austerity to increase primary surpluses. In practice, short-term creditors have been exiting and bond spreads have continued to rise; in Greece’s case, the share of official loans (official creditors plus the European Central Bank, ECB, and Eurosystem) had risen to 58 percent by the end of April 2012. In effect, the official bailouts have taken the countries out of the debt market in the hope that in the meanwhile primary surpluses will increase to levels consistent with solvency. In the case of Greece, at least, the market does not seem to have ever believed this would happen, as conveyed by the evolution of the long bond spread.

Returning to our numerical example, suppose the country is better off the closer the price of period 2 debt is to 1, which would imply a lower spread and smaller reputation costs. Raising the price all the way back to 1 would require restoring the primary surplus in period 2 to 183.75; then we would be back to a liquidity problem, with the solvency problem solved. This raises the question of how serious

\(^1\) Canuto et al. 2014
the solvency problem was in the first place, a point we return to later. In the meanwhile, suppose the interest rate on the official bailout package were higher than the risk-free rate in spite of the seniority of the official loans. Then, by continuity, the second period primary surplus would have to be even higher than 183.75 in order for the price of period 2 debt to return to 1, which is likely to severely strain credibility and derail any catalytic effects of official finance. This points to the importance of pricing official funds at the risk-free rate in view of their seniority as otherwise the credibility of the accompanying fiscal package would be lowered: it would require primary surplus targets that would be too onerous to be believable.

The numerical example shows that when the market believes that there is a solvency problem, an upfront haircut for all creditors combined with official funds priced at the risk-free rate will lead to more believable fiscal targets to restore the country’s reputation. The upfront haircut will require that the official loan be just 21.7 instead of 25; and the period 1 primary surplus target will need to be 180.3 instead of the pre-shock 183.75 to return bond prices to 1.

Notes
1. It can be cross-checked that $0.967(21.7 \times 1.0858 + 157.5) = 175$, where the expression in square brackets equals the new amount payable in period 1.
2. For example, the IMF loan interest rate for Greece, while well below what the market may charge, involves significant spreads above the IMF’s own borrowing cost (a spread of 200 basis points for amounts in excess of 300 percent of quota, which goes up to 300 basis points after 3 years if the credit is still above 300 percent. Greece’s loan was 3,200 percent of quota).
3. The result here on official finance is diametrically opposed to that in Morris and Shin (2006), who treat official and private loans as strategic complements. Here, they become imperfect substitutes because of insolvency and official seniority.
4. Notice that if the official loans were also subject to default, they would be priced above the risk-free rate in anticipation of the haircut; the eventual expected payout would be the same. Therefore, so long as a haircut on official loans is ruled out, these loans should be priced at the risk-free rate.
5. $21.7 \times 1.05 + 157.5 = 180.3$.

References


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Paris Club. www.clubdeparis.org


