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SOVEREIGN DEBT CONTRACTS

THE EVOLUTION OF EURO AREA SOVEREIGN DEBT CONTRACT TERMS: A PRELIMINARY EXAMINATION

MITU GULATI¹

Introduction²

The euro area sovereign debt crisis is over three years old and reforms are being instituted in an attempt to correct some of the problems that caused the crisis. This article investigates a key assumption that underlies one of the major policy reforms that has been put in place as a result of the crisis: the mandate that all euro area sovereign bonds, starting on January 1, 2013, begin using a set of contract terms aimed at solving collective action problems (CACs) among bondholders. That reform is supposed to make bail-outs less likely and to make private sector involvement (PSI) in future restructurings more likely. The hope is that the reform will discourage the weaker members of the Eurozone from over-borrowing on the expectation of a bail-out.

The question we are interested in is: why are these contract terms, the CACs, being mandated? Contract theory tells us that when a state mandates contract terms, this tends to reduce welfare. Sophisticated parties are generally better at deciding on the terms that best suit them than the state. The exception is where the parties, through their contracts, impose externalities on third parties. Hence, to understand why it made sense for the euro area governments to mandate contract terms for the debt contracts issued by their members, there has to be a story about how EMU states have an incentive to enter into contracts that produce negative externalities on their fellow EMU members.

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² This essay is based on ongoing research on the evolution of euro area sovereign debt contract terms conducted with Frank Smets of the European Central Bank. Hence, when referring to the authors perspective, I often use “we”. Responsibility for the conclusions drawn, however, is entirely mine.

What are those externalities? There has been little explicit discussion of this question in the recent policy debates. The answer, we believe, has to do with a frequently articulated narrative regarding the causes of the euro area sovereign debt crisis. According to this narrative, certain entrants to the monetary union, recognizing that the markets perceived them differently upon their gaining entry to the union, began to behave irresponsibly with respect to their borrowing. Given the strong economic interdependencies that the monetary union was sure to create, if an economic crisis hit one member of the euro area, its effects would necessarily be felt strongly by other members of the union as well. That meant that any nation which got into financial trouble would be more likely to receive external assistance from its fellow nations in the euro area, than it would have been prior to joining the monetary union. Based on the increased likelihood of a bail-out engendered by the formation of a monetary union, certain members of the union might have been tempted to go on a borrowing spree (Baskaran and Hessami 2011).

A monetary union and the close economic ties formed between its members as a result do not, however, make bail-outs inevitable. The richer nations in the union are typically going to be reluctant to provide bail-outs to their weaker brethren, especially if the latter have acted irresponsibly in getting themselves into trouble in the first place. Politicians in the richer nations will prefer weaker nations to settle their debt problems by asking for “bail-ins” from private creditors, rather than asking for taxpayer subsidies from the citizens of the richer countries in the union. Recognizing this, however, the weaker sovereigns and their creditors have an incentive to use the types of contract provisions in their debt instruments that make it difficult for PSI to occur. The classic example of such a contract provision is a requirement in a multi-creditor sovereign bond that does not allow for the payment terms of the bond to be modified unless every single bondholder agrees to the modification (Gelpern and Gulati 2013).

The particular form of the moral hazard we have articulated above, whereby countries choose to utilize harder-to-restructure provisions so as to raise the likelihood of a bail-out, may strike some as implausible. However, a



version of this argument is probably the basis for CACs having been mandated for the euro area. To see why that is so, it helps to go back to a prior incarnation of CAC initiatives, from roughly a decade earlier.

During the period 1995–2002, a number of emerging market nations suffered debt crises and received bail-outs from the official sector (primarily the IMF). Policy-makers perceived there to be a problem of excessive bail-outs. The dominant narrative was one of moral hazard; that emerging market debtors were able to borrow excessively because their creditors were confident that there would be bail-outs in the event of a crisis. Moreover, part of the reason for the confidence in the possibility of bail-outs was that the debt contracts underlying the debt were such that forcing restructurings would have been extremely difficult (for models of these dynamics, see Dooley 2000; Eichengreen and Mody 2001). Inevitably, the bail-outs of the mid 1990s upset taxpayers who demanded a solution – one that would replace bail-outs with PSI. Policy-makers decided that one of the key barriers to PSI was the unanimity provision which was standard fare in sovereign bonds issued under New York law. After much debate, the solution that emerged was for the official sector to persuade emerging market sovereign debtors and their creditors to shift from using unanimity provisions to what are now known as collective action clauses, or CACs (Gelpern and Gulati 2007). These CACs are essentially clauses that allow for modification of a bond's payment terms with significantly less than unanimity among the bondholders (typically 75 percent).

The proposals for CACs to be adopted were not initially received with enthusiasm by emerging market issuers, and particularly not so by the large issuers like Brazil and Mexico. For a number of years after the CAC proposals first emerged (around 1995), the major emerging market issuers showed little willingness to experiment with using CACs. Policy-makers and academics, therefore, had to wrestle with the question of why nations were not shifting to these new clauses and what needed to be done to push them in that direction. One of the responses to this question to emerge was that nations simply did not have the individual incentives to move to CACs because they and their creditors preferred a regime in which bail-outs would be provided (Haseler 2009). In essence, this is a moral hazard story. In other words, countries seeking bail-outs have an incentive to utilize tougher-to-restructure contract provisions than they would otherwise. Given this assumption, there was discussion of the need to mandate a CAC-like solution,

since nations did not look like they would choose the latter voluntarily.

The effort to urge the big emerging market issuers to move (many of whom issued bonds under New York law) finally got off the ground in early 2003 when Mexico and Brazil began using CACs. This only happened, however, in the shadow of the threat of mandate via the IMF's proposal for a sovereign debt bankruptcy mechanism. By 2004, close to 90 percent of all new sovereign bonds issued under New York law contained CACs (Bradley and Gulati 2013).

Fast forward approximately a decade, and we have the euro area sovereign debt crisis. The reaction of euro area policy-makers during the first few years of the crisis was much the same as it had been in the mid-1990s with respect to emerging market debtors such as Mexico and Argentina – bail-outs were given to Greece, Portugal, Ireland, and Cyprus. Outcries from taxpayers followed, rising to decibel level with every bail-out-type action, especially among citizens of nations who believed that their countries were funding the bail-outs. In reaction to this anger over perceived subsidies and “moral hazard” concerns, policy-makers chose the solution that had worked a decade earlier with respect to emerging market sovereign issuers, CACs (Gelpern and Gulati 2007, note 2).

Starting on January 1, 2013, all new sovereign bonds issued by members of the Eurozone were to have a standard set of CACs resembling those that had been prescribed in New York a decade prior (albeit, with some enhancements). Policy-makers were clear about the message of this euro CAC initiative: in the future, there would be no automatic bail-outs; PSI would be part of the package (Gelpern and Gulati 2013).

What interests us is the assumption, in both the New York initiative of the previous decade and in the current euro area initiative, that the weaker sovereign issuers need to be constrained in terms of the contract terms that they utilize. As noted, as an economic matter, mandatory contract terms rarely make sense in the absence of some externality story. In this case, the externality story – had it been explicitly articulated, as it often was in the emerging market context a decade prior – was that the weaker issuers in the euro area had an incentive to use tough-to-restructure provisions so as to increase the likelihood of bail-outs from the richer nations.

A decade ago, when there was a debate over the need to impose CACs on emerging market issuers issuing under New York law, there had been no straightforward way to test the foregoing story. The formation of the EMU provides us with a natural experiment that should enable testing of this contract version of the debtor moral hazard story (DMH). If the DMH story holds, we should find that member nations – and particularly the weaker ones – reacted to their admission to the union by using contract terms that made restructurings more difficult and bail-outs more likely.

Using a dataset of sovereign bonds issued in the decades both before and after the formation of the EMU, we test the assumption that the weaker entrants to the EMU entered into tougher-to-negotiate contracts so as to increase the likelihood of bail-outs. Our test reveals differences in the types of contract terms used by EMU members before and after their entry to the EMU. However, the differences are diametrically opposed to the predictions of the DMH story. EMU entry corresponds to an increased use of easy-to-restructure provisions, not a reduced use. Rejecting the version of the DMH theory that we test does not imply that the DMH story is altogether wrong; DMH may have been operating via some other channel. The rejection does, however, raise the question of why the mandatory CACs were thought necessary.

Predictions

Assuming that EMU members, and particularly the weaker among them, realized that tougher-to-restructure provisions would help induce bail-outs, we should see the following two patterns in the data:

- Prediction 1: EMU entry will result in a move to tougher-to-restructure contract provisions in the relevant member's bonds.
- Prediction 2: prediction 1 is more likely to hold for economically weaker EMU entrants (those likely to be receiving bail-outs) than for stronger entrants (those likely to be providing bail-outs).

Contract terms

Sovereign bond contracts tend to be heavily documented and contain a wide array of terms. Our interest is in a subset of contract terms: and specifically, those terms

whose presence makes it more or less likely that the sovereign debtor in question will immediately face a crisis unless a bail-out is provided. A simple example is the contract term specifying the grace period. What the grace period does is to give the debtor a certain amount of time (that can range between zero and 90 days) to cure any inability that it may have had to make payments on the pre-specified dates of payment. Sovereigns with longer grace periods have more time to work out their debt problems on their own, and are less likely to need bail-outs to stave off a full-blown crisis that might impact their partner nations in the union. The DMH model would predict a reduction in grace periods as a function of EMU entry.

We report results on seven key contract terms that impact whether a sovereign in crisis is likely to have the space to work its way out of that crisis or not (less space = bail-out more likely). These are the contract terms that are particularly relevant in the first stage of a sovereign debt crisis. At this stage, creditors have not yet pulled the plug and the sovereign may be able to find interim financing from private sources to stave off the necessity of defaulting. However, whether or not the sovereign is able to find interim financing depends on what kinds of contract terms it has agreed to. We refer to the terms that either give or take away the sovereign's flexibility in the pre-default stage as '*flexibility terms*'.

There are, of course, other contract terms that are also relevant to tackling a sovereign crisis – terms impacting restructuring and litigation.³ Due to space constraints, we do not report those results here; but the basic story remains the same.

Flexibility terms

i. Grace period: the grace period is the time that a debtor has to cure what are called "technical defaults." If the technical default – which can range from a failure to pay coupon amounts on time (serious) to a failure to fulfill a promise to list the bonds on a particular exchange (not as serious) – occurs, the debtor has the grace period to remedy the breach. We code two grace period variables; one for principal and the other for interest.

ii. Negative pledge: debtors in trouble find it difficult to get creditors to lend to them. One way for a troubled debtor to buy time is to grant security interests in its key

³ Some of the basic results on these other contract terms (albeit from a significantly smaller dataset) are reported in Choi, Gulati and Posner (2012).

assets to creditors. A negative pledge clause is a promise by the sovereign *not* to borrow on a secured basis unless the security interest being granted to the new creditor has the same rank as the debt with the negative pledge. We code the negative pledge clause in terms of its presence.

iii. *Pari passu*: the *pari passu* clause is similar to the negative pledge clause. Although its meaning is disputed, some important courts have interpreted the clause as a bar on preferential payments by the debtor to one creditor over another in the event that the sovereign is in default. The presence of this clause, therefore, constrains a debtor in crisis who wishes to preferentially pay certain important creditors crucial to its functioning and delay payments to others who might be less crucial. We code the *pari passu* clause for whether the version used is one vulnerable to the above mentioned court interpretation or not.

iv. *Cross default*: the cross-default clause also constrains troubled debtors in terms of their options when faced with a crisis. As noted above, a debtor in financial difficulties seeking to keep afloat typically wants to be able to choose which creditors to default on and which ones to keep paying. The cross-default clause constrains this ability in that it links the various debts instruments of the debtor together by saying that a default on one instrument will constitute a default on the others. We code the contracts for the presence of a cross-default clause.

v. *Acceleration*: an acceleration provision speeds up a debt crisis and constrains the debtor's ability to work its way out of problems. The provision gives the creditor, under certain conditions (for example, where the debtor has not paid its required coupon payments), the right to declare that all of the future payments it is due be accelerated to the current date. As a result, the debtor's ability to get out of the crisis diminishes. Acceleration provisions typically range between an individual right of acceleration to a collective right of 25 percent. Creditors have the most power and debtors the least, where each creditor has the individual right to accelerate the debt. We code the provision in terms of whether it gives creditors the individual right.

vi. *Reverse acceleration*: if a reverse acceleration provision is present, it specifies that the initial acceleration can be reversed if a majority of creditors agrees. We code reverse acceleration in terms of its presence.

vii. *Tax gross up*: sovereigns have the power to tax. For a sovereign in a debt crisis, taxing payments owed to bondholders would be an easy way to reduce its obligations. A tax gross-up clause promises that the debtor will reimburse the amount of the tax. We code for the presence of a tax gross-up clause.

Data

Our dataset covers contract terms in sovereign bonds over the period January 1, 1990 to January 1, 2011. For the period 1990–2011, we have over 1,300 bonds issued by over 75 sovereign issuers. Of these, there are roughly 600 bonds for the euro area sovereigns.

These bonds were obtained from three sources: Thomson One Banker, Perfect Information and Dealogic. The companies producing the data earn fees as a function of the contracts that their customers download. That means that our dataset is weakest for those nations for whom investors are so confident that they are not interested in the details of the contracts. We consequently have little data on countries like Germany, for example. The dataset also under-samples locally issued bonds.

Below we report a set of before-and-after comparisons of the incidence of key contract terms (Table 1 and 2). First, we examine all of the original entrants to the EMU, plus Greece (that joined shortly thereafter). Second, to focus in on the effects on the weaker EMU members, we eliminate the AAA rated nations from the analysis. To enable us to control for global trends in contract drafting practices in all three tables, we report a comparison table for the rest of the world in each case (excluding the AAA issuers). However, we are unable to report data for the very strongest issuers – Germany, Netherlands and France – because their contracts do not feature in our databases.⁴

We use 1999 as the breakpoint in our analysis, despite the fact that the EMU was officially formed in 2000, because it was fairly certain that the EMU would be formed as of 1999.

⁴ We also exclude more recent entrants – Estonia, Slovakia, Slovenia and Cyprus. They entered the EMU too recently for there to be sufficient data available for analysis.

Results and analysis

Flexibility terms

We examine seven different contract terms that can impact the amount of flexibility that a sovereign has to manoeuvre its way out of a crisis (one of the contract terms, the grace period, has two aspects – so we have eight variables). Sovereigns who, by contract, have restricted their own ability to do things like grant preferred status to new lenders or to tax bond payments that they owe, have necessarily restricted their flexibility to deal with a financial crisis. The prediction, in line with the DMH story, would be for the weaker and systemically important nations to respond to their entry to the EMU by utilizing tighter (less flexible) terms.

Tables 1 and 2 report the results for the eight flexibility terms. Table 1 begins with the eight original EMU entrants plus Greece.

Column two in each table reports the direction of the shift one would expect to see under the DMH model. Let us take the grace period that sovereigns enjoy for making delayed payments of principal (Table 1). Under the DMH model, one would expect nations and their creditors to seek reduced grace periods. Hence, the prediction in column (1) is “Decrease.” Moving on to columns (2) and (3), we can see whether EMU entry correlated with downward shifts in the grace period. What we see is an upwards shift in the grace period, instead of the predicted decrease. Columns (4) and (5) report the shift that occurred over the same period for the rest of the

sovereign debt market on which we have data (excluding the EMU members).

Going down the rows of Table 1, we see the same pattern for the next three variables. Those variables are the grace period for interest payments, the acceleration rights of creditors (whether individual or collective), and the reverse acceleration rights of creditors (whether individual or collective). We see significant shifts in the opposite direction to that predicted by the DMH model. Columns (4) and (5) also reveal that these shifts mirror the general shifts in the market. Overall, as far as the first four provisions are concerned, the DMH model fares abysmally.

Nevertheless, we cannot reject the presence of a DMH effect altogether, because there appears to have been, at the same time, a general market shift. We know from other research that the global market was hit by significant shocks over the same period of time (the Asian crisis of 1997–98 and the Argentine crisis of 2000–01), which did produce general shifts towards more flexible contract terms for sovereign debt instruments (see, for example, Choi, Gulati and Posner 2012). From the results on the first four variables, all we can conclude is that the DMH effect, if present, was not strong enough to counter the general trends in the market.

The next four variables are the negative pledge, *pari passu*, cross default, and tax gross-up clauses. At a first glance, a similar picture emerges as that seen for the first four provisions. For two of the variables (negative pledge and cross-default) the shifts are significant and

Table 1

Flexibility provisions: original members plus Greece					
	DMH predictions (1)	Eight original plus Greece		General market practice (excluding the super-safe issuers)	
		1988-1998 (n=307)	1999-2011 (n=329)	1988-1998 (n=185)	1999-2011 (n=565)
		(2)	(3)	(4)	(5)
Grace period for principal	Decrease	15	19***	17	21** ##
Grace period for interest	Decrease	18	22***	19	22**
Acceleration (individual right or not)	Increase	94%	69%***	51%	33%*** ##
Reverse acceleration clause	Decrease	0%	16%***	19%	46%*** ##
Negative pledge clause	Increase	84%	66%***	95%	95% ##
Strong <i>pari passu</i> clause	Increase	2%	11%***	46%	61%*** ##
Cross default clause	Increase	60%	45%***	78%	88%** ##
Tax gross-up clause	Increase	65%	64%	100%	99% ##

***p<0.001; **p<0.01; *p<0.05; two-tailed tests for bonds issued during 1988–1998 and 1999–2011.
##p<0.001; #p<0.01; #p<0.05; two-tailed tests for nine Eurozone member countries and the “general market”.

Source: The author.

Table 2

Flexibility provisions: excluding the AAA countries					
	DMH predictions (1)	Eight original plus Greece minus the AAA		General market practice (excluding the super-safe issuers)	
		1988-1998 (n=209)	1999-2011 (n=248)	1988-1998 (n=185)	1999-2011 (n=565)
		(2)	(3)	(4)	(5)
Grace period for principal	Decrease	13	19***	17	21** ##
Grace period for interest	Decrease	17	22***	19	22**
Acceleration (individual right or not)	Increase	96%	68%***	51%	33%*** ##
Reverse acceleration clause	Decrease	0%	16%***	19%	46%*** ##
Negative pledge clause	Increase	94%	67%***	95%	95% ##
Strong <i>pari passu</i> clause	Increase	2%	15%***	46%	61%*** ##
Cross default clause	Increase	93%	61%***	78%	88%** ##
Tax gross-up clause	Increase	98%	85%***	100%	99% ##
***p<0.001; **p<0.01; *p<0.05; two-tailed tests for bonds issued during 1988–1998 and 1999–2011. ##p<0.001; #p<0.01; †p<0.05; two-tailed tests for nine Eurozone member countries and the “general market”.					
Source: The author.					

in the opposite direction to that predicted. For the third variable (tax gross-up) there is no change, whereas the DMH predicts a downward shift. For only one variable of all eight of the variables examined so far (whether there is a strong *pari passu* clause), does the shift occur in the predicted direction of flexibility reduction. Again, there is little support for the DMH story.

When we look at the last two columns in Table 1 for these last four variables, however, the story grows more interesting. Here, for three of the four variables (negative pledge, cross-default and tax gross-up) there is *no* change in the general market patterns.⁵ However, when we look back at the EMU entrants, we see significant changes, *towards greater flexibility*, for two of the four variables, namely negative pledge and cross-default. The important point here is that the shift cannot be explained by a general market trend towards more flexible contract terms.

The predictions of the DMH story, however, should work differently for countries of different size and strength. Therefore let us firstly consider the case of the strongest credits – the AAA credits. These nations are those who, if there is a crisis, are likely to be in the position of having to provide a bail-out, rather than receiving it. In other words, their contract terms are unlikely to be affected by EMU entry. So, in Table 2, we report results after excluding the AAA-rated nations from among the first nine. Luxembourg, Austria and Finland are the three nations that are excluded in this case.

⁵ For the fourth variable, *pari passu*, we see that the EMU trend follows in the same direction as the market trend.

The rejection of the DMH model gets stronger once we take out the AAA-rated nations. For seven of the eight variables in Table 2, there is a shift in the opposite direction, as predicted. If we then eliminate the variables for which the direction of the shift is the same as that for the general market, we are left with three contract provisions: the negative pledge, the tax gross-up and the cross-default clauses. With all three, the size of the shift is now bigger than in Table 1 (and toward flexibility; instead of towards constraint as the DMH would predict). In sum, the rejection of the DMH story is stronger when we move towards the nations that are supposed to be at the heart of it.

Implications

One understanding of the euro CAC initiative is that it was aimed at solving the DMH problem. That is, its goal was to push the system towards making sovereign restructurings easier and, therefore, reducing the need for public sector bail-outs. The data, however, reveal scant support for the DMH story, at least not the version of it that might justify the euro CAC initiative. The reality is that many of the most vulnerable euro area sovereigns shifted a long time ago to bond contracts that were remarkably easy to restructure. The ease with which the Greek 2012 restructuring occurred illustrates this point. By mandating CACs in all euro area sovereign bonds, these sovereigns are going to find it harder to conduct PSI operations in the future, not easier. Moreover, to extend that logic, CACs may have made bail-outs more likely, not less.

Assuming that our findings can be generalized, however, one implication is that the effort that has been exerted over the past few years in designing and executing the euro CAC initiative has been wasted in that it largely focused on solving a problem that did not exist.

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SOVEREIGN DAMAGE CONTROL

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Introduction²

A string of US court rulings against Argentina is reverberating around the world: Italy changed its debt contracts, Taiwan sued Grenada, Belize passed a special law, and the International Monetary Fund (IMF) and some of its largest members are revisiting their policies on sovereign debt restructuring. The case, *NML Capital Ltd. et al. v. Republic of Argentina*, has breathed new life into initiatives ranging from sovereign bankruptcy to market-wide contract reform. If upheld, recent rulings threaten collateral damage to other countries and parts of the financial system. The impact may be felt sooner and farther afield, even compared with Argentina's record-breaking 2001 default, because court action is unfolding against the background of public debt distress in Europe, new emerging-market restructurings, and a regulatory focus on clearing and payment systems.

Argentina exchanged nearly USD 100 billion in principal and past-due interest on its defaulted foreign bonds in two waves, in 2005 and 2010. Both times some creditors refused to take the deal and insisted on full payment. Among them, NML Capital Ltd., an affiliate of Elliott Associates, has been chasing Argentina in courts around the globe for years. Its efforts to collect have largely failed so far. If Elliott prevails this time, creditors will gain a potent new tool against sovereign debtors. The power shift would come courtesy of one obscure debt contract term that has gained destructive power in a case where the government and its creditors are uniquely willing to test the limits of the law.

Cat and mouse forever

Sovereign debt is a paradox: it is mostly unenforceable, but it never goes away. Foreign government bonds routinely contain expansive sovereign immunity waivers and clauses submitting the debtor to the jurisdiction of a court in New York, London, or another place the creditors find reassuring. But when the debtor runs out of funds, creditors discover that enforcement requires skill, commitment, and resources beyond the reach of all but a few specialists. Facing default, most either agree to exchange their bonds for new ones worth a fraction of the old, or sell their old bonds to the specialists at a deep discount. The specialists may go on to test the legal system to secure full repayment from the funds freed up by the original creditors' concessions. Sometimes they succeed. There is no bankruptcy discharge and, despite decades of innovation, no contractual device to force a committed creditor to modify its claim in line with the rest. The cat-and-mouse game can go on forever.

The vast majority of cases do not go on forever; most never even go to court. Lawsuits were a factor in 29 out of 180 sovereign debt restructuring episodes involving private creditors between 1976 and 2010 (Schumacher, Trebesch and Enderlein 2012). Governments that successfully restructure most of their debt usually settle with the remaining creditors under the table, to avoid perennial litigation. For an extreme example, Greece continues to make scheduled payments to the holders of its foreign-law bonds that stayed out of its 2012 restructuring (Zettelmeyer, Trebesch and Gulati 2013). Participating creditors rarely mind, since they themselves have no stomach for a long court battle and might even appreciate the holdouts' disciplining effect on the sovereign (Fisch and Gentile 2004).

The tension between lack of enforcement and lack of discharge – and most debtors' and creditors' shared aversion to spending the rest of their days in court – paves the way for relatively smooth restructurings. The battle between Argentina and Elliott Associates is different. It features worthy adversaries, which have, together and apart, made some of the most important case law in sovereign debt. They are perhaps

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² This essay is updated and adapted from Gelpern (2013).

the most determined debtor-creditor pairing in modern memory, which almost by definition puts their dispute on the cutting edge.

Equality as a collection tactic

The provision at the heart of the case is part of the *pari passu* clause, which has roots going back to the nineteenth century (Gulati and Scott 2012). All versions of the clause promise that the debt contract that contains it will be on equal footing with some subset of others – except that lawyers cannot agree on what equal footing means or what to do when it becomes unequal (Weidemaier, Scott and Gulati 2013). Argentina’s formulation, which has become popular in recent years and is shared by the likes of Cyprus, promised to rank the debtor’s payment obligations equally. In one sense, the case is about the relative significance of the words “rank” and “payment”. If *pari passu* only promised legal rank, it would be useless to modern-day creditors of sovereign governments. The only practical way for a debtor to breach would be to pass a domestic law effectively subordinating the debt (Buchheit and Pam 2004). But for most countries, simply stopping the payments to some creditors does the job. Passing a law to sanction this adds nothing.

In 1997, Elliott Associates gave *pari passu* a more capacious meaning. In lawsuits against Nicaragua and Peru, Elliott claimed that the clause required a debtor unable to pay all its creditors in full to pay each creditor proportionately or “ratably” – and that payments on its performing obligations could be blocked until the debt covered by the clause was paid.

In 2000, a Belgian court endorsed this view, and enjoined Euroclear from distributing payments on Peru’s restructured bonds until Elliott was paid.³ Peru settled on terms very favorable to Elliott. Belgium responded with a law shielding Euroclear from similar injunctions – even as its higher courts later rejected Elliott’s argument.⁴

Overnight, the meaning of *pari passu* went from marginal and forgotten to all-important and hotly contested. Since the clause was ubiquitous, it offered the first replicable path for collecting sovereign debt, one that did not

rely on finding one-off commercial assets left outside the debtor’s borders.

The “ratable payment” interpretation of *pari passu* also opened a host of operational questions. What should count as “ratable” was anybody’s guess without bankruptcy, a single moment of reckoning, or a fund to divvy up among a fixed group of claimants. A government’s general revenue flows might suffice to pay its debts due on Monday, but not on Tuesday – or next week or next month. Would paying everything until the coffers ran dry mean subordination, or just bad luck, for the debts that came due later? Would creditors receiving the early payments have to share with others? Would creditors such as NML, if they recovered on the ratable payment theory, have to share with those who might sue later? Would payments to the World Bank, the IMF, and others excluded from restructuring by custom, count as super-senior for *pari passu* purposes? How might a ratable payment scheme be administered across different instruments held by dispersed creditors – would it be up to every creditor to trace and block payments to every other? Most such questions had no good answers.

Pari passu returns

When creditors tried to block a debt exchange by one of its provinces using the *pari passu* clause in 2004, Argentina asked US District Court Judge Thomas P. Griesa to declare that the clause could not be used to support a ratable payment order under New York law. The US government and the Federal Reserve Bank of New York sided with Argentina; the Fed called the enforcement strategy “terrorism of payments and settlement systems.”⁵ The court agreed with the plaintiffs that issue did not need to be decided, since they had not brought a *pari passu* claim against Argentina itself.

NML waited until late 2011 to raise *pari passu*. Since 2004, Argentina had steadfastly refused to settle with the holdouts, and even enacted a “Lock Law” raising additional barriers to side payments. Intended to reassure those participating in the 2005 exchange, the Lock Law was the rare bit of domestic legislation that could be read as violating even the narrow “ranking” interpretation of *pari passu*.

³ Elliott Associates, L.P., General Docket No. 2000/QR/92 (Ct. App. of Brussels, 8th Chamber, September 26, 2000).

⁴ *Republic of Nicaragua v. LNC Investments LLC*, General Docket No. 2003/ KR/334 (Ct. App. Brussels, 9th Chamber, March 19, 2004).

⁵ Letter from Thomas C. Baxter, Federal Reserve Bank of New York, to the Honorable Thomas P. Griesa, dated January 12, 2004, re: *Macrotecnic Int'l v. Argentina and EM Ltd. v. Argentina*.

In February 2012, Judge Griesa ruled that Argentina was in breach and ordered it to stop paying the new bonds unless it paid NML. The order was stayed while the government appealed. The US Court of Appeals for the Second Circuit stunned observers when it upheld the lower court ruling in October 2012, rejecting every contract, policy, and statutory argument mounted by the Republic, and the US State and Treasury Departments. It held that (1) Argentina's contracts support ratable payment to holdouts, (2) Argentina violated its contracts by some combination of protracted default, public statements that it would never pay holdouts, and the Lock Law, and that (3) NML and its fellow plaintiffs were entitled to an injunction telling Argentina to pay them and the new bondholders in equal step.

Though it ruled for NML, the appeals panel sent the case back to the Judge Griesa to clarify what he meant by ratable payment and how the injunction would affect third parties, such as the banks processing payments from Argentina to its bondholders.⁶ The judge's response was stunningly broad: "ratable" meant that the plaintiffs should get full principal and past due interest whenever performing bond holders get an interest coupon. Trustees, clearing houses, and payment systems were all exposed to sanctions for sending money to the bondholders while NML went unpaid.

Throughout 2013, the case has taken one crazy turn after another. The Second Circuit panel had committed to review Judge Griesa's response. It faced an avalanche of briefs from old and new bond holders, market utilities, trade groups, and academics of all stripes.

On February 27, 2013 more than 250 lawyers, investors, analysts, journalists, and gawkers packed into two overflowing court rooms to hear celebrity lawyers try to convince three thoroughly exasperated judges. While everyone agreed that Argentina had lost, many puzzled over the court's apparent willingness to sanction a wide range of third parties and simultaneously entertain repayment alternatives. Two days later, the panel ordered Argentina to propose a formula. This was big: allowing debt contract modification over creditor

⁶ See *NML Capital Ltd. v. Argentina*, 699 F.3d 246, 244–255 (2d Cir. 2012) ("[The ratable payment formula] could be read to mean that if, for example, Argentina owed the holders of restructured debt USD 100,000 in interest and paid 100 percent of that amount then it would be required to pay the plaintiffs 100 percent of the accelerated principal and all accrued interest. Or it could be read to mean that, if such a USD 100,000 payment to the exchange bondholders represented one percent of the principal and interest outstanding on the restructured debt, then Argentina must pay plaintiffs one percent of the amount owed to them. We cannot tell precisely what result the district court intended.")

objections would be akin to sovereign bankruptcy, achieved here outside the statutory framework using the judges' equitable discretion and the debtor's immunity. Argentina's response showed that it was either unwilling or politically unable to seize the opportunity. It offered a menu of securities along the lines of its 2010 exchange, which the plaintiffs had rejected long ago – and promptly rejected again this time.⁷

The next two months passed in tense anticipation of the appellate ruling. Creditors holding bonds denominated in euros and Argentine pesos asked courts in New York and Brussels to rule that their payments outside the United States were beyond the reach of the injunctions. Potentially facing a deadline for an appeal to the US Supreme Court, Argentina filed a petition on June 25. The filing was narrowly limited to the Foreign Sovereign Immunities Act and did not challenge the interpretation of the *pari passu* clause. No doubt Argentina decided to maximize its chances of Supreme Court review by focusing on a federal statute, rather than on state-law contract interpretation issues of the sort the Supreme Court tends to avoid.

A month later, France filed an amicus brief asking the Supreme Court to take the case, making all the contract and policy arguments sidestepped by Argentina. This would have been a bizarre side note had the United States not pulled back its own brief at the last minute and blocked a filing by the IMF – perhaps yielding to political pressure. France's appearance raised the likelihood of the Supreme Court requesting the US government's views, and with it, the likelihood that the court will hear the case.

On August 23, the Second Circuit issued its second ruling, another decisive victory for NML: Judge Griesa's draconian injunctions were upheld in full, and third parties were put on notice that helping Argentina service its restructured debt was risky business. At this writing, petitions in the *pari passu* battle are pending at every level in the US federal court system. It seems unimaginable that the tide of decisions against Argentina could reverse. Another round of Supreme Court appeals is virtually certain.

⁷ The plaintiffs' filing also dismissed Argentina's forecast of more lawsuits to come. As if on cue, a group of individual investors tried to join the fray two days later, demanding that Argentina pay *all* its holdouts, not just the plaintiffs in NML's lawsuit. The court rejected the new *amicus* brief on April 25, 2013.

The fallout

NML v. Argentina may or may not change the world of sovereign debt restructuring as we know it. Whatever happens to the parties in this case, the market will adapt. The more urgent question is whether the *pari passu* remedy as it stands today makes for bad law and creates a policy problem – even assuming the market adapts in the end. I suggest that it does for three reasons.

First, the *pari passu* remedy is premised entirely on maximizing collateral damage, without reaching the debtor.⁸ A fundamental problem with ratable payment orders is their inability to compel Argentina to do as it promised. If Argentina is determined not to pay NML, it can continue stonewalling it. Ignoring the court will not land officials in jail or damage Argentina's reputation any more than it is already damaged. In contrast, the various market actors heretofore on the sidelines in the fight between Argentina and NML have suddenly become the holdouts' principal levers and opponents. The court orders operate like a secondary boycott: If Argentina defies court orders, parties who are within the court's reach risk punishment for dealing with it. The country remains sovereign and immune, if increasingly isolated.

Second, as proposed by NML, the *pari passu* remedy is partial, arbitrary, and inequitable. It gives a single enterprising creditor or a large windfall payment, not shared with the other defaulted bondholders – as the late-coming holdouts discovered in their failed attempt to get a ratable share of this case. Even those who welcome the recent court orders as a long-overdue check on sovereign impunity might be troubled by the arbitrary incidence of the check: Some of the debtor's assets are blocked for the benefit of a small group of creditors, while everyone else suffers deep losses. It stands in contrast to the bankruptcy ideal, where the debtor's estate is distributed among all its creditors.

Third, the *pari passu* remedy is bad for debt management and debt restructuring incentives. The Second Circuit opinion does not differentiate between an ordinary debtor that runs out of cash and what some have termed a "rogue debtor" (Porzecanski 2005). Future courts will need to flesh out when a good apple turns bad or when default becomes subordination. Until the

⁸ This concern was "determinative" for the English court that denied a ratable payment injunction against Congo in 2003, rejecting a remedy "directed towards the coercion of third parties rather than securing immediate compliance by the defendant" (*Kensington International Ltd. v. Republic of Congo*, [2003] EWHC 2331).

standards are clear, creditors may attach the same litigation risk premium to both, lending the good apple too little and the bad apple too much. In distress, fear of lawsuits may delay the debtor's decision to restructure and reduce the creditor's willingness to participate. Though the magnitude of this effect is unclear, it is likely to be more pronounced for smaller, poorer, less stable countries that cannot afford to battle its creditors for over a decade on Argentina's model.

Those who argue that the outcome in Argentina will have no impact on future debtors and creditors point to the successful debt exchange in Belize, completed in March 2013 against the background of Second Circuit proceedings.⁹ It is too early to tell whether Belize is a sign of things to come: It might have succeeded thanks to factors unique to Belize, continued uncertainty about Argentina, or Argentina's ultimate irrelevance. Reflecting uncertainty, countries' reactions to the New York proceedings have ranged from expressions of concern in US Securities and Exchange Commission (SEC) filings by Mexico, Paraguay and others, to radical contract surgery eliminating the ratable payment promise in Italian bonds, and a new *pari passu* lawsuit by Taiwan against Grenada, complete with its own rush of third-party briefs. The IMF cited litigation against Argentina in a policy paper made public in May 2013, launching a new work stream to reform sovereign debt restructuring.

Ways out

Three solutions would solve all three problems.

A statutory sovereign bankruptcy regime is the most obvious response, and the least likely to happen. Depending on how it is designed, treaty-based bankruptcy could offer countries the prospect of a fresh start, or debt discharge, in exchange for paying all their creditors on an equitable basis. Statutory bankruptcy would also have the advantage of greater political legitimacy and public accountability for its distribution choices.

The failure of the IMF's Sovereign Debt Restructuring Mechanism (SDRM) in 2003 for lack of support from key stakeholders (Setser 2010) suggests that even a modest treaty scheme may be doomed. There is no evidence of wholesale conversion among those that blocked it a decade ago. But if debtors become a little

⁹ "Belize Debt Offer Exchange Successful," Reuters, March 8, 2013.

more hesitant to launch a restructuring, and if creditors become a little more reluctant to participate, it would bolster the case for sovereign bankruptcy. The tipping point is hard to tell.

Contract reform to overcome creditor coordination problems is the presumptive alternative to statutory bankruptcy. Collective action clauses (CACs), which have proliferated in sovereign bonds since 2003, allow a supermajority of creditors to bind would-be holdouts in a restructuring. If CACs could eliminate all holdouts, there would be no *pari passu* lawsuits – the meaning of the clause would be irrelevant. But CACs cannot and should not guarantee the success of every restructuring operation.

For the most part, CACs operate on an issue-by-issue basis. This allows creditors to buy blocking stakes in small issues trading at a deep discount and keep them out of the restructuring. For example, more than half of Greece's foreign-law issues with CACs failed to get enough votes, held out, and continue to be serviced on time. This made little difference for the overall outcome of the debt exchange because over 90 percent of the Greek debt stock had been governed by Greek law and was amended across multiple issues, leaving no holdouts (Zettelmeyer, Trebesch and Gulati 2013).

A small subset of sovereign bond contracts allow votes across multiple bond issues. The device is known as aggregation or cross-series modification. In most cases, aggregation procedures require a double-majority vote (conducted across the debt stock and for each issue) and let single bond issues drop out of the restructuring. Aggregated CACs that provide for a single vote and do not allow any issues to drop out would blur the line between contract and bankruptcy, and remain controversial. The IMF and some of its largest members have begun to advocate just such a solution, which has become more politically palatable as a result of *NML v. Argentina*.

Some outstanding bonds (no one quite knows how many) still do not have CACs because they were issued under New York law before 2003, where the custom was to require unanimous bondholder consent to modify the financial terms. A few post-2003 issues have resisted CACs. Moreover, not all sovereign debt instruments with *pari passu* clauses are in the form of bonds susceptible to the inclusion of CACs. For example, syndicated and bilateral loan contracts with *pari passu* clauses may present a distinct source of vulnerability.

The third solution is limited and direct: change or eliminate *pari passu* clauses that give rise to ratable payment injunctions. Unlike the first two solutions, which try to reform the overall regime for debt restructuring, the third focuses on collateral damage control.

Because the *pari passu* remedy targets trustees, clearing houses, and operators of payment systems, it is in their interest to shield themselves. Private-sector initiative would be particularly appropriate in this area, dominated by a small cohort of large regulated institutions that serve as gatekeepers for the securities market. Stock exchanges and clearing houses have a history of driving contract change through listing and membership requirements (Flandreau 2013; Buchheit and Gulati 2003). Clearing and payment systems and trustees already seek commitments from participants to protect themselves from risks associated with particular counterparties and contracts.

After *NML v. Argentina*, market utilities could require sovereign debtors to represent that none of their outstanding debt contracts contain ratable payment terms that would expose the utility to injunctions. A debtor that refuses either would not get the service or would have to pay more for it. Additional sanctions could apply if the representation is discovered to be false after the fact. The requirement could also take the form of clearing eligibility criteria, covenants, indemnity provisions, or some combination of all these.

Although the precise formulation should be up to the market utility, any such requirement would have three benefits. First, it would force governments to discover and disclose information about their debt contracts (not just bonds) that could impose costs on third parties. Second, it would prompt governments to eliminate particularly risky formulations of *pari passu* for fear of paying more or losing market liquidity. Third, it would preserve any given government's ability to promise ratable payment to its creditors up front in clear and unambiguous terms. Even if the value of this promise as a collection device would be dubious, some creditors might want it as extra protection against "rogue debtors." They would pay more or lose liquidity – and so they should. The requirement would force debtors and creditors that present the highest risk to the system to internalize their costs.

Like any contract reform, this one would entail transition challenges. It would be burdensome and expensive for countries to change all their debt contracts over-

night.¹⁰ However, having market utilities drive *pari passu* reform should be quicker, easier, and more likely to produce a standardized outcome than the CAC campaigns of the 1990s and 2000s.¹¹ The utilities are motivated to protect themselves and provide essential services across the sovereign debt market. This should help overcome the network and agency problems that seem to keep governments and their lawyers from changing suboptimal contracts (Gulati and Scott 2012).

Even if it were wildly successful, the third solution would not do much to advance a comprehensive sovereign debt restructuring regime. It is all about damage control. A new regime would require a new political bargain, in which countries agree to cede some sovereignty and immunity protections, while creditors agree to join in a comprehensive collective proceeding. For as long as such a bargain remains out of reach, sovereign debt will remain unenforceable, inescapable, and deeply dysfunctional.

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¹⁰ Amending *pari passu* in bond contracts now generally requires the highest supermajority vote. The advantage of a successful vote is that it binds dissenters. Governments can also change their debt contracts as part of liability management operations, issuing new debt and retiring the old.

¹¹ Back then, each borrower had to struggle with the question whether adopting CACs would raise its borrowing costs (Gelpern and Gulati 2006). Securities regulators could not decide whether CACs were good or bad for investors and ultimately forced them to be disclosed as "Risk Factors" in offering documents.

MARKET STANDARDS IN PUBLIC SECTOR DEBT CONTRACTING

ANDREAS ENGERT¹ AND
LARS HORNUF²

Introduction³

Contracts are supposed to reflect individual preferences – if they did not, the parties would write a different contract. Of course, drafting an alternative provision may not be worthwhile in some cases. Economizing on transaction costs can lead the parties to use off-the-rack terms instead of fine-tuning their agreement. Yet when the gains are significant, one would expect the parties to deviate from their standard model and devise better provisions. It thus seems that only drafting costs stand in the way of the optimal contract for any given transaction.

In fact, an additional impediment to efficient contracting arises when a contracting standard is shared by most players in the market. A market standard, by definition, is well known to potential contract partners, which reduces the transaction costs not just of writing contract terms, but also of understanding and evaluating them. Because it is frequently used, there is considerably more experience with the standard contract design than with any potential alternative. Using the integration of the European bond markets as a case study, we present evidence that standardization occurs in contracting over sovereign or government-backed debt. Following the Maastricht Treaty, and particularly with the advent of the euro, European governments and government-backed entities issued debt securities increasingly under English law. Apparently, the forces of standardization are strong enough to overcome even governments' inborn preference for their own national laws.

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Network effects in financial contracting

In economic theory, the advantages of market standardization are referred to as 'network effects' (Farrell and Klemperer 2007). Network effects occur when users of a good derive a benefit from others using the same or a compatible good. Contract terms and legal rules can also exhibit network effects (Klausner 1995; Druzin 2009). Klausner (1995) was the first to observe that contract parties may wish to rely on contract terms that are widely used in order to benefit from network effects. A popular contract term, according to Klausner (1995), confers a number of advantages (see also Kahan and Klausner 1997; Goetz and Scott 1985): widespread contract terms are often interpreted by the courts. A large body of precedents implies that the term's legal content is more clearly defined. In a similar vein, one can learn from the experience of others so that the pitfalls of commonly used terms are better known and can be avoided. The repeated use of a term exposes unforeseen consequences and fosters an evolutionary process of refinement. As lawyers tend to be more familiar with frequent contract terms, legal advice is less costly and more reliable. As Druzin (2009) points out, negotiating a contract is also less costly when each of the parties to a particular contract is familiar with the same terms. Using a contract term for the first time requires an upfront learning investment to understand the term's scope and implications. Contract management processes have to be adapted to different terms. Variation of terms over contracts tends to sacrifice economies of scale. Therefore, parties will want to limit the range of different terms under which they conclude their contracts. Since the parties must agree on one and the same contract, there is a benefit from being familiar with the same contract terms as one's potential contract partners. Shared use of the same contract terms, in this regard, resembles a common language that equally reduces the cost of transacting (Druzin 2009, 18–19).

Network effects have important policy implications: combined with the difficulties of coordination, they raise the concern that the market could come to adopt a standard that is suboptimal for all contract parties (mis-standardization); in a similar vein, all contracts may use uniform terms or the same legal rules, even

though a subset would be better served with a different legal design (over-standardization). If either of these happened, network effects would impede the development of socially optimal contracts. Considerably less confidence would be justified in the efficiency of an observable market practice. From a policy perspective, a possible response is explicit standard setting to enable market coordination on a superior standard, or several standards. Beside the substantive quality of contractual choice, there is an additional normative aspect: there can be too little standardization because market participants remain stuck in different practices and fail to coordinate up to a level that constitutes a tipping point (under-standardization).

Choice of law in public sector debt contracts

To detect network effects in public sector debt securities, we consider an important feature of contract design, the choice of governing law. Standardizing the contract design of debt securities can confer important benefits by enhancing liquidity in the secondary market. The parties to a contract are free to stipulate which national law applies to their contract.⁴ As the contract law consists of a full set of legal rules, rather than just a single term, network effects may carry particular weight. The applicable law guides the interpretation of the contract and limits the scope of permissible arrangements. For instance, English law allows the indenture to provide for majority decisions even on reducing the principal amount or the interest to be paid under a bond, thereby enabling debt restructuring. By contrast, ‘collective action clauses’ were not permissible under German law prior to 2009.⁵ On a similar note, the US Trust Indenture Act 1939 prevents collective action clauses for corporate issuers. Until 2009 German law also restricted ‘no-action clauses,’ which delegate the enforcement of bondholder rights to a trustee (Häselser 2010; Allen 2012, 72–73). German courts can review the indenture *ex post* and invalidate terms they consider unfair. Another difference is that English law offers a comprehensive body of fiduciary duties that apply to bondholder trustees. Continental European jurisdictions typically lack the general concept of a trust (Allen 2012, 75–80; Hill and Beech 2010; Rawlings 2007).

⁴ See art. 3 Rome Convention on the law applicable to contractual obligations of 1980 and now art. 3 Regulation (EC) No 593/2008 on the law applicable to contractual obligations (Rome I).

⁵ To be more precise, German law prohibited majority decision-making on payment terms for issuers located in Germany. Whether the ban extended to foreign issuers remained an unsettled issue.

An additional concern is that a jurisdiction can amend its laws to alleviate its own liabilities (Choi, Gulati and Posner 2012a, 139–40). The sovereign debt of Greece provides for a recent and prominent example. At the onset of the Greek debt crisis in 2009, the Hellenic Republic had issued 90 percent of its outstanding bonds under Greek law; the remainder was mostly governed by English law. Choi, Gulati and Posner (2011) suggest that investors have appreciated the difference: they document that Greek-law bonds commanded a considerable yield spread over a single English-law Greek bond even before the outbreak of the crisis. The difference can be attributed to the political risk of an amendment in Greek law to change the terms of sovereign debt contracts *ex post*. The risk materialized when the Greek Parliament, on 23 February 2012, retroactively introduced collective action clauses for a restructuring of outstanding Greek-law debt securities, requiring a 66.7 percent majority among the holders of *all* Greek-law bonds combined (Zettermeyer, Trebesch and Gulati 2012). The lower yield for English-law bonds thus compensated the Greek government for the greater holdout power of investors in English-law bonds, where a change in payment terms typically required the consent of 75 percent of the holders for each debt security.

Empirical evidence of network effects in public sector debt contracting

Under standard financial contracting theory, one would expect the terms of a debt security to reflect agency costs. An example of this view is the design of covenants in loan contracts and bond indentures (Smith and Warner 1979; Gârleanu and Zwiebel 2009; Nikolaev 2010; Miller and Raiser 2012). The choice of law for a debt security, including sovereign and government-backed bonds, should be guided by substantive differences between contract laws, including the political risk of opportunistic *ex post* amendments. By contrast, the benefits of standardization (i.e., network effects) can impede agency cost minimization when issuers include terms that are commonly used rather than those that are optimal for the particular issuer and security.

A first look at contract law choices reveals a high degree of concentration. For a sample of US corporate debentures in 2002, Eisenberg and Miller (2009, 1491) report a market share of 89 percent for New York law. In a similar vein, Das, Papaioannou and Trebesch (2012, 41–43) show that the great majority of sovereign bonds are issued under domestic law or under the laws of ei-

ther of two jurisdictions, namely New York and England. In our own study (Engert and Hornuf 2013), we document that English law has become the dominant contract law for corporate and sovereign issuers throughout Europe. In what follows we report on a sub-sample of this study covering debt issues at the central, state and local government level, as well as government-guaranteed debt issues. The data source is the Thomson Reuters SDC Platinum Global New Issues Database. The sub-sample contains 11,106 sovereign or government-backed debt issues in the initial member states of the Economic and Monetary Union (EMU)⁶, as well as Denmark, Norway, Sweden, Switzerland and the United Kingdom for the period from 1992 to 2008.

Figure 1 documents a significant rise in the use of English law since 1992, when the Treaty of Maastricht laid the legal foundation for the EMU, and again from 1999 onwards, when eleven countries entered the final stage of the EMU by introducing the euro as legal tender. Starting from below ten percent, the market share of English law in European sovereign debt issues rose to around 80 percent in 2004. Figure 1 also reveals that the growing popularity of English law was not driven by a surge of debt issuers located in the UK. As indicated by the dotted line, including UK issuers increases the market share of English law only marginally without changing the time trend. Use of domestic laws declined enormously over the entire observation period and remained stable at around 14 percent in the period from 2004 to 2008.

Figure 2 depicts the market share of English law for each of the six largest sovereign debt markets in Europe (excluding the UK). English law played no major role in any of these markets in 1992 as market shares were

⁶ Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain.

Figure 1

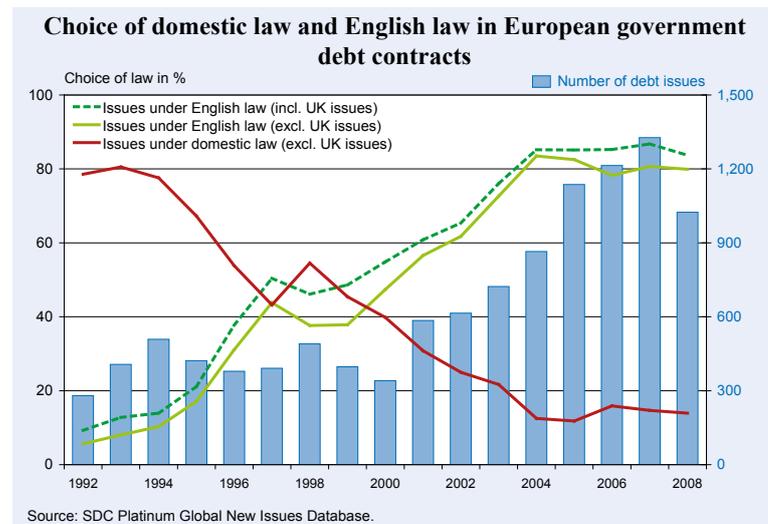
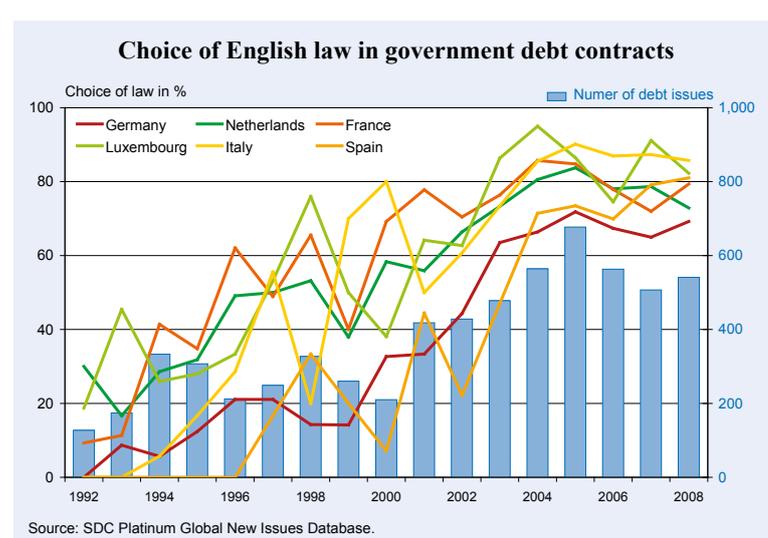


Figure 2



consistently below 20 percent. German and Spanish sovereign and government-backed issuers chose English law hardly at all. From 2004 onwards, however, English law captured a market share of 60 to 90 percent in all of these countries, with Germany being most reluctant to adopt the new market standard.

There is evidence that the surge in standardization was driven by the move to the EMU. As early as 1995, governments of EMU member states decided that they would denominate their debt issues in euro starting in 1999. EMU member states found themselves in a race to make their sovereign debt the benchmark for the emerging Eurozone (Pagano and von Thadden 2004, 536). With the advent of the euro, the conversion rates of the respective national currencies were irrevocably fixed.

As a result of this development, the investor base of public sector debt securities expanded beyond the respective member states, thus greatly increasing the benefits of a pan-European contracting standard. Using a broader sample of corporate and sovereign debt issues, for the introduction of the euro in 1999, Engert and Hornuf (2013) demonstrate that the shift towards English law is significantly more pronounced for debt securities in EMU member states than in other European countries. That is, the introduction of the euro convinced those issuers to switch to English law who benefited the most from using a pan-European market standard. One can hardly miss the irony of the story: the United Kingdom steadfastly opposed the EMU, and yet the common currency led English contract law to dominate EMU's market in debt securities.

Of course, one could argue that English law offers advantages over other contract laws in terms of substantive quality. English law may provide the most suitable tools for balancing the interests of investors and public sector issuers efficiently. The example of Greek law illustrates that English law could serve as a legal safeguard against government opportunism. However, whatever the merits of English law, they did not change at the time when the EMU member states introduced the euro as a common currency. Likewise, there is no reason to assume a change in the preferences of issuers and investors in the EMU member states as opposed to other European countries – except for the fact that a more integrated bond market increased the demand for a common contracting standard.

The literature provides additional evidence on network effects in debt securities contracting. Choi and Gulati (2004) carefully examine the move towards collective action clauses in sovereign bond contracts governed by New York law based on a sample of 155 offerings. They document an abrupt shift in 2003 and conclude that the dominance of unanimous action clauses did not reflect uniform issuer preferences. More recently, Choi et al. (2012a, 2012b) generalize and extend these earlier findings for a larger sample of 1,385 sovereign bonds from 1960 to 2011 and for various contractual provisions. On this broader basis, they are able to show that the terms in sovereign bonds often remain stable over extended periods of time before suddenly shifting towards new market standards in reaction to external shocks. Again, this finding of 'clustered change' is consistent with network effects in contracting. Likewise, Kahan and Klausner (1997, 740–60) track the evolution of 'event risk covenants' in 101 corporate bond indentures issued

in the years 1988 to 1993. They argue that the drafting quality of these contractual provisions both converged and improved over time, which they read as evidence of collective learning and hence network effects.

Conclusion

English law has become the contract law of choice for sovereign and government-backed issuers throughout Europe. The empirical evidence points to the benefits of using a law that most contract partners and complementary service providers are familiar with. From a normative angle, our findings cast doubt on the efficiency of contracting. They are consistent with at least two different interpretations:

1. One could suppose that English law unequivocally is the optimal contract law for public sector debt securities. In this case, our analysis implies that the introduction of the EMU had the beneficial side-effect of unlocking domestic markets. As issuers, investors, lawyers, underwriters and other parties in the domestic markets were more familiar with their own national laws, they were unable (or unwilling) to orchestrate a switch to English law as the more efficient contracting alternative. In this view, it took the external shock of the euro to overcome the excess inertia and lock-in created by network effects.
2. A second story is that English law is, in fact, less suitable for debt securities than all or some of the national laws it replaced. If this were the case, then the demand for a pan-European standard would have caused less efficient contracting in debt securities. Similarly, it may be that the various contract laws cater to different issuer and investor needs. English contract law accordingly might suit some public sector issuers or investors, but not others. Under this reading, the move to the euro and the concomitant change in network effects forced at least some parties to forego their most preferred contract law.
3. A final possibility is that the substantive differences between contract laws are, in fact, less important. While lawyers have to consider the technicalities of the applicable law when drafting a contract, it may be that the laws of most jurisdictions effectively permit the most important contract designs that the parties desire. Contract laws could be 'different but equivalent.' Under this reading, network effects in the choice of applicable contract law are fully consistent

with efficient contractual design. In either event, the demand for a common standard appears to be a powerful determinant of debt securities contracting.

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NEW MONEY VERSUS OLD MONEY FOR EUROPE: THE PROVISION OF CREDIT ENHANCEMENTS THROUGH A COLLATERAL FUND

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The Latin American debt crisis and the ongoing European debt crisis are quite similar with regard to the origin and development of the crises. In terms of the chronology of events, each crisis first started in a single country with bank-debt weakness and sovereign-debt exposure feeding on each other. Regional financial linkages caused the crisis in a single country to spill over, creating a cross-border liquidity episode. Finally, as the two sets of crises built on each other (cross-country and between sovereign and private sectors), creditors and debtors alike faced losses and, potentially, insolvency.

The phenomena at the root of both crises are both improperly priced credit and the large and inter-connected exposure of private creditors to sovereign debtors. In comparing Europe and Latin America, we argue that mispricing, exposure, and interconnectedness are just as salient for the European case. However, differences in the source of mispricing, the geographic scope, and the degree of interconnectedness between sovereigns and the private sector imply that, unlike in the Latin American case where the US leadership role was appropriate (given the concentration of developing-country debt in US banks), a supra-national European entity must be engaged to resolve the European crisis.

Mispriced risk: origins and evidence

The evidence on mispricing of credit risk in both the Latin and the European case is apparent in hind-sight, but what underpinned that mispricing, and made it less

obvious at the time? Firstly, the application of relatively new financial technologies and secondly, the explicit or implicit sovereign guarantee of private sector borrowing were key.

How did these factors play out in Latin America? In the 1970s, the largest US financial institutions took the lead in originating loans to developing country markets (particularly in Latin America) and then syndicated these loans to smaller and regional banks. The originator of the loan could develop these new markets, but did not retain the full risk on their balance sheet; furthermore, syndicating the debt freed up capital, which increased profitability through higher leverage. The regional buyer of the Latin credit could take a stake in the new market, and obtain a high return on an apparently low-risk financial instrument, all without the cost of originating it or undertaking due diligence. In addition to the apparent risk diversification associated with loan syndication, the explicit sovereign guarantee afforded to many of these credits also apparently lowered risk.

In response to the new financial technology, lending to all non-oil developing countries surged five-fold in nominal terms, from USD 130 billion in 1973 to USD 612 billion in 1982 (Cline 1984, Table 1.1.) and borrowing costs fell dramatically. If just the key Latin countries of Argentina, Brazil, Mexico, Chile, and Venezuela are considered, their external debt grew even faster, and some borrowed below US 7-year bond rates, receiving more favorable terms than Canada and Australia (Table 1). So, not only did the creditors gain, but the borrowers also enjoyed the fruits of the originate-syndicate model through lower borrowing costs and greater access to credit.

The comparable evidence on the surge in lending and the narrowing of risk spreads in Europe is in more recent memory. The European mis-priced risk and lending surge were underpinned by new financial technology (off-balance sheet financial technology like Greek swaps), and importantly, the creation of the euro as a single currency. Collectively, these innovations lowered the assessment of lending risk to sovereigns and their private sectors that had been previously deemed as less credit-worthy. Figure 1 shows the decline in long-term



¹ Federal Reserve Bank of Boston.

² Brandeis University.

Table 1

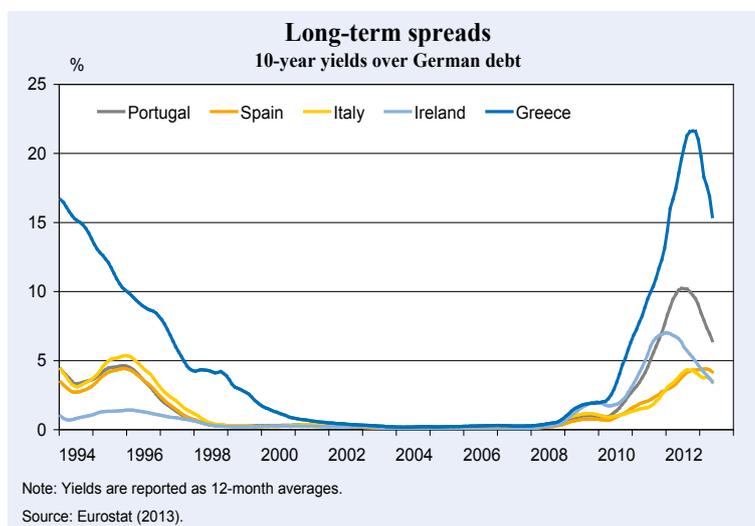
External debt and cost of funds during the Latin American debt crisis			
	Increase in total external debt (1982/1973)	Increase in short-term debt (1982/1973)	New public borrowing; average bp premium (+)/ discount (-) over US 7-year bond (1977-1981)
Argentina	6 fold	22 fold	(-) 55
Brazil	9 fold	12 fold	(+)187
Chile	5 fold	7 fold	(-) 132
Mexico	10 fold	22 fold	(+) 53
Venezuela	12 fold	18 fold	n.a.
Australia	from creditor to small debtor	n.a.	(+)167
Canada	5 fold	n.a.	(+)262

Source: The World Bank (2013) and Lindert (1992), Table 8.1.

borrowing rates for Greece, Ireland, Italy, Portugal and Spain to the same levels as that of Germany during the period of adoption of the common currency, up until the onset of the European crisis. As of June 2013, the long-term spreads for these countries have returned to their levels of the mid-1990s.

Eventually, credit across internal European borders expanded at a pace on par with the Latin American experience. As Table 2 illustrates, the extension of new loans by the top five European Union economies to Greece, Ireland, Italy, Portugal and Spain ballooned in the three years immediately preceding the crisis (2005 to 2008).

Figure 1



Interconnected exposures

The second common factor underpinning the Latin and European crises is the existence of interconnected exposure. However, the Latin and European crises do differ in the concentration and interconnectedness of this exposure. At the time of the onset of the Latin American debt crisis, the US banking system was highly exposed to these credits, which were concentrated in four Latin countries. In the case of Europe, the interconnectedness is among all the euro nations, and spans not just financial, but also trade and macroeconomic linkages.

What is the evidence on the higher concentration and essentially US bilateral exposure of the Latin crisis?

Firstly, about 80 percent of the debt was either sovereign borrowing, or had a government guarantee (Cline 1984, 1–4), thus setting the stage for the private obligations to become state obligations to creditor banks. Although substantive credit extensions by commercial banks included some 33 developing countries, Argentina, Brazil, Mexico and Venezuela accounted for somewhat more than 70 percent of bank claims of the 17 most highly indebted countries (and those accounted for about 80 percent of total extensions of bank credit) (Cline 1995, Table 2.9, 62). Table 3 reveals the concentration of exposure of the largest

Table 2

Change in foreign exposure of France, Germany, United Kingdom, Italy and Spain to the crisis nations (million EUR)

Borrower	2005:Q4	2008:Q4	% Increase
Greece	48,223	103,930	115.52
Ireland	222,440	379,739	70.72
Italy	331,853	607,217	82.98
Portugal	100,532	136,686	35.96
Spain	266,111	442,851	66.42

Source: Bank for International Settlements (2013).

US banks to four major Latin American debtors. By comparison, the exposure of the UK and Germany in particular to these debtors was dramatically lower. By 1984 French banks overall had exposure levels similar to those of US banks.³

Trade and growth linkages within Europe are deeper than between the US and Latin America – for instance intra-European trade (exports plus imports) accounts for over 60 percent of total European trade, while the corresponding magnitude for Latin America in 1985 would have been close to 23 percent.⁴ More importantly, there is also a very high degree of multilateral financial exposure among European banks. To a large extent, the external exposure of the largest five nations in the European Union was mainly due to bank lending to the private sector of the troubled nations (Table 4), not to foreign sovereigns. Nonetheless, the ex post nationalization of some European financial entities makes the comparison with the explicit guarantee of private obligations by Latin American governments more apparent.

³ Interestingly, the Paris Club for international debt negotiations, created in 1956, played an important role in this crisis too.

⁴ Based on UN Comtrade data (United Nations 2013) for the aggregate LAC33 (Latin American and Caribbean, 33-countries).

Table 3

Exposure of US banks to developing country debt, 1982 (as % of capital)

	US banks	US 9 largest banks	UK banks	German banks	French banks ^{a)}
17 countries ^{b)}	129.4	194.2	85.0	31.4	135.0
4 major Latin Debtors					
Argentina	11.7	17.7	9.2	3.6	8.8
Brazil	28.9	45.8	18.9	6.9	39.6
Mexico	34.5	44.4	2.4	4.7	26.3
Venezuela	16.4	26.9	8.1	4.2	12.3
sum of 4 Latin Debtors	91.5	134.8	38.6	19.4	87.0
^{a)} Data for 1984.					
^{b)} Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cote d'Ivoire, Ecuador, Jamaica, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, and Yugoslavia.					

Source: Cline (1995), Tables 2.10–2.14.

The exposure of the domestic banking sectors in each of the crisis nations to the banking sectors in other crisis nations was also an important factor in the transmission of the crisis. Table 5 provides the size of claims ultimately tied to Greece, Ireland, Italy, Portugal and Spain, as well as to Germany (as a reference), which were held in 2008, prior to the crisis, by domestic

banks as percent of their total domestic bank equity. With the exception of Greece and Italy, the exposure of crisis countries to other crisis countries is very large, at least in hind-sight, and left the private sector in each nation vulnerable to a crisis in the others.⁵

To sum up, the private sectors in European nations lent substantially to each other in the period running up to the crisis, resulting in deeply interconnected private-sector balance sheets. This placed the banking systems in some of those nations in a vulnerable position with respect to a potential crisis in other European nations. As a result, a fiscal crisis in the public sector of a small nation like Greece had the potential to (and, of course, did) propagate quickly to other national economies within the European Union.

What are the ramifications of the concentration of exposure for institutional responses to it? In the Latin case, the fact that the most exposed lenders were mainly

⁵ Nonetheless, the risk assessment of this exposure might have been rather different at the time – please note that Germany's exposure is not too dissimilar from that of Ireland, Portugal and Spain. The available BIS data on foreign exposure only allows separating private and public sector claims held by Germany, Italy and Spain.

Table 4

External exposure of Germany, France, United Kingdom, Italy and Spain to crisis nations in 2010:Q4 (million EUR)

Exposure to:	Total	% Public ^{a)}
Greece	74,978	35.31
Ireland	225,530	4.07
Italy	480,008	26.01
Portugal	128,821	15.56
Spain	337,922	16.05

^{a)} This is the fraction of total exposure reported as exposure to a foreign public sector.

Source: Bank for International Settlements and European Central Bank Statistics (2013).

Table 5

Exposure of domestic banks in selected countries to Greece, Ireland, Italy, Portugal and Spain as % of domestic bank equity (average for 2008)

	% of Equity
Germany	234
Greece	3
Ireland	282
Italy	29
Portugal	155
Spain	53

Source: Bank for International Settlements (2013) and European Central Bank Consolidated Banking Statistics (2013).

US-based justified the intervention by the US financial authorities to protect the solvency of the US banks. In the European case, however, the potential for contagion works through the interdependence between private creditors that are located in different nations, all within the European sphere. In light of all the potential externalities running through balance sheet effects (among private banks and between private and public sectors), it therefore seems reasonable to look for a Europe-based supra-national solution.

Crisis resolution in Latin America: liquidity versus credit enhancement⁶

As the Latin crisis unfolded following Mexico's default in 1982, two US Treasury Secretaries presided over systematic efforts to solve the twin problems of stalled lending to borrowers and vulnerable balance sheets of creditors. The Baker Plan (1984–1988) first focused on injecting liquidity into the market in order to solve the twin problems. In contrast, the Brady Plan (1989–1992/4)⁷ would focus on restarting the market for existing loans to both generate new lending and resolve the bank balance sheet problems.

⁶ This section draws extensively from Gumbau-Brisa and Mann (2009).

⁷ Most of the Brady effort was concentrated between 1989 and 1992, but there were still deals being done as late as 1994.

In Europe, the initial policy response has also focused on providing liquidity to banks and/or sovereigns through the ECB's purchases of outstanding sovereign debt, through the direct injection of IMF funds, and through the European Financial Stability Facility (EFSF) lending programs.⁸ What can we learn from the fact that in Latin America, the Baker Plan (with its focus on liquidity) failed, but the Brady Plan (with its focus on credit enhancements) succeeded?

The Baker Plan: focused too much on liquidity

The Baker Plan viewed the situation in the borrowing countries as a liquidity problem exacerbated by their domestic economic policy mistakes. It exhorted banks to

resume lending abroad so long as countries had IMF and World Bank policy reform programs in place, and included targets for this foreign bank lending. However, the Baker Plan yielded little new money to borrowers. Banks did not lend the targeted amount, although they lent some two-thirds of the amount they were "asked" to (Cline 1995, 15). Indeed, outstanding credit of the largest US banks to developing countries fell from about USD 60 billion in 1984 to USD 45 billion in 1988 (FDIC 1997, 195). In addition, markets in syndicated debt, thin to begin with, did not revive under the Baker Plan, and prices of sovereign debt dropped in the secondary markets from some 70 cents/dollar in 1987 to 35 cents/dollar in 1989 (Cline 1995, 15).

Bank balance sheets improved, partly because official money from the IMF and the World Bank replaced the private loans in meeting the external financing needs of Baker plan participants (Cline 1995, Figure 5.1). By 1986, mid-way through the Baker strategy, a 50 percent write-down of the value of Latin debt would have eliminated two-thirds of the capital of the nine big banks rather than wiping out all of the capital, and then some

⁸ Although the EFSF also proposed to provide certain credit enhancement in the form of Partial Protection Certificates, as we will discuss below.

(Cline 1995, 6 and 77). After approximately ten years of the liquidity-focused Baker Plan, sovereign debtors remained insolvent, and their bank creditors were still exposed to losses.

The Brady Plan: solvency and marketability of debt assets

The Brady Plan (1989–1992/94) created a market in Latin debt by swapping illiquid opaque syndicated loans for a standardized marketable bond. Anticipating large risk premia resulting from both the borrowers' condition and the unproven nature of the new instrument, the new bonds were significantly enhanced through collateral, specifically, a zero-coupon US treasury security. Roughly, these new terms were either:⁹ (1) a 30-year bond with fully collateralized principal (a US zero-coupon treasury), *without* haircut, and a sub-market fixed interest rate; or (2) a 30-year bond with fully collateralized principal (a US zero-coupon treasury), after a 30–35 percent haircut of the original debt, but with interest rates tracking LIBOR closely.¹⁰ The Brady plan was not a “new money” plan: of the 18 deals between 1989 and 1994, amounting to USD 191 billion, only USD 3.62 billion in new money was added (Cline 1995, Table 5.3, 235).

In contrast to the Baker Plan, however, the Brady plan directly addressed the quality of existing debt (the ‘old money’), yielding both liquidity and lower financing costs for the sovereign going forward, as well as opening up the potential for a return to the private financial markets. The Brady Plan's key was to collateralize principal payments that would come due sufficiently far away from the (at that time) current financial turmoil. This, in turn, reduced the liquidity and default risk premia that had depressed the value of existing sovereign obligations. We have argued elsewhere (Gumbau-Brisa and Mann 2009) using duration analysis of the associated cash-flows that these guarantees on future principal payments were much more cost-effective in revitalizing the market for Latin American debt than any direct subsidization of new money.

Extending the lessons from the Brady plan to Europe

The distinction between crisis resolution based on new debt issuance versus a plan that addresses the quality and volume of the existing debt is arguably of greater salience in the European context than in the Latin American case. In the European case, the *existing* stock of domestic sovereign debt in the hands of the domestic banks has played a critical role in the onset, exacerbation, and systemic spread of the financial crisis, since much of the debt issued by the troubled sovereigns was held by domestic banks. As a result, applying credit enhancements to the existing stock of sovereign debt would limit the externality linking the solvency of the sovereign and the solvency of the domestic banks, which in turn would stem the cross-border contagion.

As discussed above, the application of some of the principles of the Brady plan to the European case suggests that a supra-national European institution should provide the highest-quality euro-denominated collateral to the crisis nations. Below, we propose an institution called the ‘Collateral Fund’. Such an institution would be financed with paid-in capital from all Eurozone nations and would be allowed to issue its own debt, as in the EFSF, now absorbed by the European Stability Mechanism (ESM). However, unlike the EFSF, the Collateral Fund would use that paid-in capital to purchase the highest-grade European sovereign assets to hold, and would manage that portfolio to retain its AAA-rating over time. This portfolio would then be available as a credit enhancement for European sovereign debt, either old or new. In essence, any sovereign default affecting debt collateralized by these asset portfolios would represent a default on the Collateral Fund, and not on the creditor of the European nation.¹¹

The credit enhancement provided by the Collateral Fund

The credit enhancement provided by the Brady plan consisted of collateralization of the troubled sovereign bond's principal through a zero-coupon 30-year US Treasury security, a highly marketable and liquid instrument with a long track record and the highest credit

⁹ There were additional options, particularly regarding the profile and interest rate on payments; but these two were the most salient in terms of analyzing the overall experience.

¹⁰ It is important to clarify that some authors (see Cline 1995) refer to the bonds of type (1) as “par bonds”, even although they would trade at a discount due to their low coupon, and “discount bonds” to those of type (2), which were designed to trade approximately at par value (the coupon rate was variable and close to market yields).

¹¹ There are several contrasts with credit-default swaps currently in the market. Firstly, the collateral pledged is against the highest duration principal payment, a bullet at the maturity of the troubled sovereign debt. Secondly, the counter-party to the CDS is the supra-national Collateral Fund, not a private-sector financial entity of unknown stability. Thirdly, the collateral is matched to specific sovereign debt, rather than being a naked derivative. Fourthly, this CDS contract is acquired by the issuer of the debt to protect its own creditors.

rating (at the time). In the current European context there is already a Brady-like strategy in place: the EFSF outlined the use of so-called Partial Protection Certificates (PPC) that would guarantee 20–30 percent of the principal of the associated bonds. Nonetheless, these PPCs would be issued by a bespoke Special Purpose Vehicle that would not be legally connected to the EFSF itself, and that would raise funding separately from the EFSF (European Financial Stability Facility 2011). As a result, we view the current institutional setup providing these PPC as being at a disadvantage relative to the hypothetical Collateral Fund.

The credit enhancement provided by the Collateral Fund would more closely resemble that provided by the Brady Plan. The Collateral Fund's credit enhancement of the troubled sovereigns' debt would consist of the principal payments associated with the portfolio of AAA-rated European sovereigns. Similar to the Brady plan, and a crucial aspect of the structure of the credit enhancement, the Collateral Fund's enhancement would focus exclusively on collateralizing the principal of the sovereign debt at its maturity on a one-to-one basis. As most of the duration of sovereign debt is concentrated at the cash flow scheduled at maturity, this type of credit enhancement has the largest impact on the current valuation of the loan that it backs, and at the lowest cost.¹² Moreover, any payments from the Collateral Fund to investors due to a default would only occur a long time after the current crisis, which importantly reduces the cost to the debtor, and the exposure of the Fund.

In contrast to the Brady plan, where the credit enhancement was purchased by the IMF and other entities on behalf of the sovereigns, the credit enhancement in the Collateral Fund would be allocated to the sovereigns through an internal market. In such a market, rights to pledge the AAA-rated collateral against sovereign debt would be purchased by the troubled sovereigns through a competitive bidding process. Sovereigns with the greatest gains from access to collateral (see specific gains discussed below) would be willing to pay a higher fee for access to the rights to collateral. To the extent that the equilibrium fee evolves over time and across debtors, it would reveal information to the market about the value of the collateral for the sovereign debt marketplace. The equilibrium fee would also provide information about the likely appropriate size of the Collateral Fund in order to handle a given transnational crisis.

¹² For an application of duration analysis to the study of the Brady Plan, see Gumbau-Brisa and Mann (2009).

Gains for the troubled sovereigns

A troubled sovereign's willingness to pay for the credit enhancement will depend on the gains received from using the collateral. These gains can be broken down as follows:

- a) The reduction in default risk premia on existing and new debt.
- b) The reduction in liquidity premia stemming from the lack of marketability of the current obligations as investors flee from default.
- c) The reduction in the exposure of the domestic banking system's capital to impaired public debt.

If the only gain to the troubled sovereign was (a) above, an efficient capital market would leave the sovereign indifferent between paying for the collateral and continuing with its uncollateralized obligations. However, the presence of liquidity premia associated with the halt in private trading and, most importantly, the externalities involved in the link between public and private domestic debt ensure that the gains to a troubled sovereign from obtaining the collateral exceed the private cost of funds to the Collateral Fund. In essence, the credit enhancement backstops the deterioration of the balance sheet of domestic financial institutions, and as a result benefits both creditors and debtors by disrupting the feedback loop between public and private domestic finances.

Value to the sponsoring sovereigns

The Collateral Fund would also present gains for the sponsoring sovereigns, some of which extend beyond their direct exposure to the crisis nations through macroeconomic and financial linkages. These gains can be broken down as follows:

- a) A reduction in the cost of debt for the AAA-rated sponsoring institutions coming from the increase in demand for their debt by the Collateral Fund.¹³
- b) A reduction in the negative externality coming from the interconnectedness of the private sectors across European countries, and from the links between the public finances in one country and the private sector in another. These negative externalities provide the main rationale for the creation of a supra-national Collateral Fund, and are a key source of the social gain of providing collateral for sovereign debt

¹³ This effectively would interact with any Large-Scale Asset Purchases implemented by the monetary authority.

that sits on the balance sheet of private financial institutions.

- c) A reduction in the risk of loss of paid-in capital of the Collateral Fund. In effect, the Collateral Fund would raise fees from the allocation of collateral to the troubled sovereigns, and would also accrue coupon payments and capital gains from all the AAA-rated collateral in its portfolio. These revenues to the Collateral Fund augment the Fund and would protect the paid-in capital members from additional future contributions.
- d) A reduction in the short-term probability of loss for the Fund. Since the long-dated ‘bullet’ credit enhancement provides loss protection only at the maturity of the instrument, any collateral loss for the Fund would only occur a long time after the current financial turmoil.

Concluding remarks

In the current European context, there are both economic and political tensions surrounding the approach to the resolution of the crisis. It is important that all parties to the resolution program can benefit from the solution. In our proposal, the Collateral Fund’s purchase of the highest-quality collateral would beneficially impact the borrowing costs of the non-crisis nations, by increasing the demand for their debt. The institution providing the guarantees would receive fee payments from the troubled sovereigns in exchange for the collateral, thus increasing the total equity of the Fund. As a result, such a source of internal funds would isolate Fund sponsors further from future defaults (and hence, loss of the pledged collateral), and would lower their potential future contributions to the Fund. The gains for the troubled sovereigns at whom the credit enhancement is targeted include lowered credit costs on new and old obligations, a revived market for their existing debt, and, particularly key, shielding the public sector from private financial distress (and vice-versa) during a crisis. Importantly, to the extent that impaired sovereign debt affects the balance sheet of private financial institutions *throughout* Europe, this last gain accrues not just to the sovereign buying the credit enhancement, but is in fact enjoyed Europe-wide.

That said, credit enhancements alone cannot address the solvency of the European sovereigns, and they did not do so for the Latin American nations either. Credit enhancements only paved the way for the structural reforms required to make the issuance of new debt

sustainable, both by lowering the cost of existing debt service, and by avoiding the direct subsidization of new debt that is implicit in lending programs that prioritize liquidity.

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CONTINGENT SOVEREIGN DEBT CONTRACTS: THE HISTORICAL PERSPECTIVE

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Introduction

Contingent sovereign debt is conceptually appealing. Economists have long argued that linking the obligation to pay to an indicator of ability to pay (such as GDP growth or export prices) could substantially reduce the risk of defaults, as well as smooth consumption (Kletzer, Newbery and Wright 1992; Borensztein and Mauro 2004; Borensztein et al. 2004). Actual examples of contingent bonds, however, are rare (Griffith-Jones and Sharma 2006). The handful of cases that exist are part of restructuring packages negotiated in the aftermath of defaults, such as the GDP-indexed bonds of Argentina and Greece.³ The lack of independently verifiable data is often cited as one of the main reasons for the scarcity of contingent debt. Governments compile all the relevant statistics about GDP growth, for example. The possibility of one-sided manipulation deters investors and makes it difficult to sustain a well-functioning market.

The age of jet travel, electronic trading and complex financial engineering has not solved these problems. Remarkably, the age of the galleon and messengers on horseback did. King Philip II, who ruled Spain between 1556 and 1598, was the first monarch to borrow from international markets on a modern scale – his debts reached approximately 60 percent of GDP (Drellichman and Voth 2010). Many of these loans were explicitly contingent on observable events; others featured options allowing either the king or the bankers to reschedule

disbursements and repayments at will, hence allowing the parties to modify cash flows in response to unforeseen circumstances. In this article, we describe the workings of the sixteenth-century Spanish system of sovereign debt, and consider why its state-contingent features have not been replicated since.

Borrowing in the Spanish Empire

Philip II of Spain was the first monarch on whose domains the sun truly never set. His territories spanned every known continent. In Europe he ruled over the Iberian Peninsula, the Low Countries, and Northern Italy. In 1580, after a brief war of succession, he acquired the crown of Portugal, as well as its merchant empire. Spanish settlers fanned out over the Americas, established themselves in the Philippines, and maintained a smattering of outposts in Northern Africa. Administering these vast territories and fighting wars to enlarge them or keep them safe caused large swings in the royal budget. Access to credit was hence crucial for the king.

Early modern states were run with a tiny bureaucracy – especially when compared to the vast administrative machinery employed today. It is particularly worth noting that they did not have a tax collection infrastructure. Most revenues were farmed out to either private entrepreneurs or to municipal corporations, who agreed to pay the king an annual lump sum in exchange for becoming the residual claimants to a revenue stream. This made the bulk of royal income very stable and predictable. Spain, however, had to deal with one significant exception: silver revenue, which in some years accounted for up to 25 percent of its national budget.

Silver was mined in the New World by private individuals. The Crown enforced a trading monopoly, requiring that all silver be shipped to Seville, where it was taxed at a rate of 20 percent. The amount of silver that reached Seville – and hence the royal coffers – fluctuated significantly. In some years hurricanes prevented the treasure fleets from sailing; and the bullion accumulated in Havana until the following season. At other times, epidemics among the labor force temporarily reduced

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³ While not classified as a default by rating agencies, Greece's "voluntary" restructuring with its creditors still implied a major capital reduction.

silver production. While the overall trend was strongly positive, the year over year fluctuations of this key component of royal revenue made financial smoothing services very valuable.

Sixteenth century Spain used two different borrowing instruments: tax-backed perpetuities, called *juros*, and short-term debt contracts with international banking houses, called *asientos*. Both had explicitly contingent features designed to share known risks. Remarkably, both the kings and his lenders showed great flexibility to keep the credit market operating when unforeseen events threatened the viability of one of the players. In other words, these lending contracts were implicitly contingent as well.

Contingent features of long-term debt

Juros were perpetual or lifetime bonds, giving the holder the right to collect a fixed annual sum, paid directly by the administrator of a specific tax. A key provision made *juros* contingent: if the proceeds of the revenue stream against which a bond was issued were insufficient to cover all the promised payments, the royal treasury was under no obligation to make up the shortfall. Which bonds were paid first was determined by a seniority structure clearly specified in the contracts themselves.

Juros insured the king against a sudden downturn in tax revenue. If one particular revenue stream dried up, the king effectively stopped paying interest on any debt issued against that stream. The arrangement also eliminated moral hazard. Tax farmers were residual claimants, so their incentive was to collect as much tax as possible. Bondholders collected interest directly from tax administrators, who had to fulfill all *juro* payments before claiming any leftover funds as their personal profit. The incentives of tax farmers and creditors were thus aligned, while the king played no role in determining how much was collected, or in reporting the performance of a revenue source.

The occasional shortfall of a tax stream resulted in bondholders not being paid. Because the eventuality was contracted upon, this was never considered a default. However, the king was amenable to absorbing some of the losses whenever a large, unanticipated shock affected many bondholders. A case in point arose after the Morisco rebellion of 1568, which destroyed the majority of silk production in the Granada region.

The industry would not recover for decades, and *juros* written on silk taxes consequently lost much of their value. Within a few months, however, the king agreed to swap depreciated silk *juros* for others of equivalent face value, backed by healthy revenue sources.⁴ How should one interpret this apparent display royal munificence? Lending was a repeated game, in which the parties tried to contract over foreseeable circumstances in a way that shared risks and priced them accordingly. Unforeseeable, large shocks such as the Morisco rebellion could not possibly be contracted upon ex-ante – the market was incomplete. The renegotiation shifted some of the risk ex-post to the king, keeping lenders in business and ensuring the continued viability of the market.

Contingent clauses in short-term loans

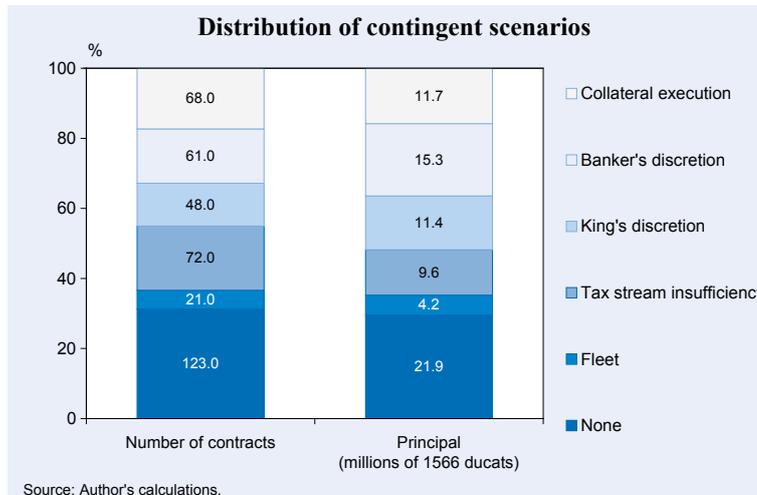
Spanish *juros* were a very successful debt instrument. They were regarded as eminently safe, and were widely held in investor's portfolios across Europe. They were among the cheapest forms of sovereign debt for the time, averaging a yield of just over seven percent (Toboso Sánchez 1987; Homer and Sylla 2005; Stasavage 2011). This success, however, owed much to the fact that *juros* were only issued against stable, farmed-out revenues. In order to leverage the enormous, but volatile riches that arrived on the treasure fleets, the Crown had to turn to short-term loans – the famous *asientos*.

Asientos were mostly contracted with international banking houses. During Philip II's reign, Genoese lenders dominated the market; while German, Spanish, and Portuguese underwriters also featured prominently. *Asientos* had an average duration of 22 months. The average principal was 200,000 ducats, with several contracts exceeding one million ducats. These were large sums; royal revenue hovered around 6 million ducats per year. *Asientos* were also significantly more expensive than *juros*; their average cost to the Crown was 23 percent (Drelichman and Voth 2011a).

As of 1566, Genoese lenders introduced the use of collateral and contingent clauses into *asiento* contracts. In the course of our six-year long project on the debts of Philip II, we transcribed and coded every clause in each of the 438 contracts subscribed between 1566 and 1600. Over two thirds of the loans contain one or more contingent clauses. If activated, they modified

⁴ The agreement is detailed in a contract between the king and Jerónimo de Salamanca, Lucas Justiniano, and Bautista Spinola dated May 19, 1569. Archivo General de Simancas, Contadurías Generales, Legajo 85.

Figure 1



cash flows, maturities, and interest rates. We classify these scenarios into five broad categories, according to the event that triggered the deviation from the baseline payment schedule. The first two are associated with exogenous events: the timing of the arrival of the fleets, and the performance of specific tax streams. Two more are actually options. Sometimes the king is granted the ability to unilaterally reschedule payments within specified parameters (a scenario we call “king’s discretion”), while in others the banker is allowed to request an early payment, usually in the form of juros (we call this “banker’s discretion”). Finally, a fifth type of contingency specifies under which conditions the lenders can seize the posted collateral, and in what amounts. Figure 1 shows the distribution of contingent scenarios, by number of contracts and by principal affected.

About one third of the contingent scenarios were triggered by insufficient revenue – either by a fleet not arriving, or by a tax stream failing to perform as expected. Over 40 percent leave it at the bankers’ or the king’s discretion to change the nature of the payments, and the rest refer to collateral execution scenarios.

Contingent debt as insurance

Contingent sovereign debt contracting serves to provide insurance to both the king and his bankers. This was accomplished by spreading known risks in a mutually agreed fashion, and by providing flexible tools to deal with unforeseen circumstances. Table 1 shows the effect of each type of contingent scenario on the rate of return and the maturity of short-term loans.

Column (1) shows the average cost the king had to pay to enter into a contract containing a specific type of contingency relative to a non-contingent loan. Column (2) reports the additional cost incurred if the contingency was actually invoked, and column (3) shows the average increase in maturity associated with each type of scenario. Writing a contingency on the arrival of the fleet implied a four percentage points increase in the rate of return of a contract, (although the difference was not statistically significant). Actually executing the contingency was not

very expensive, and the average maturity increase was 2.6 months. The lack of significance is not surprising; while the exact timing of an arrival could vary, whether the fleet would arrive at all was never in much doubt. Treasure ships were heavily escorted, and losses to piracy or to the elements were minimal. There was little to insure beyond a variation of a few months in the time of payment, and the costs of doing so were accordingly small.⁵

Tax stream insufficiencies were different. When a particular revenue stream failed to perform, this was invariably bad news for the king. Shortfalls one year were unlikely to be recovered the next. Writing and executing tax-related contingencies results in a combined reduction of 3.3 percentage points in the interest rate on average, as well as in a maturity extension of 4.6 months. Bankers effectively provided insurance in case of a fiscal shortfall. Revenues backing asiento payments were largely farmed out, as were those backing juros. The performance of each tax stream was therefore independently verifiable, and moral hazard was not a problem.

If the king wished to include an option to unilaterally reschedule payments in a contract, he had to pay an additional 4.3 percentage points. Actually exercising the option resulted in a further 4.1 percentage points charge. This scenario is the converse of the previous one. The king does not have a verifiable reason for deferring payment, and hence the lenders cannot rule out moral

⁵ The worst that could happen to a fleet was to be delayed for a whole year. Such cases did not constitute contemplated fleet contingencies, but were dealt with via banker discretion or collateral execution scenarios instead.

Table 1

Interest rate and maturity differentials by contingency type				
Contingency type	Frequency	Return differentials		Maturity differential (in months)
		(1) baseline minus non contingent average*	(2) contingency minus baseline*	(3) contingency minus baseline*
Fleet	26	4.1% (0.72)	0.4% (0.75)	2.6 (0.00)
Tax stream insufficiency	100	-1.6% (0.10)	-1.7% (0.06)	4.6 (0.00)
King's discretion	63	4.3% (0.03)	4.1% (0.06)	1.6 (0.30)
Banker's discretion	102	1.6% (0.08)	1.5% (0.04)	-0.2 (0.84)
Collateral execution	118	-2.1% (0.03)	-2.3% (0.01)	2.1 (0.00)
Total / Average	408	0.0%	-0.1%	2.1
P-values in parentheses.				
* Coefficient from a regression of rate of return on contingency type dummy, use of foreign exchange clauses, duration, and loan size. Standard errors are clustered at the contract level and are shown in parentheses.				
Source: The authors.				

hazard. The result is a risk premium being assessed. That over 60 contracts were written with such clauses reflects the high value that the king placed on the ability to reshuffle payments ex-post without violating the letter of the agreement.

Banker discretion options allowed bankers to request that outstanding repayments be made ahead of time in the form of *juros*. In view of the earlier termination of the contract, our estimate of the interest rate increases when this option is exercised. However, since *juros* were illiquid and transferring them required costly permissions, there was probably no net profit from such an operation. The main advantage of these clauses was to give bankers an immediate “out” if they perceived that the king was likely to default on a contract in the near future.

The final category specifies under which circumstances bankers could seize the collateral posted on a contract. Collateralized contracts were two percentage points cheaper than uncollateralized ones, reflecting the additional security provided. The clauses often imposed a waiting period after a missed payment before allowing for the collateral to be seized, leading to an average maturity extension of two months. This wait resulted in a profitability reduction of 2.3 percentage points.

Defaults

Philip II's fame in the annals of finance does not come from his use of complex borrowing instruments; on the contrary, he is known as the first serial defaulter in history (Reinhart and Rogoff 2009). The king suspended payments on his short-term debt four times, in 1557, 1560, 1575, and 1596 (*juros* were never defaulted upon). We have elsewhere shown that the long-term fiscal position of the king was sustainable, and that defaults stemmed from acute liquidity crises that were resolved very quickly by modern-day standards (Drelichman and Voth 2010). We have also documented that defaults were not opportunistic, as lenders operated a tightly-knit network that could exclude the king from financial markets and keep him honest (Drelichman and Voth 2011b). After each suspension, a negotiated settlement was reached with creditors. Haircuts were moderate, and lending resumed promptly. One question, however, remains: if overall borrowing was sustainable, defaults were not opportunistic, and contingent contracts allowed for risk sharing, what explains the king's defaults?

Our explanation follows the literature that views defaults as equilibrium outcomes in the presence of incomplete markets (Kovrijnykh and Szentes 2007; Arellano 2008). Essentially, it is not possible to contract over every potential state of the world. Some eventualities, like the Morisco rebellion destroying the silk industry, could not be foreseen. Others, like disastrous military defeats,

were politically impossible to contract over. When a scenario that had not been contracted upon arose, a default was likely. As long as the events that precipitated defaults were outside the control of the king and exogenously verifiable by the bankers, the defaults could be considered “excusable” (Grossman and Van Huyck 1988). Indeed, we find that both suspensions covered by our dataset fit this pattern. In 1575, three years of low silver revenues coincided with the outbreak of hostilities on two fronts – the Mediterranean and the Low Countries. In 1596, renewed attacks from the French and the British forced a large increase in spending, leading to another default. In both cases, lenders could easily verify the absence of silver fleets or the foreign attacks.

Conclusion

Some economists have argued that defaults “complete” markets – by sharing the burden of a negative shock between borrower and lender. While payments stops achieve this aim, they are also typically associated with massive slumps, imploding banking systems, and collapsing foreign trade. Is there really no better way to allow risk-sharing in sovereign debt markets?

We argue that Philip II of Spain and his Genoese bankers developed a system that dealt with adverse shocks much more effectively than modern-day debt markets. This system avoided the pain of pro-cyclical adjustment, while mobilizing huge resources. It did so in a particular way: while rating agencies today consider a single missed payment as a default, early modern finance operated under a much more elastic definition. Strict adherence to the letter of a non-contingent contract or outright repudiation was not the only possible outcome; in fact, both instances were rare. Typically, contracts included a variety of contingencies designed to adjust the obligations of borrowers and lenders in different states of the world. If an unforeseen shock threatened the liquidity of one of the parties, the other often showed flexibility in rescheduling its payments. The king swapped the worthless juros of the lenders affected by the Morisco rebellion; Genoese bankers accepted haircuts after unusual military or fiscal events. In both cases, the value of continuing the relationship was greater than the short-term gains of intransigency. Thus, explicitly and implicitly, contingent debt allowed for risk sharing and consumption smoothing in an uncertain environment.

Why can't such a system be replicated today? Philip II's system cannot simply be copied – no galleons with

silver provide modern European states with anxiously awaited windfalls, however fervently finance ministers would wish it were otherwise. No tightly knit group of Genoese lenders controls overall access to borrowing markets. And yet, it seems odd that so little experimentation has gone into better risk-sharing arrangements: oil importers could issue debt with coupons varying inversely with oil prices; automatic maturity extensions could be written into sovereign bond covenants in case risk premia hit a certain pre-defined level, reducing the risk of roll-over crises. We are not proposing any particular solution; we are simply pointing out that it seems strange that, for all of the financial sophistication of today's markets, sixteenth-century financiers should have come up with more creative ways to make borrowing safe and effective than today's market players.

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GROWTH-LINKED BONDS

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Introduction

There is growing recognition of the need for more stable capital flows to help moderate the boom-bust patterns of capital flows that are so disruptive for the real economy and can cause such costly financial crises. Indeed, the major European debt crisis has, to a great extent, been preceded by very large capital flows, showing that this is not just a major concern for developing and emerging economies, but also for their developed counterparts. It is, in fact, surprising how little emphasis has been placed on the role that capital flows, mainly within Europe, have played in causing the Eurozone debt crisis. More generally, a major challenge for both developed and developing countries is to ensure that both national and international financial systems are more stable. It is therefore very important to develop instruments that can in concrete terms diminish this boom-bust pattern. Growth-linked bonds are an excellent example of such a market-based instrument.

Context for growth-linked bonds

The global financial crisis focused attention on instruments that would allow countries to minimize the risks associated with increasing capital flows. The idea of a growth-linked instrument is not new. A first wave of interest in indexing debt to GDP (Gross Domestic Product) emerged in the 1980s and received fresh impetus after frequent debt and currency crises in many developing countries. The idea was supported by economists such as John Williamson (2005), Robert Shiller (1993; 2005), Eduardo Borenstein and Paolo Mauro (2004) at the

IMF, as well as at the US Council of Economic Advisers (CEA 2004). At the United Nations, one of the authors of this paper coauthored a study (Griffith-Jones and Sharma 2009).

It would be ideal for governments to issue growth-linked securities in a precautionary manner when their macroeconomic fundamentals are strong and investors are keen to invest in their bonds. At such a moment any novelty premium of the new instrument would be relatively low. The problem is that in good times, governments have less incentive to issue such bonds, as they see downturns or crises as unlikely, especially during their mandate. GDP-indexed debt has to date only been issued to a limited extent and mainly by countries that were having difficulties in servicing their debts. However, the global financial crisis, as well as so many preceding ones, made the case for these bonds far stronger.

The advantages of GDP-indexed bonds

GDP-indexed bonds offer two major benefits to borrowers: firstly, they stabilize government spending and limit the pro-cyclicality of fiscal pressures by requiring smaller interest payments at times of slower or negative growth, providing space for higher spending or lower taxes. On the other hand, when the economy is growing more, debt service goes up, encouraging governments to spend less or tax more in “good times”, thus discouraging overheating.

Secondly, by allowing debt-service ratios to fall in times of slow or negative growth, GDP-indexed bonds reduce the likelihood of defaults and debt crises which are so costly, both in terms of lost economic growth, investment and employment, as well as in financial terms (massive bail-outs, both domestically and internationally).

Investors would probably stand to benefit from the introduction of GDP-indexed bonds in two main ways. Firstly, the bonds would provide an opportunity for investors to take a position on countries’ future growth prospects, offering them equity-like exposure to a country or a number of countries and thus providing a diversification opportunity. If GDP-linked bonds were



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to become widespread across countries, investors could take a position on growth worldwide – the ultimate risk diversification.

The second main benefit for investors from GDP-indexed bonds would be a lower frequency of defaults and financial crises, which often result in costly renegotiation, and sometimes in outright large losses.

On an international scale, GDP-indexed bonds can be viewed as desirable vehicles for international risk-sharing and as a way of avoiding the disruptions arising from formal default. They can be said to have the characteristics of a public good in that they generate systemic benefits over and above those accruing to individual investors and countries. By reducing the likelihood of defaults, these instruments would benefit a broader range of investors than those directly affected, as well as the economies and multilateral institutions that may have to finance bail-out packages.

Variations on growth-linked securities

Robert Shiller (1993) proposed what will be referred to as a “Shiller security” as one of several new instruments intended to offer investors a broader range of investment possibilities. This security would represent a permanent fraction of the issuer country’s nominal GDP. It could pay, for example, one-trillionth of a nation’s nominal GDP, leading Shiller to propose the name “trill” for this security (Kamstra and Shiller 2009).

A second variant was suggested by Eduardo Borensztein and Paul Mauro (2004). A “Borensztein/Mauro security” would be very similar to a standard bond, but would pay an interest rate that would vary proportionately with the issuer country’s real growth rate. This bond would pay, for example, one percent of additional interest for each one percent of growth above expectations, and one percent less interest for each one percent of growth below expectations.

A third variant was suggested by Daniel Schydrowsky at a meeting at the United Nations in 2005 convened by one of the authors of this article, Stephany Griffith-Jones. This security would make payments just as the Borensztein/Mauro security, but the difference between this proposed payment and the payment that would occur under a conventional bond would be added or subtracted from the principal, and therefore from the country’s debt.

The different design and structure of growth-linked bonds have distinct practical implications for their servicing. Firstly, the Shiller security is the only security that indexes for inflation. Secondly, changes in real growth rate have varying effects on the payments of the different securities. An increase in the real growth rate has no effect on the payment of the Shiller security in the short run, but the value of the security increases in the long run, implying higher servicing payments. On the other hand, a higher growth rate implies higher servicing of the Borensztein/Mauro security in the short run, but the value of the principal would be unaffected. Under the Schydrowsky variant, interest payments would increase in the short run, but the country’s debt would be decreased in the long run. The Borensztein/Mauro security would be the most effective in providing fiscal stabilization benefits and in reducing the risk of debt default.

Possible problems

One potential problem is moral hazard. It has been argued that, by increasing debt repayments in case GDP growth is higher than normal, such bonds might reduce debtors’ incentives to grow. This concern is exaggerated, however, as it does not make political sense for governments to ever want to limit or underreport growth. Moreover, it would be difficult to substantially underreport growth for extended periods of time.

Revisions of GDP data, especially those resulting from modifications of the structure of national income estimates reflecting the changing structure of the economy, may, however, cause concerns. A rigorous analysis of historical GDP revisions published in the IMF International Financial Statistics Yearbooks of 1983 until 2006 for some 66 countries (conducted by John Williamson and Dagmar Hertova, in Williamson 2008) found that the vast majority of GDP revisions were small adjustments. However, the analysis showed 41 apparent non-routine adjustments to real GDP in 38 countries (out of 740 observations) between 1981 and 2000 (the years with adequate data).

The problem of such GDP revisions could be addressed by either specifying a consistent formula for measuring GDP in the contract of the bonds, by adding the excess GDP to the old formula, or by simply allowing payments to reflect the impact of any revisions (Williamson 2008).

Experience with growth-linked securities has highlighted the fear that their counter-cyclical element may be

limited by lags in publication of GDP data. In the case of both the Argentine and Greek warrants discussed below, payment in a given year is based on the growth reported in the previous year. The fear is that this lag in payment may imply a pro-cyclical effect rather than the intended counter-cyclical effect. Indeed, research suggests that were half of sovereign debt of Colombia and Malaysia to have been swapped for Borensztein/Mauro-type securities, such bonds would have had substantial countercyclical benefits for the issuing countries were growth rates measured semi-annually and payments lagged six months after the reporting period, but not if paid after one year (Hertova 2006).

Recent experiences

Argentine GDP-linked securities

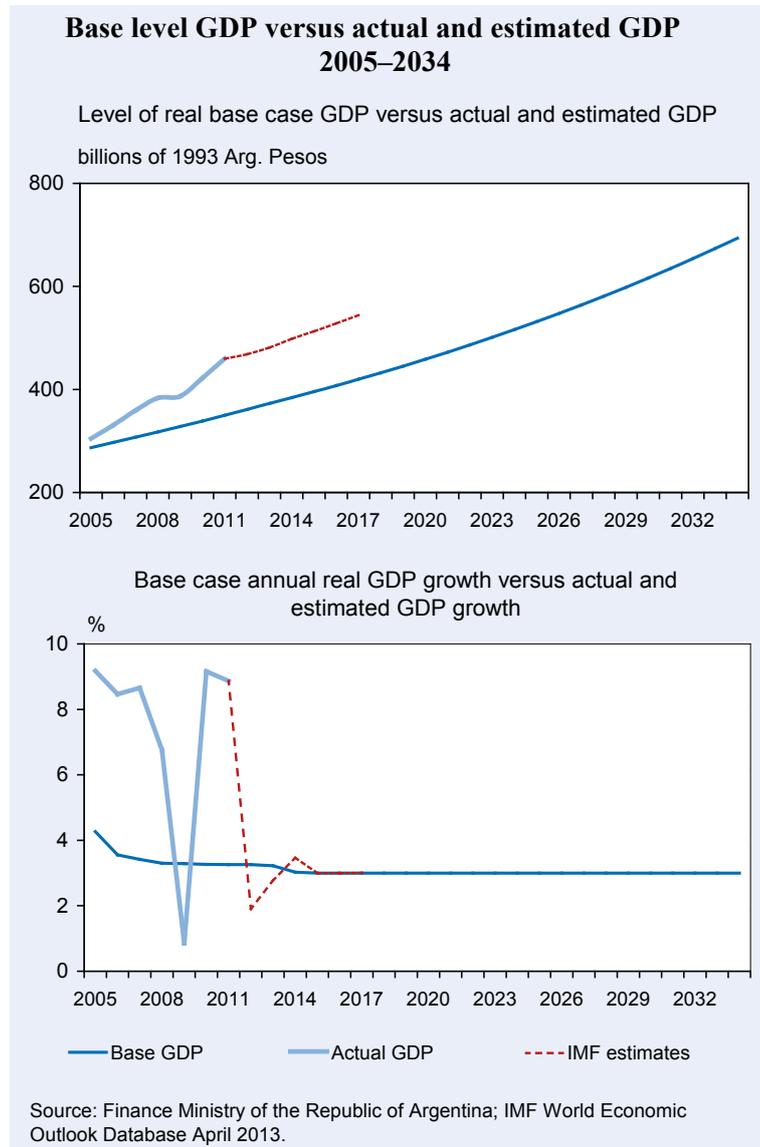
GDP-linked securities (warrants) worth 62 billion US dollars were included in the Argentine debt restructuring package in 2005 that aimed to exchange USD 82 billion in bonds on which the country had defaulted. More GDP-linked securities were issued as part of the 2010 restructuring for creditors who rejected the 2005 offering.

Initially, the GDP-linked warrants were viewed by Argentina’s creditors, as well as by the financial markets, as having very little value (Griffith-Jones and Sharma 2009), so they represented little gain for the country. However, thanks to the country’s booming growth in the following years, the warrants substantially outperformed expectations and their prices soared.

Payments are made to the holders of the Argentine GDP-linked warrants on December 15 of each year, starting in 2006, under the following conditions:³

³ Republic of Argentina, Prospectus Supplement (to Prospectus dated December 27, 2004), January 10, 2005. www.mecon.gov.ar/finanzas/sfinan/english/download/us_prospectus_and_prospectus_supplement.pdf (accessed July 28, 2012).

Figure 1



Source: Finance Ministry of the Republic of Argentina; IMF World Economic Outlook Database April 2013.

- Real GDP exceeds base-case GDP.
- Real annual GDP growth exceeds base-case GDP growth. The threshold for real GDP growth starts at 4.26 percent for 2005, gradually falling to three percent for 2015 and onward.
- Total payments on the warrants do not exceed the payment cap, which has been set at 0.48 per unit of currency of the warrants. The warrants will expire no later than 2035, but if the payment cap has been reached prior to this date, the warrant will expire at that point.

When the above conditions are met, the government will make a payment as follows:

$$\text{Payment} = ((0.05 * \text{excess GDP}) * \text{unit of currency coefficient} * \text{notional value of GDP-linked securities}),$$

where *excess GDP* is the amount by which actual GDP exceeds the base-case GDP. Given a lag in publishing GDP data, the payment based on the GDP performance in a given year is paid at the end of the following year.

An important feature of the warrants is that the payment is not in itself based on GDP growth, but rather on the level of GDP. Since Argentina grew rapidly in the years following the debt exchange (Figure 1), the base GDP level was exceeded early, resulting in high payments on the warrants. High early growth also means that the level of GDP is more likely to stay above the base level, increasing the chance of future payments and their amount, thus raising the value of the warrant.

As a result, payments on the warrants have proved very costly for Argentina, rising from a total of USD 395 million in 2006 to USD 3.5 billion at the end of 2012 (Table 1). The government did not make any payment in 2010, as growth in the previous year was below the threshold. However, the missed payment in 2010 was effectively made up for in 2011.

It is clear that the GDP-linked securities are starting to be a burden for the Argentine government and economy. The payments represented 0.74 percent of Argentine GDP and 4.5 percent of exports in 2012, compared to just 0.19 percent and 0.85 percent in 2006, respectively. By 2012, the payments represented more than 30 percent of the total servicing of interest on public sector debt (Table 1). Overall, Argentina had paid out almost

USD 10 billion on the warrants as of end-2012. Given that the total cap on payments has been set at 48 percent of the value of the securities, Argentina has already paid around a third of its total GDP warrants payments within the first seven years.

In 2012, the economy grew by just 1.9 percent, which is below the 3.26 percent threshold, thus saving the country some USD four billion in payments on the warrants. Given current GDP projections, payments for the warrants in 2014 and 2015 would not happen. Growth would need to be above roughly three percent to trigger the payments (Figure 1).

Greek GDP-linked securities

In February 2012, Greece issued GDP-linked securities as part of its large scale debt reduction and restructuring as well as new money package from the European Union and the IMF. In total, EUR 172 billion of Greek private debt was swapped in the deal, and participating holders received detachable GDP-linked securities.⁴

The securities will provide an annual payment on October 15 of every year starting in 2015 until 2042 under the following conditions (Morgan Stanley 2012):

- Nominal GDP equals or exceeds the reference nominal GDP.
- Real GDP growth is positive and in excess of specified targets. Based on the set levels of reference for GDP levels, the threshold for real GDP growth starts at

⁴ Ministry of Finance of Greece. PSI Launch Press Release, February 21, 2012. www.minfin.gr/portal/en/resource/contentObject/id/7ad6442f-1777-4d02-80fb-91191c606664 (accessed July 28, 2012).

Table 1

Total GDP-linked securities payments, Argentina

	2005	2006	2007	2008	2009	2010	2011	2012
Payment on GDP-linked warrants								
USD billions	..	0.395	0.812	0.996	1.416	0	2.481	3.536
As % of total servicing of interest on public sector debt	..	10.5	15.6	24.8	22.1	0	30	34.2
As % of GDP	..	0.19	0.31	0.31	0.46	0.00	0.56	0.74
As % of exports	..	0.85	1.45	1.42	2.54	0.00	2.96	4.50
GDP growth (%)	9.18	8.47	8.65	6.76	0.85	9.16	8.87	1.90
Fiscal balance (% of GDP)	-1.69	-0.97	-2.11	-0.85	-3.61	-1.36	-3.47	-4.31
Primary fiscal balance (% of GDP)	4.53	4.11	2.45	2.72	0.21	1.59	-0.47	-0.94

Source: Authors' calculations using data from Ministry of Finance of the Republic of Argentina, Instituto Nacional de Estadística y Censos (INDEC), Central Bank of Argentina and IMF *World Economic Outlook* (WEO) Database April 2013 Database.

2.9 percent for 2015, and falls to two percent from 2021.

- Each annual payment will not exceed one percent of the notional value of the bonds.

If the above conditions are met, the government will make a payment as follows:

*Payment = (1.5 * (real GDP growth rate – reference real GDP growth rate)) * notional value of the GDP-linked securities.*

As in the case of Argentina, payment based on growth in a given year will be made the following year.

Differences between Argentine and Greek GDP-linked securities

Structural differences between the Greek and Argentine warrants imply differences in the payout. While the annual payment cap of one percent of the value of the Greek warrants limits that country's obligations (a very positive feature, given the country's huge debt overhang), it may not be so attractive to investors. On the other hand, the Argentine analysis has shown that while the GDP-linked warrants have been a very attractive investment, they have recently become a large burden for the government. In addition, the payments on Argentine warrants were made in the early stages of the warrants' maturity and any payment missed in any given year due to slow growth would be made up further out in the stream of payments. Any missed payment in the case of the Greek warrants, on the other hand, would be "lost" to the investors and creditors as it would be based on real growth in the preceding year, as well as "gained" for the country (Barclays Capital 2012). This difference has important implications for both creditors and debtors.

Given Greece's bleak economic situation and weak future prospects, will the Greek GDP-linked securities lead to significant payments? This remains to be seen. At the moment markets and investors are attaching little value to the Greek warrants and do not expect them to be as valuable as the Argentine warrants (Barclays Capital 2012; Whittall 2012). The Greek warrants seem to have been better designed from the debtor country's perspective. Unfortunately, growth prospects in the short term look weak for Greece, so large payments seem unlikely in the near future. On the other hand, because Greece has seen such a large decline in GDP, it may see a rebound of growth, which could generate

warrant payments that may not be desirable at a time of fragile and highly needed recovery.

Conclusions and policy suggestions

As we have argued, it would be most desirable for countries to issue GDP-linked securities in normal times. Issuing GDP-linked warrants as part of a debt restructuring process, as Argentina and Greece have done, can be costly from the debtor perspective and may not attract much attention from investors and creditors at the time of the restructuring, who tend to undervalue the future benefits of those warrants.

If the advantages of issuing GDP-indexed bonds in normal times can be significant, as suggested above, why have financial markets not yet adopted them? A key point is that the system-wide benefits provided by these instruments are greater than those realized by individual investors. Hence, there are externalities that do not enter the considerations of individual financial institutions or even countries. Other factors that discourage beneficial financial innovation include the fact that the markets for new instruments may be illiquid. A concerted effort is therefore needed to achieve and ensure a critical mass so as to attain market liquidity. Related to this are coordination problems, whereby a large number of countries have to issue a new instrument in order for investors to be able to diversify risk.

There is consequently a clear case for involving multilateral institutions. Concretely, multilateral or regional development banks could play an active role as "market makers" for GDP-linked bonds. They could begin by developing a portfolio of loans, the repayments on which could be indexed to the growth rate of the debtor country. Once the institutions have a portfolio of such loans to different developing countries, they could securitize and sell them on the international capital markets. Such a portfolio of loans could be particularly attractive for private investors, as it would offer them the opportunity to take a position on the growth prospects of a number of economies simultaneously. As correlations among growth rates tend to be lower at the global level, the World Bank may be best placed to perform such securitization. However, regional development banks, such as the European Investment Bank, which lends to both developed and developing countries, could play a role. Alternatively, the multilateral development banks could buy GDP-linked bonds that developing countries would issue via private placements.

It is important that the design of these growth-linked securities would be simple, well thought through, and, ideally, standardized. Again, public international institutions could play an important role.

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WHY DOES INCOME REDISTRIBUTION DIFFER BETWEEN COUNTRIES? COMPARATIVE EVIDENCE FROM GERMANY AND SWITZERLAND

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Introduction

There is wide agreement among economists that the redistribution of income has become the core activity of politicians. Why is it, then, that the amount of income redistribution differs so widely between industrial countries, with social benefits at 12 percent of GDP in the United States and Switzerland on the one hand, but almost 25 percent of GDP in Germany on the other (Table 1)? Interpreting these figures as reflecting national equilibria, one is led to examine determinants of the demand for and supply of the service ‘income redistribution’. Indeed, these determinants are found to differ between countries. While there is a good deal of empirical evidence with respect to the supply side, the determinants of ‘pure’ demand for redistribution are seldom identified. Experimental evidence from Germany and Switzerland represents a first step in filling this gap.

Amount and structure of income redistribution

Table 1 reports some indicators reflecting the amount of income redistribution and its structure in several OECD countries. The choice of countries can be justified in the following way. Much of the research focuses on the United States; Austria and France are neighbors of Germany and Switzerland, the two countries where experimental evidence on citizens’ preferences regarding

income redistribution is available (see section ‘Pure’ demand for income redistribution below); Sweden has the reputation of being the welfare state *par excellence*, while the UK serves as the ‘European representative’ of the United States. The data refer to 2011 for government expenditure and to 2006 for social expenditure, respectively; while they exhibit some change over time, the rankings between countries are reasonably stable.

Firstly, the higher the level of government expenditure as a share of GDP, the greater the scope for income redistribution. With regard to this overall indicator, column (1) of Table 1 already shows sizable differences. The United States and Switzerland are at the low end with some 37 and 34 percent of GDP respectively, while the high end is occupied by Sweden (65 percent), Germany (55 percent), and France (54 percent). Secondly, subsidies are an additional component of government expenditure that is designed to redistribute income (column 2). Here, Germany with its low figure of one percent sides with the UK (0.6 percent), while Switzerland with its 3.3 percent almost joins Sweden (four percent), due to its generosity towards farmers. Another component of government expenditure related to income redistribution is social benefits (column 3). Here, the United States and Switzerland are again in the same camp, with low GDP shares of 15 and 12 percent, respectively, which are almost half of the levels in Germany and France.

Columns (4) to (6) of Table 1 report public social expenditure, which is more comprehensive than subsidies and social benefits. Accordingly, their total GDP share is higher, falling slightly short of 20 percent in the United States, compared to 32 percent in France and 26 percent in Germany. Yet Germany’s neighbor, Switzerland, with its 20 percent definitely resembles the United States. Old age provision (column 5) is the main component of social expenditure (with the exception of the United States, where it is health). Here Germany’s public social expenditure as a share of GDP reaches nine percent, and is similar to that of Sweden, while the Swiss figure (six percent) is again close to that of the United States. However, old age provision does not necessarily redistribute lifetime incomes, but mainly revolves around a reallocation of income over the life cycle. By way of



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Table 1

Government expenditure, social expenditure, and its financing, as a percent of GDP								
Country	Total Gov't Exp. (2011)	Subsidies (2011)	Social Benefits (2011)	Total Social Exp. (2011)	Old Age (2006)	Incapacity (2006)	Indir. Taxes (2006)	Social Security Contrib. (2006)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US	37.1	1.9 ^{a)}	15.2	19.7	6.1	1.5	7.3	7.0
Austria	50.5	3.4	24.5	27.9	12.0	2.5	14.0	16.0
France	54.4	1.5	25.6	32.1	12.3	2.0	15.4	18.3
Sweden	64.9	4.0	17.9	27.6	10.2	5.0	17.1	13.2
UK	43.5	0.6	14.6	23.9	6.7	2.9	12.8	8.4
Germany	54.8	1.0	24.4	26.2	9.1	2.3	12.1	17.3
Switzerland	33.8	3.3	11.6	20.2	6.7	3.3	7.2	7.1

^{a)} 2010

Sources: US Department of Commerce, Bureau of Economic Analysis (2013); OECD (2013a), OECD (2013b); OECD (2007).

contrast, incapacity benefits have a much more redistributive characteristic. With 2.3 and 3.3 percent of GDP devoted to such reallocation, Germany and Switzerland are not too far apart on this account, at least when compared to Sweden (five percent).

However, a structure of public expenditure that looks very redistributive may be neutralized by a mode of financing that heavily relies on indirect taxation rather than contributions to social security (which are usually tied to income). As becomes evident from column 7 of Table 1, industrial countries also differ widely with regard to the financing of public and social expenditure. As for indirect taxation, the United States are joined by Switzerland with just over seven percent of GDP – clearly lower than Germany (12 percent). With regard to social security contributions (column 8), the United States and Swiss figures are again lowest with about seven percent, while Germany is a world apart with its 17.3 percent, matched only by France (18.3 percent).

While no single indicator constitutes a precise measure of income redistribution, the entries of Table 1 do point to substantial differences between industrial countries (even seemingly similar ones such as Germany and Switzerland), which call for an explanation. Government expenditure in Germany is oriented much more strongly towards income redistribution than either in the United States or Switzerland. This conclusion needs not be corrected in view of its financing since the ratio of indirect taxes to social security contributions is roughly 1:1 across most countries in the sample.

Explaining the amount of income redistribution

Repeatedly, the finding has been that the United States and Switzerland are at one end of the spectrum, whereas France and Germany are close to the other end. This gives rise to the question of how this divergence can be explained. After all, France, Germany, and Switzerland are neighbors, separated from the United States by an ocean.

As usual in economics, an observed quantity (here: the amount of income redistribution) is interpreted as reflecting an equilibrium, i.e., the outcome of an interaction between supply and demand. Most of the existing literature has focused on the demand side; this literature will be surveyed first before turning to the supply side and the identification issue.³ So-called behavioral determinants (such as altruism, which varies with the homogeneity of the population and immigration, left- or right-wing orientation, and religiosity) are not considered here.

Demand-side explanations

The seminal theoretical contribution is by Meltzer and Richard (1981), who relate an individual's demand for income redistribution to his or her position in income distribution. Those with below-average income would have the government redistribute because they pay little income tax to finance such a measure and stand to receive much of the benefit. Their model predicts that the more marked the skewness of the income distribution, and

³ For an explorative study considering the full range of determinants, see Neustadt, Zweifel, and Akkoyunlu (2010).

hence the further the median voter is below the average in terms of his or her income, the more marked the demand for income distribution. However, for all its popularity, this model has received limited empirical support (Barenboim and Karabarbounis 2011). According to the model, Switzerland, with its Gini coefficient of 0.296 as of 2005 (CIA 2013), should have a much smaller share of its GDP devoted to government and social expenditure than the United States, whose Gini is a high 0.450 (as of 2007). However, as is evident in Table 1, the two countries do not differ in terms of their GDP share devoted to public expenditure or social expenditure. Similarly, Germany has a lower Gini coefficient of 0.270 (2006), but higher GDP shares than Switzerland.

The Meltzer-Richard model has been extended by Bénabou and Ok (2001), who emphasize the role of expectations concerning future income mobility. Poor voters may well have little demand for income redistribution because they expect to be richer in the future, causing them to bear the tax burden necessary to finance it. This so-called Predicted Upward Mobility (POUM) hypothesis has been found to be in accordance with US data by Alesina and La Ferrara (2005); however, there is still debate over the best choice of mobility indicator. According to the hypothesis, Switzerland, which is comparable to Germany in terms of income mobility (CIA 2013), should have similar GDP shares devoted to general government and transfers. Yet, both figures are clearly higher for Germany (see Table 1 again).

Supply-side explanations

Since income redistribution is a service supplied by the government, supply-side explanations emphasizing institutional differences related to government are credible. One institutional difference is a country's openness to international trade and capital flows. Adsera and Boix (2002) are the latest in a tradition that postulates a compensation relationship. Because the wages of some voters come under pressure due to international competition, the government has to provide relief through income redistribution in order to be able to reap the gains of globalization. However, openness can also be argued to limit the distributional leeway of governments because it is usually accompanied by a high number of multinational firms who can leave the country if taxed excessively in a governmental attempt to channel wealth to its constituents. This may explain why the size of the public sector is high in rich countries (where exit is fraught with high sunk cost for multinationals), but small in poor ones (where multinationals may have

considerable political clout) (Balcells Ventura 2006). Switzerland is the most open country listed in Table 1, way ahead of the United States and still more open than Germany (CIA 2013); at the same time, however, it devotes about the same relative amount to government expenditure and social expenditure as the United States (and clearly less than Germany).

Other authors have examined the role of the political process, arguing that proportional representation leads to multiparty parliaments, who in turn favor 'pork barrel' programs and hence income redistribution (Persson and Tabellini 2003). Here, the difference between the two seemingly similar neighbors becomes salient: Switzerland is roughly comparable to Sweden in its degree of proportionality in representation, while Germany is roughly comparable to the United States (Persson and Tabellini 2004). Yet, as stated above, the two neighbors are in different camps when it comes to income redistribution.

Another institutional feature is fiscal decentralization, which prevents the central government (a big spender due to the military in any case) from becoming dominant, which also limits the overall size of the public sector. According to Inman and Rubinfeld (1992), both Switzerland and the United States are characterized by a higher degree of fiscal decentralization than most EU countries with the exception of Germany – and yet Germany clearly differs from these two countries according to Table 1.

In conclusion, supply-side explanations of the international differences in the amount of income distribution do not seem to perform well either.

The identification problem and possible solutions

Since the demand for income redistribution can only be expressed in the political sphere, any study that uses government expenditure and social expenditure as indicators is open to the criticism that the observed data also reflect supply-side characteristics. Conversely, studies emphasizing the role of institutional factors neglect the fact that these institutions (like 'pork barrel' programs) reflect voter's demand for redistribution, at least in a democracy. Therefore, both approaches are subject to a classical identification problem. Yet truly exogenous instruments that affect only one side of the 'market for redistribution' are hard to find. For instance, one might argue that a heterogeneous population goes along with a multiparty parliament (which, in turn, leans towards

redistribution). However, heterogeneity itself may well be endogenous, reflecting the fact that a multiparty parliament, being unable to find a majority for formulating a coherent immigration policy, has permitted uncontrolled immigration for decades.

One solution has been to use attitudes as a measure of the demand for redistribution. The assumption is that when respondents in a survey state that they deem the distribution of incomes very unequal or that the government should do more to close the gap between the rich and the poor, they will indeed vote for a pro-redistribution delegate in the next election. However, this assumption is very tenuous. Respondents in surveys frequently resort to yea-saying, meaning that they prefer to answer in a way that they believe to be socially acceptable (Blamey, Bennett and Morrison 1999), but consider the impact of their choice on their own welfare when in the anonymity of the voting booth.

Another solution to the identification problem is to revert to choice experiments. The variant described in greater detail here is the Discrete Choice Experiment (DCE) because it comes closest to determining an indifference curve. It is worth remembering that the slope of an indifference curve mirrors an individual's subjective trade-off between two goods, attributes, or objectives. In the case of income redistribution, two attributes found relevant in pre-tests are the 'size of the pie available for redistribution' (measured as a share of GDP) and the 'way this pie is divided' (e.g., the share going to the working poor). The aim of the experiment is to estimate the slope of the indifference curve through the status quo in order to gauge the relative importance of these two attributes to voters. To this end, the status quo (S) is described in considerable detail to participants in the experiment, to make them share a common reference point. The attributes are then combined anew to constitute a hypothetical alternative in attribute space, say A . If A is preferred to S , it lies on a higher-valued indifference curve than S ; conversely, the (unknown) indifference curve through S must run below point A . The experimenter then proceeds to propose another alternative B . Let the respondent prefer S this time. However, this implies that the indifference curve through S runs above point B . Evidently, if this choice is repeated several times, it becomes possible to identify (the slope of) the indifference curve in the neighborhood of the status quo.

Finally, let the attribute 'share of the pie going to the working poor' be replaced by a so-called price attrib-

ute. In the present context, this is the share of personal income taxed away for financing redistribution. Now the slope of the indifference curve indicates the respondent's willingness to sacrifice a marginally higher share of his or her personal income in return for increased support of the working poor. This is nothing but a marginal willingness-to-pay (WTP) value that can be expressed in money.

Since the two DCEs to be discussed below both include such a price attribute, they effectively impose a budget constraint on participants, forcing them to face trade-offs. Admittedly, these trade-offs are hypothetical since respondents are not made to pay the tax implied by their preferred choice after the experiment. However, in a few applications of DCEs, it was possible to pit stated preferences against revealed preferences (i.e., actual choices), with encouraging results (Telser and Zweifel 2007). At the very least, DCEs fare much better than the conventional Contingent Valuation (CV) alternative. In a CV experiment, participants are asked directly how much they are willing to pay for the product in question, whose other attributes are fixed. This invites strategic responses because the focus is exclusively on the price rather than on all attributes simultaneously. Incidentally, the experimental design of CV is far from reality. In an economy abounding with product differentiation, it is very rare that anyone needs to find out his or her (maximum!) WTP for a good, with all other attributes of the good in question held constant.

'Pure' demand for redistribution: two DCEs performed in Germany and Switzerland

The upshot of Table 1 was that there are two neighboring countries, Germany and Switzerland, that differ strongly with regard to income redistribution. This is puzzling; the mere fact that Switzerland is the preferred destination of German migrants, causing their population share to reach almost four percent, testifies to their similarity. Yet there may be a latent difference in preferences with regard to income redistribution that may explain the divergence exhibited in Table 1. Two independent DCEs were performed with the aim of measuring and comparing the 'pure' demand for redistribution (unaffected by supply influences) in the two countries. The first DCE was fielded in 2008, after two pre-tests that suggested dropping a third slicing of the cake (Figure 1), namely, redistribution at the level of communes, of cantons (member states of Switzerland), and at the federal level. The simplified version of the experiment was rated by 28

Figure 1

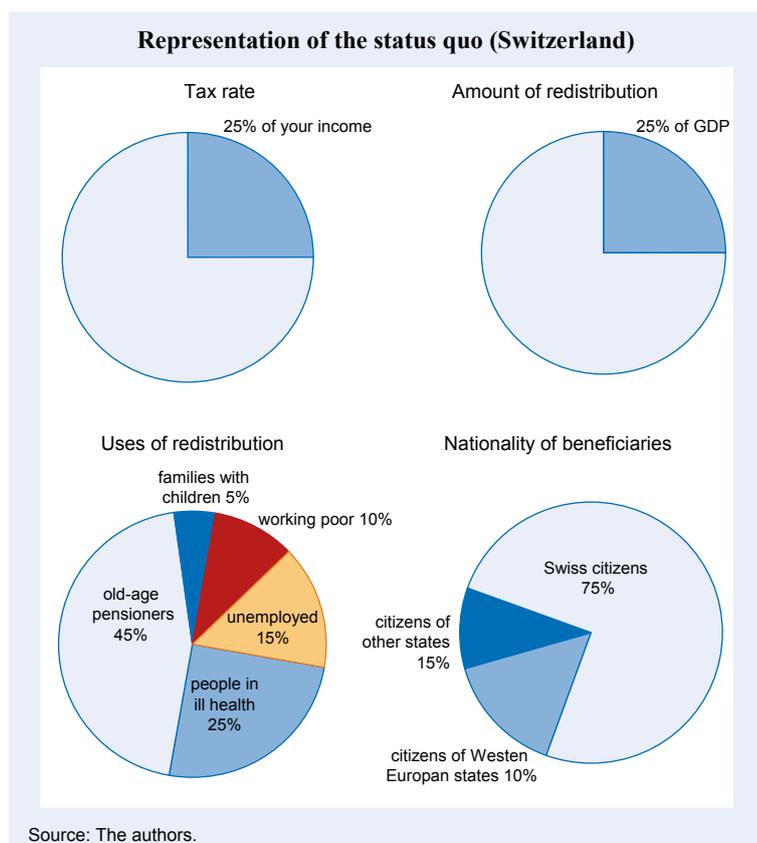
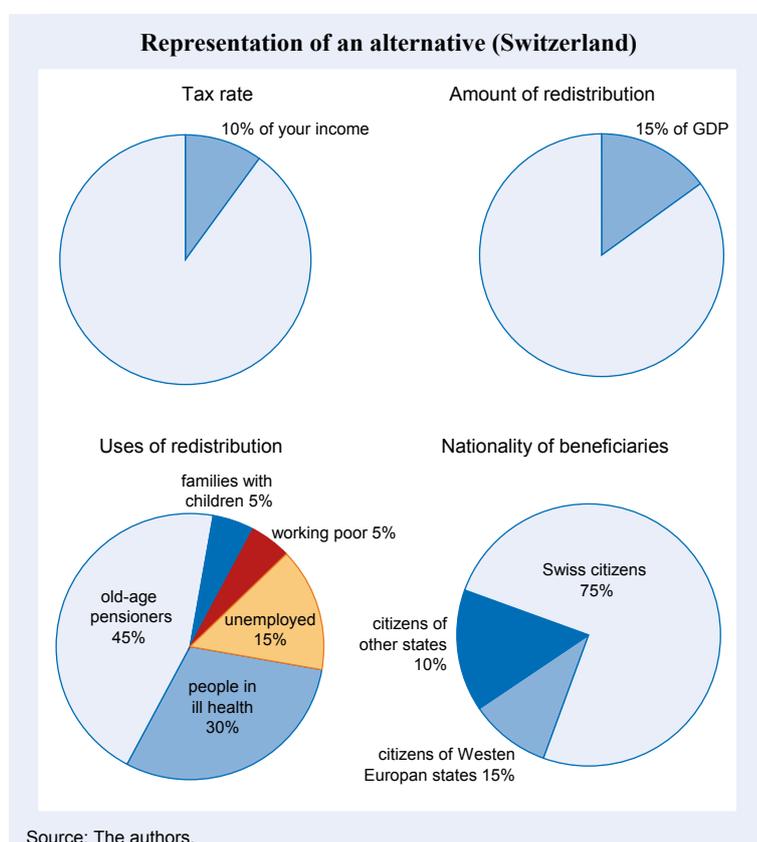


Figure 2



percent of participants as ‘difficult’ or very difficult’, which is a usual figure for a DCE. The experiment involved almost 1,000 Swiss adults who were members of a panel run by a specialized market research agency. Participants were presented with a card defining the status quo, in which an estimated share of 25 percent of personal income is devoted to redistribution on average (Figure 1). The same share of GDP characterized the ‘size of the pie’. Five uses of redistribution were distinguished, along with three groups of nationalities of beneficiaries (Neustadt and Zweifel 2010).

Participants had to make ten choices presented in randomized order, one of which was a repeat designed to check the consistency of responses. One of the alternatives is represented by the choice card shown in Figure 2. The tax price is decreased to ten percent; in return, the amount of redistribution is reduced as well, to 15 percent of GDP. From an economic point of view, it would be natural to combine a reduction in the amount of redistribution by x percent with a reduction in the tax price of x percent. However, such proportional variation would induce perfect multicollinearity, making separate estimation of the coefficient pertaining to the tax price and hence estimation of WTP values impossible. The share of the proceeds going to people in ill health also increased from 25 to 30 percent to the detriment of the working poor, who are to receive a share of five rather than ten percent.

A practically identical DCE was performed in Germany in 2012

(Pfarr 2013), involving over 1,500 residents. However, the status quo tax share of personal income (and with it, the amount of redistribution) is 30 percent (rather than 25 percent as in Switzerland). The current allocation of the money differs too, with 35 percent (30 percent in Switzerland) going to people in ill-health, ten (rather than 15) percent to the unemployed, five (five) percent to the working poor, ten (five) percent to families with children, and 40 (45) percent to old-age pensioners. Finally, 85 percent (rather than 75 percent) of the redistribution budget benefits German citizens, five (15) percent, citizens of Western European countries, and ten percent, citizens of other states.

The theoretical background for the econometric inference has been provided by McFadden's (1974) random utility theory, complemented by Louviere and Street (2000). The objective is to explain the probability of indirect utility afforded by the alternative to exceed the level attained in the status quo. Since the utility function by assumption contains a random component, a probability distribution law has to be specified with regard to the (difference of) two random variables. The extreme value assumption leads to a logit estimation, the normality assumption, to the probit alternative used in the two DCEs reported here.

The results of the probit estimation are displayed in Table 2. All coefficients are significant according to conventional criteria. The two sets of estimates derive from slightly different specifications (see footnote to Table 2). They can nevertheless be compared in the following way, always considering marginal changes of one percentage point in the allocation of the budget available for redistribution. With regard to the slicing of the pie in Switzerland, one extra percentage point of GDP devoted to the working poor (W_POOR) causes an increase of 0.7 (0.0066 = 0.0070 – 0.00040) percentage points in the probability of acceptance of the pertinent alternative, compared to supporting persons in ill health (ILL). This group is the benchmark category in the German DCE, but could have served as well in the

Table 2

Probit estimation results for two DCEs						
Variable	Switzerland			Germany		
	Coefficient	Standard error	Marginal effects	Coefficient	Standard error	Marginal effects
<i>Uses of redistribution</i>						
W_POOR	0.0278	0.0071	0.0070	-0.017	0.007	-0.0063
UNEMP	0.0113	0.0045	0.0028	-0.018	0.004	-0.0070
ILL	0.0160	0.0046	0.00040	-- ^{b)}	-- ^{b)}	-- ^{b)}
FAM	0.0638	0.0094	0.0160	0.0140	0.004	0.0055
<i>Nationality of beneficiaries</i>						
OWN_CITIZ	0.0366	0.055	0.0092	-- ^{b)}	-- ^{b)}	-- ^{b)}
WEU_FOR	0.0293	0.0087	0.0093	-0.0363	0.005	-0.014
OTH_FOR	-- ^{a)}	-- ^{a)}	-- ^{a)}	-0.0389	0.003	-0.015
(OTH_FOR) ²	-- ^{a)}	-- ^{a)}	-- ^{a)}	0.0037	0.001	0.0014
<i>Amount and financing of redistribution</i>						
REDIST	-0.0052	0.0018	-0.0013	0.0321	0.002	0.012
(REDIST) ²	-0.0662	0.0117	-0.0166	-0.0006	0.000	-0.002
TAX	-0.0205	0.0018	-0.0051	-0.0569	0.002	-0.0217
(TAX) ²	--	--	--	-0.0013	0.000	-0.0005
CONSTANT	-1.299	0.0613	--	-0.306	0.035	--

^{a)}The specification for Switzerland uses only one benchmark category, OTH_FOR (the share going to other foreigners) because this was sufficient to avoid multicollinearity. ^{b)}The specification for German has two benchmark categories, ILL (the share going to persons in ill health) and OWN_CITIZ (the share going to German citizens) in order to avoid multicollinearity.

Sources: Neustadt and Zweifel (2010); Pfarr (2013).

Swiss DCE in view of its very small marginal effect. Therefore, the two populations do not seem to differ in their preferences concerning this group of beneficiaries. However, when it comes to the working poor, preferences diverge, with the marginal effect of W_POOR being negative (-0.6 points).

In the same vein, use of additional funds in favor of the Swiss unemployed (UNEMP) would serve to increase the probability of choice by 0.3 (0.00276 = 0.0028 – 0.00040) points, for their German counterparts, a decrease by 0.7 points. With regard to families with children (FAM), the two populations seem to broadly agree again. In the Swiss sample, FAM is associated with an increase of 1.6 percentage points, in Germany, of 0.6 points. However, Swiss respondents would potentially support an increase of public social expenditure in favor of families beyond the current figure of 1.25 (= 0.25 * 0.05, see Figure 1) percent of GDP, more so than their German counterparts [although the status quo figure is a high 3 (= 0.3 * 0.1) percent already; see Figure 2].

As for the nationality of beneficiaries, Swiss respondents exhibit a clear willingness to support their own cit-

izens (OWN_CITIZ, relative to foreigners from outside Western Europe, OTH_FOR). The same is true in the German sample, where OWN_CITIZ constitutes the benchmark category. The Swiss estimate is 0.92 percentage points per percentage point of GDP, the German figure, evaluated at the status quo value of ten percent (see above), roughly 1.5 ($+0.0147 = 0.015 - 2 * 0.1 * 0.0014$) percentage points [the precise estimate would be derived from the net coefficient value nonlinearly transformed into a marginal effect; see Norton, Wang and Chungrong (2004)]. More support to foreigners from Western Europe (rather than OWN_CITIZ) would leave the probability of acceptance unaffected in Switzerland ($-0.0001 = 0.0092 - 0.0093$), but would lower it by roughly 1.4 percentage points ($-0.0137 = -0.014 + 2 * 0.1 * 0.0014$) in Germany. Therefore, both populations would like to see (if at all, see below) extra funds going to their national compatriots rather than to foreigners from outside Western Europe. Additionally, the Swiss would opt for a reallocation of funds from foreigners from outside Western Europe to those from Western Europe; this does not hold in Germany. In conclusion, German and Swiss preferences with respect to the slicing of the pie can be said to be similar when it comes to nationalities, but rather different when it comes to types of beneficiaries (with the exception of people in ill health).

Marked differences in preference emerge again when the amount and financing of redistribution is examined. Evaluated at the status quo value, the Swiss would suffer a utility loss if the GDP share devoted to redistribution (REDIST) were to be increased. Their reduction in acceptance probability amounts to roughly one percentage point ($-0.0096 = -0.0013 - 2 * 0.25 * 0.0166$). German respondents, on the other hand, seem to favor more redistribution even beyond their higher status quo value of 30 percent of GDP (see above). Their acceptance probability is estimated to increase by roughly 1.1 percentage points, *ceteris paribus* ($0.0108 = 0.012 - 2 * 0.3 * 0.002$). Of course, in the DCE both sets of respondents were made aware of the fact that more redistribution goes

along with a higher TAX price, expressed as a share of their personal income. In the Swiss case, this increase causes the probability of acceptance to fall by 0.51 percentage points, in Germany, the decrease is as high as 2.2 points ($-0.0220 = -0.0217 - 2 * 0.3 * 0.0005$). In view of the already high tax burden in Germany, it comes not as a surprise that resistance to further tax increases is especially marked.

Finally, the constant is of some interest. Its high value in the Swiss sample indicates that respondents would suffer a marked utility loss when moving away from the status quo (exhibiting so-called *status quo bias*). It vindicates the common conception of the Swiss as being even more conservative than the Germans.

By dividing the coefficients of the probit estimates by the coefficient pertaining to the price attribute [reflecting the (negative of) the marginal utility of income], one can derive estimates of marginal WTP. These estimates are displayed in Table 3. As can be surmised from Table 2, the Swiss exhibit negative WTP for an increase in the amount of redistribution. They would have to be compensated to the tune of 0.25 percentage points of their personal income for each extra percentage point of GDP devoted to it. The Germans, on the other hand, still exhibit positive WTP. In fact, they seem to be willing to sacrifice 0.56 percentage points of their own income for additional redistribution. From these estimates, the maximum of WTP as a function of GDP can be determined, indicating the optimal size of the welfare state from the citizens' point of view. In Switzerland, this maximum is attained at 21 percent of GDP (compared to 25 percent in the status quo); in Germany, at no less than 55 percent, way above the status quo value of 30 percent (Pfarr 2013, p. 197). However, the sizable standard error of the estimate is caused by the 95 percent confidence interval to span the 41 percent and 69 percent values, respectively. Yet even when adopting the lower boundary of 41 percent of GDP as a conservative estimate, one has to conclude that German citizens seem to have

Table 3

Estimates of marginal WTP for more redistribution derived from two DCEs				
	Switzerland		Germany	
	% of income ^{a)}	Standard error ^{c)}	% of income ^{b)}	Standard error ^{c)}
Marg. WTP	-0.25	0.054	+0.56	0.034

^{a)} Evaluated at mean monthly income of CHF 4,712 (EUR 3,140 at 2008 exchange rates).
^{b)} Evaluated at mean monthly income of EUR 1,775.
^{c)} Calculated using the Delta method (see Greene 2003, p. 913f.).

Sources: Neutstadt and Zweifel (2010), Pfarr (2013), p. 201.

a marked preference for expanding their welfare state even further.

In sum, the two DCEs suggest that the differences in the amount of redistribution found between Germany and Switzerland (see Table 1 again) can be traced to a difference in underlying preferences. As noted before, conventional demand-side and supply-side approaches fail to offer convincing explanations of this difference. It would be interesting to see whether experimental evidence of the same type as reported here would suggest that US citizens also exhibit negative marginal WTP with regard to the amount of redistribution, in line with the Swiss. However, such evidence is not available at this time.

Discussion and conclusion

Two Discrete Choice Experiments (DCEs) performed in Switzerland (2008) and Germany (2012) reveal considerable divergences in preferences between the two countries. The most striking difference is that German respondents, although starting from a high status quo value, continue to exhibit positive willingness to pay (WTP) for income redistribution. At face value, their choices put the optimal value of income redistribution at 51 percent of GDP, compared to only 21 percent among the Swiss. Their preferred structure of redistribution also diverges from that of the Swiss, especially with regard to the unemployed and working poor as beneficiaries. Of course, this conclusion is open to several criticisms. Firstly, choices in a DCE, while realistic and imposing trade-offs through a price attribute, are still hypothetical. Participants in the experiment knew that they would not have to pay the increased income tax that goes along with more redistribution. While this criticism appears to be strong at first sight, it fails to explain why the Swiss, taking part in a practically identical DCE, are characterized by negative marginal WTP values on average. Why should they act systematically differently although they were also aware of the fact that changes in the tax burden were hypothetical?

A second criticism relates to the composition of the sample. The German population comprises a minority of citizens who, until reunification in 1989, were exposed to a Communist regime. The preferences of these 'Eastern' citizens are likely to be molded by decades of propaganda emphasizing income equality and redistribution by the government as the way to achieve it. However, with a population share of maybe ten percent (many

'Easterners' presumably having acquired Western tastes in the meantime), their influence is limited, implying that to achieve the results reportedly obtained, Western Germans must exhibit a relatively strong inclination towards redistribution as well. In addition, the Swiss sample consists of some 23 percent of French-speaking citizens, reflecting their share in the population (the Italian-speaking seven percent minority was excluded from the DCE to save on costs). However, the French-speaking Swiss are known to believe in a much stronger role for government (very much like the French) than their German-speaking counterparts. Therefore, the heterogeneity argument does not carry very far either.

A final aspect may be the timing of the two DCEs. The year 2008, when the Swiss DCE was fielded, was characterized by the banking crisis for which greedy bankers were held responsible. Since the government bailed out UBS, the No. one bank, income redistribution at the time meant supporting rich bankers. As a late reflection, the popular initiative 'against fat cat pay' (*Abzocker-Initiative*) was passed with a 68 percent majority in March 2013. Sentiment in 2008 evidently did not favor redistribution. By 2012, when the DCE was performed in Germany, the banking crisis had turned into a financial crisis affecting the governments of several EU countries. With their government committing ever-increasing amounts for bail-outs, Germans presumably felt forced to finance income redistribution favoring citizens in Greece and other southern EU countries. This may have triggered the feeling that if at all, redistribution benefitting the country's own (relatively more deserving) citizens was called for. Unfortunately, without the possibility of repeating the two DCEs, this latter explanation must remain speculative.

The experimental evidence presented here nevertheless lends some *prima facie* credibility to the hypothesis that international differences observed in the amount and structure of income redistribution may well be caused by underlying differences in citizens' preferences. The fact that religiosity and work ethic are found to be a major determinant of WTP among the Swiss (Neustadt 2011) also supports this conclusion. Economic explanations emphasizing voters' position in the income distribution and political explanations revolving around national institutions of democracy have little explanatory power by comparison. However, additional experiments performed at different times and in more countries are needed to arrive at a final verdict as to what best explains the wide variation in income redistribution even between otherwise similar countries.

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WHEN GOOD INTENTIONS GO WRONG: EFFECTS OF BANK DEREGULATION AND GOVERNANCE ON RISK-TAKING¹

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The context

The motivation of economic liberalization is to foster competition in order to increase allocative efficiency, economic growth and social welfare. This paradigm hinges on the assumption that firms maximize value and that more competitors in a market automatically lead to more competition. However, this view does not take into account the link between regulation and corporate governance, and its influence on firm behavior. When regulatory constraints are removed, the outcome may critically depend on the interaction between corporate governance and firm behavior, particularly if behavior is not primarily driven by value maximization and if the regulation had been designed to inhibit risk-taking.



Deregulation and risk-taking of the cajas: “the Spanish experience”

In a recent study we investigate the effects of the interplay between deregulation and governance on risk taking in the financial industry (Illueca, Norden and Udell 2013). We analyse a large scale natural experiment in banking deregulation in Spain: the 1988 removal of branching barriers on the Spanish savings banks, also

known as the *caja* banks, which led to a nationwide expansion of these banks during the past two decades. We extend and complement the cross-sectional evidence on the link between bank regulation, governance and risk-taking provided by Laeven and Levine (2009).

The story of the *cajas* banks is compelling because of its spectacular size and because the future of the euro will partly depend on how Spain weathers the crisis. It is also relevant for other countries, most of whom also have savings banks and/or their cousins, co-operative banks. Many countries have liberalized the regulatory constraints on components of their banking systems, often with negative consequences. For example, Germany abolished state guarantees for its *Landesbanken* and savings banks in the early 2000s. There is evidence that the state-owned *Landesbanken* took advantage of their lower funding costs by dramatically increasing their bond issue volumes during the four-year period of transition (Fischer et al. 2012). The proceeds were disproportionately invested in relatively risky projects such as tranches of securitized US subprime mortgages. Moreover, the United States have recently substantially deregulated the credit unions without considering their special governance structure. Other examples include: the spatial and product deregulation of the US savings and loan industry in the 1980–1990s; the failure of the credit cooperatives in Japan in the very early stages of their 1990s banking crisis; the banking deregulation in France in the mid 1980s; and the run on the savings bank sector in Korea in 2011.

Our analysis is based on a large and unique dataset that combines information on the geographic distribution of bank branches, matched lender-borrower financial statements, bank governance characteristics, and borrower defaults. Figure 1 displays the evolution of the bank lending volume to real estate and construction firms and other firms by the deregulated savings banks and the private commercial banks in Spain over the period 1988–2010.

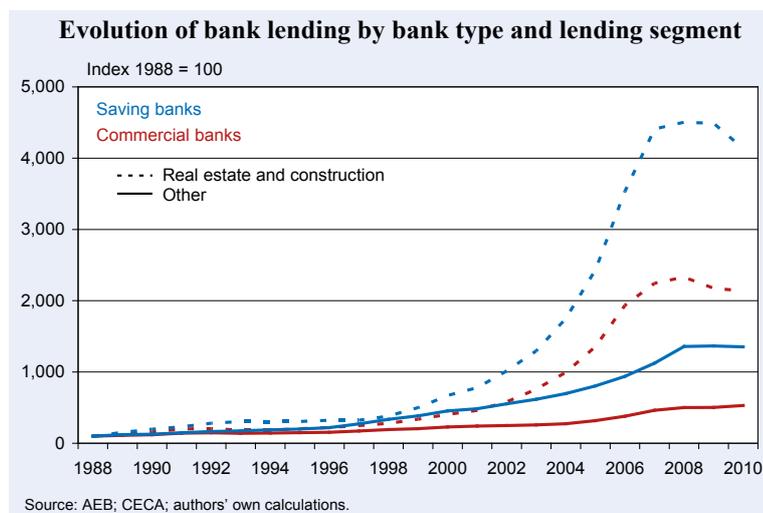
¹ This report is based on Illueca, Norden and Udell (2013).

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Figure 1



The *caja* banks increased their lending significantly since 1988 in comparison to the private commercial banks. The effect is even stronger for lending to real estate and construction firms.

We find that the geographic expansion of the Spanish savings banks is associated with a significant increase in ex ante risk taking and ex post default risk. The *cajas* lent to firms in new markets that were ex ante more risky than the borrowers in their home markets and than those of privately owned commercial banks. We further document that these firms were more likely to file for bankruptcy. These results are established in an analysis that controls for observable firm, bank, province, and time effects and deals with different forms of unobserved heterogeneity. The increase in risk-taking becomes substantially stronger for *cajas* in which regional governments have a stake in the board of directors, for an expansion to regions that are ruled by the same political party as the home region of the bank, and for the lending to firms in the real estate and construction industry. In several additional empirical tests we rule out alternative explanations for our results (for example, alternative expansion motives, market entry cost effects, competition effects, and offsetting risk with stricter loan terms) and confirm the robustness of our main findings.

The results show that this liberalization led to a differential in risk-taking in the Spanish banking system that was related to the governance problems in the savings bank industry. Good intentions went wrong! Nearly all of the *cajas* failed and were reorganized as commercial banks with a radically different governance structure and different type of government involvement,

as stated in the Memorandum of Understanding signed by Spain and the EFSF in 2012.

What is special about government-owned banks?

Government-owned banks represent about 40 percent of the world's banking industry (La Porta, Lopez-de-Silanes, and Shleifer 2002). Exploring state ownership of banks is important because the nature of a "large owner" is fundamentally different in government-owned/-controlled banks than private banks for at

least three reasons.

Firstly, governments as owners may deviate significantly from value maximization. They often pursue social welfare objectives (for example, Atkinson and Stiglitz 1980; Stiglitz 1993; Burgess and Pande 2005). These include economic development (for example, growth, employment, and fighting poverty), cultural goals (i.e., "social dividends" including charities and civic functions), overcoming market failure, and offering financial services to disadvantaged groups (for example, home owners, farmers, students, and SMEs). These alternative objectives can have negative effects, such as underperformance and inefficient credit allocation because of political influence, agency problems, fraud and corruption (for example, Shleifer and Vishny 1994; La Porta et al. 2002; Sapienza 2004; Dinç 2005).

Secondly, there is no market for corporate control for government-owned banks. Control is "sticky" in the sense that it cannot be easily transferred to another party, which makes these banks vulnerable to government influence and political rent seeking. However, there is one special mechanism that can facilitate a transfer of control of a government-owned bank: politicians can change after an election.

Thirdly, state-owned banks might be subject to influence from local, regional or federal politicians. A shift from local to regional or federal control, which actually happened at the Spanish *Cajas* in the 1990s, could facilitate empire building and non-value maximizing career and promotion behavior. Furthermore, regional or federal control may lead to increased political influence

because of the higher coordination of the voting rights allocated to politicians.

The institutional background

The savings banks in Spain have existed for approximately 200 years and were established by local governments, churches, and welfare societies to promote savings by middle- and working-classes, and to provide lending to small businesses from the same city or province. Consistent with this history, the *cajas* are private foundations with no formal owners. They must either retain their profits or invest in social or community programs (i.e., the so-called “social dividends”). By 1975, national law had extended the geographic limits of these banks to the entire provinces in which they were operating. National legislation in 1985 specifically allocated control in terms of voting rights to four categories of stakeholders: depositors (44 percent), local governments (40 percent), founders (11 percent) and employees (five percent). Subsequently, a number of Spanish regions added the regional governments to the list of stakeholders, usually at the expense of the local governments’ voting rights. In the late 1980s, following a wave of European liberalization, the *cajas* lobbied for branching deregulation in order to improve their competitiveness with commercial banks in lending activities. As a result geographic barriers were further extended to the regional level and, finally, geographic barriers were completely removed in 1988. Although all stakeholders were represented on the board, not all of them had the ability to influence the bank’s management and the *cajas* were thus vulnerable to the influence of both local and regional politicians. Depositors, for instance, were usually less involved in the bank’s activities because their objectives were already protected by deposit insurance, and because the mechanism used to elect their representatives – a lottery – made it difficult for them to coordinate their interests and actions. For many *cajas*, the last and most dramatic phase of their geographic expansion coincided with rapid growth in the Spanish economy, an enormous boom in the domestic real estate market and explosive growth in *caja* lending to real estate and construction firms (for example, see Solé-Ollé and Viladecans-Marsal 2013). The burst of the real estate bubble after the beginning of the global financial crisis, and especially after the failure of Lehman Brothers in September 2008, led to a serious deterioration in loan values and the implosion of the *cajas*.

Empirical analysis: Ex ante risk at the *cajas*

Univariate analysis

In the first step we carry out a univariate analysis of financial statement information and other variables of firms that start borrowing from savings banks from other provinces compared to firms that start borrowing from commercial banks or from savings banks from their home region. Using the latter as a comparison group helps to reduce the potential effects of unobserved heterogeneity as we compare only firms that change their bank relationships. We analyse firm characteristics, especially firm default risk, from the year before they start their new bank relationships to ensure that we measure ex ante default risk in a way that is consistent with banks’ actual decision-making in the loan approval process. The ZSCORE, an ex ante default risk proxy, is calculated with data from the period before the firms start a relationship with a new bank. A higher ZSCORE indicates lower default risk of a firm. Our approach also ensures that we do not measure the mechanical effects on financial ratios and other variables due to the fact that firms just obtained additional bank debt to finance an increase in total assets.

The univariate analysis provides a variety of interesting results. Firms that start borrowing from savings banks from other provinces exhibit a significantly higher ex ante default risk than firms that start borrowing from savings banks in their home region and/or from commercial banks. All financial ratios are worse for these firms than for the control group. These differences are not only statistically, but also economically significant. For example, the ZSCORE (equity-to-total assets, EQTA) is 2.56 (29.94 percent) for firms that start a relationship with savings banks from other provinces, but 2.82 (34.14 percent) for the comparison group. It can also be seen that the firms that start borrowing from the expanding *cajas* are less likely to work with a big audit company than the comparison group. We also observe a higher number of banking relationships, indicating that firms that start a relationship with a savings bank from another province are more likely to add new relationships than to replace existing ones. This result is consistent with the view that these firms needed additional bank loans, but have not received the funds from their existing banks. Interestingly, this interpretation is confirmed by the significantly higher sales growth rate of firms that start borrowing from expanding *cajas* (7.4 percent) than those of other firms (6.2 percent). We also consider the ex ante risk of borrowers that start a credit

relationship with foreign commercial banks since theoretical arguments related to market entry, adverse selection and risk-taking might apply to the lending behavior of these foreign banks as well. However, we find that borrowers of foreign banks are similar to those of domestic privately-owned commercial banks, exhibiting a lower ex ante risk than those of expanding cajas.

Multivariate analysis

In the next step we conduct a multivariate regression analysis of savings banks' risk-taking that considers their governance structure and political influence. For this purpose, we estimate three cross-sectional multivariate logit models, including ex ante firm characteristics, year fixed effects, and industry fixed effects. Model 1 is a binary logit model that analyses which firm characteristics influence the probability of starting a relationship with a savings bank from another province (NEW=1, 0 otherwise). Model 2 is a three-outcome multinomial logit model that analyses the factors that influence the probability of starting a relationship with a savings bank from another province in which the regional government has no stake (NEW_REG=0) or has a stake (NEW_REG=1) relative to the reference category, which includes firms that start borrowing from commercial banks or from savings banks from their home region (NEW_REG=-1). Model 3 is a four-outcome multinomial

logit model that analyses the factors that influence the probability of starting a relationship with a savings bank from another province in which the regional government has no stake (NEW_REG_P=-1), with a savings bank from another province in which the regional government has a stake and the political party affiliation of the government in the borrower and bank region is different (NEW_REG_P=0), and with a savings bank under regional control with identical political affiliation in the target region (NEW_REG_P=1) relative to the reference category, which includes firms that start borrowing from commercial banks or from savings banks from their home region (NEW_REG_P=-2). Consistent with the empirical approach used in Table 1, we compare data from the year before firms start borrowing from a new bank to focus on ex ante characteristics. Table 1 reports these regression results.

In Model 1 we find a significantly negative coefficient for the variable ZSCORE. Thus, firms that start a relationship with a savings bank from another province (NEW=1) are ex ante riskier. Model 2 confirms that a lower Z-Score increases the probability of starting a relationship with savings banks from other provinces. However, the magnitude of the coefficient of ZSCORE substantially changes from -0.0264 to -0.1495 for the probability of starting a relationship with a savings bank in which the regional government has a stake (NEW_

Table 1

Multivariate analysis of savings banks' risk-taking			
	(1)	(2)	(3)
Reference group	NEW=0	NEW_REG=-1	NEW_REG_P=-2
Alternative group	NEW=1	NEW_REG=0	NEW_REG_P=-1
	Coefficient	Coefficient	Coefficient
ZSCORE _{t-1}	-0.1052 ***	-0.0264	-0.0262
INTERCEPT	-2.2627 ***	-2.8084 ***	-2.8111 ***
Alternative group		NEW_REG=1	NEW_REG_P=0
		Coefficient	Coefficient
ZSCORE _{t-1}		-0.1495 ***	-0.1179 ***
INTERCEPT		-3.4548 ***	-4.5837 ***
Alternative group			NEW_REG_P=1
			Coefficient
ZSCORE _{t-1}			-0.1826 ***
INTERCEPT			-4.0263 ***
Firm controls	YES	YES	YES
Year fixed effects	YES	YES	YES
Industry fixed effects	YES	YES	YES
Observations	13,010	11,879	11,861
Adj. McFadden R ²	0.1031	0.0820	0.0769

Note: ***, **, * indicate statistical significance at the 1%, 5%, and 10%-level.

Source: The authors.

REG=1, middle part). In Model 3 we find that there is an additional significant impact, when savings banks expand to regions that are ruled by governments from the same political party (NEW_REG_P=1, lower part). The coefficient of ZSCORE amounts to -0.1826. These results suggest that involvement of regional governments, as well as their political party affiliation, is related to the cajas' expansion and risk-taking behavior.

To address the issue for unobserved heterogeneity within firms over time, we examine firms that start borrowing from new banks multiple times. For second-time additions, we find that firms that start borrowing from savings banks from other provinces are significantly riskier (Z-Score: 1.66) than those that start borrowing from commercial banks or from savings banks from their home region (Z-Score: 1.91). This result confirms the risk-taking behavior of savings banks documented above for the first-time addition.

In the final step we estimate three censored probit models in which we control for the characteristics of the new markets to which the savings banks expand and key bank characteristics. For each model, we jointly estimate a selection equation and an outcome equation. The selection equation reflects the probability that a savings bank expands to a certain out-of-home-market-province. Hence, it includes bank characteristics such as bank size, capital-to-assets ratio, deposit-to-assets ratio, loan-to-assets ratio and return on equity as well as province-specific characteristics as explanatory variables; such as the log GDP per capita, the log of the population, and a dummy variable indicating whether a province is contiguous with the savings bank's home market. The left-hand side of the outcome equation is the same as in Models 1-3 of Table 1. The right-hand side includes the firms' Z-SCORE and various further characteristics, and year and industry fixed effects. The results confirm our previous findings on the risk-taking behavior of savings banks.

Evidence on ex post risk at the cajas

An important question is whether the significant increase in ex ante risk at the cajas documented above has also resulted in higher ex post risk. There are several pieces of evidence that confirm that this is indeed the case.

Firstly, the European Union's Committee of European Banking Supervisors initiated stress tests of large European banks that were considered systemically im-

portant. Of the eight (seven) European banks that failed to meet the capital requirements in the 2011 (2010) stress tests, four (five) were Spanish savings banks and one was a subsidiary of a savings bank, whereas the biggest Spanish privately-owned banks performed well (Financial Times, July 24–25, 2010 and July 17, 2011). This does not prove that the ex post risk of the cajas banks was due to their expansion, but it is certainly consistent with it.

Secondly, many cajas became financially distressed during the financial crisis of 2008–2009 and were temporarily rescued with capital infusions from the bank restructuring fund (FROB) of the Bank of Spain and through mergers with other savings banks (note: Bankia resulted from such merger). The stated reasons for these distress events were losses associated with the financial crisis, the burst of the real estate boom in Spain, and the fast geographic expansion of the caja banks over the past two decades. Ultimately, 43 cajas were involved in a restructuring process by July 2012 and the number of cajas has dramatically decreased from 45 to 12. All cajas were forced to change their governance structure and to convert into commercial banks, as stated in the Memorandum of Understanding signed by Spain and the EFSF in July 2012. This effectively marked the end of the almost two century-long history of the caja banks in Spain.

Thirdly, in order to directly analyse ex post risk, we examine data on borrower defaults (as measured by firm bankruptcy filings) during the period 1997–2009 to study in more detail whether there is a relation among savings banks' geographic expansion, their governance, and ex post risk. In the absence of specific data on loan defaults, analysing firm bankruptcy filings as a proxy has the advantage that these data are reliable, objective, and less likely to be distorted by financial reporting standards and accounting rules. We analyse firm default by estimating cross-sectional logit models with the likelihood of default as the dependent variable and a firm's average ZSCORE (from all years for non-defaulters and from the years prior to default for defaulters), various governance and expansion characteristics of savings banks as explanatory variables, and industry and year fixed effects. The governance and expansion characteristics are indicator variables that take the value of one if the firm starts borrowing from a savings bank from a different province (NEW), if the firm starts borrowing from a savings bank from a different province in which the regional government has no stake (NEW_NOREG), if the firm starts borrowing from a savings bank from a

Table 2

Analysis of borrower defaults			
Dep. Var.: DEF	(1)	(2)	(3)
	Coefficient	Coefficient	Coefficient
AVG_ZSCORE	-0.8384 ***	-0.8379 ***	-0.8377 ***
NEW	0.2424 ***		
NEW_NOREG		0.1397 ***	0.1399 ***
NEW_REG		0.2813 ***	
NEW_REG_NOP			0.2268 ***
NEW_REG_P			0.3371 ***
INTERCEPT	-0.1081	-0.0998	-0.1001
Firm characteristics	YES	YES	YES
Industry fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Observations	67,116	67,116	67,116
Adj. McFadden R ²	0.1159	0.1159	0.1160

Note: ***, **, * indicate statistical significance at the 1%, 5%, and 10%-level.

Source: The authors.

different province in which the regional government has a stake (NEW_REG), if the firm starts borrowing from a savings bank from a different province in which the regional government has a stake and the ruling political party of the borrower's and the bank's region are not the same (NEW_REG_NOP), and if the firm starts borrowing from a savings bank from a different province in which the regional government has a stake and the ruling political party of the borrower's and bank's region is the same (NEW_REG_P). Table 2 reports the results.

The results are strikingly clear. We find that the coefficient of ZSCORE is highly significant and negative, indicating that our measure of ex ante risk that we used in all previous analyses is indeed related to borrower default events (recall that higher values in the ZSCORE indicate lower default risk). The coefficient of NEW in Model 1 is significantly positive, indicating that firms that start borrowing from savings banks from other provinces exhibit a higher likelihood of default. The results for Model 2 show that the effect becomes even stronger if regional governments have a stake in the expanding savings banks (NEW_REG), while the effect disappears if regional governments have no stake (NEW_NOREG). The results for Model 3 again indicate a strong and significant effect when regional governments have a stake and the expansion happens in regions that are ruled by the same political party as the savings bank's home region (NEW_REG_P). Our results are also consistent with the earlier study of Jimenez and Saurina (2004) who analysed the ex post risk of bank

loans to Spanish firms and document that loans granted by savings banks display a higher default rate. Our findings are also in line with the broader literature on the intertemporal growth-risk nexus in bank lending (for example, Dell'Ariccia and Marquez 2006; Foos, Norden and Weber 2010). This literature shows that rapid loan growth of banks is associated with a subsequent built-up of risk, indicated by gradually increasing loan losses.

We also re-estimate all models for firms in the "construction" and "real estate development" industries. We did not consider these firms in any of our previous analyses because our focus is on risk-taking in commercial lending in general, and not on real estate related industries. It turns out that the results are even stronger than those reported in Table 2. We note that, in addition to the collapse of the housing market and the global financial crisis, we find ample evidence that the increase in risk-taking of savings banks and political influence of regional governments was particularly strong in these two industry sectors.

In summary, our analysis of ex post risk confirms our previous results, indicating a statistically and economically significant link between savings bank expansion in commercial lending, their governance structure, and risk-taking behavior.

Conclusions

We study the effects of the interplay between geographic deregulation and corporate governance on the lending behavior of the government controlled sector of the Spanish banking system, the *caja* banks. Our principal result is that the geographic expansion of Spanish *cajas* is associated with a significant increase in ex ante risk-taking and ex post default risk. This finding becomes substantially stronger for savings banks in which regional governments have a stake in the board of directors, for expansion into regions that are ruled by the same political party as the home region of the bank, and for firms in the real estate and construction industry. In various additional tests we rule out alternative explanations and confirm the robustness of our findings.

Our study has two clear policy implications. Firstly, economic liberalization should take into account the institutions' (or industry's) governance structure and its impact on economic behavior, especially risk-taking. Secondly, liberalization that unleashes growth might lead to undesirable outcomes if the former regulation was designed to inhibit risk-taking or to maintain minimum safety standards.

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THE SUSTAINABILITY-ADJUSTED GLOBAL COMPETITIVENESS INDEX

For over 30 years the World Economic Forum has published its annual *Global Competitiveness Report*, now ranking 144 countries by their global competitiveness index (GCI). The index is based on 12 different categories of indicators, which are sorted into the following three main classes: basic requirement, efficiency enhancers, and sophistication and innovation factors. Each class embodies the driving components for competitiveness for a different stage of economic development.

In 2011, the World Economic Forum added another section to the common GCI calculations: the *sustainability adjusted GCI* (SCI). This index combines a number of sustainability indicators with the original GCI in order to measure sustainable and high-quality growth. This new idea of competitiveness and prosperity has also been adopted by several international organisations. For example the EU included sustainable growth in the *EUROPE 2020 Strategy*.

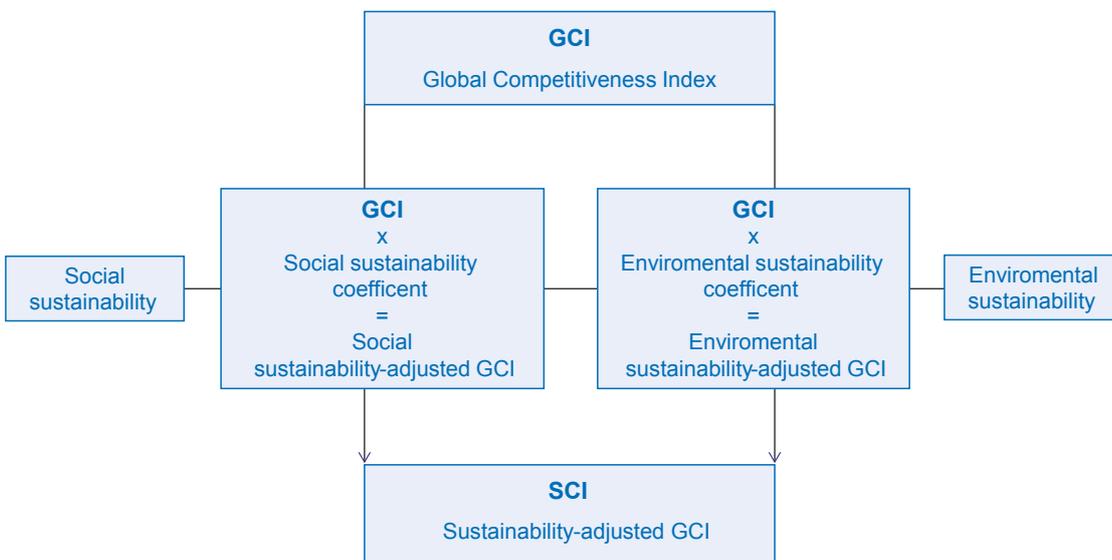
From then on, the *Global Competitiveness Report* included two different indices: the GCI and the SCI. While the former only measured short-term competitiveness, the later was meant to capture a middle and long-term perspective.

For the initial calculation of the SCI, new sustainability indicators were added to the components of the GCI calculation. Then all of the indicators were rearranged into 15 new categories, which now include social cohesion, environmental policy, resource efficiency, management of renewable resources, and environmental degradation. However, this method did not allow a proper comparison of the GCI and the SCI with respect to sustainability. It did not make it clear whether differences arose due to the newly added indicators, or only due to the reorganisation.

For this reason the next, and to date report of 2012–2013 used a different approach. Sustainable competitiveness was divided into environmental and social sustainability. Environmental sustainability is defined as: “*the institutions, policies, and factors that ensure an efficient management of resources to enable prosperity for present and future generations*” (WEF 2012). Its indicators are environmental policy, use of renewable resources and degradation of the environment. Social sustainability is defined as: “*the institutions, policies, and factors that enable all members of society to experience the best possible health, participation, and security; and that maximize their potential to contribute to and benefit from the economic prosperity of the country in which they live*” (WEF 2012). It is measured by access to basic necessities, vulnerability to shocks and social cohesion.¹

¹ There are still several aspects of sustainable competitiveness that are not captured in this analysis due to of missing data problems. Water pollution and minority inclusion are just two of these aspects.

Figure 1: Composition of the sustainability-adjusted Global Competitiveness Index



Source: WEF (2012).

In this new approach, the indicators of the new categories were first converted into two coefficients between 0.8 and 1.2. In the next step, these coefficients were separately multiplied with the original GCI resulting in a social- and an environmental-adjusted GCI. The average of these two adjusted indexes represents the final SCI.

The GCI and SCI scores of a sample of 36 European and OECD countries in the report of 2012-2013 are compared and analysed below (see Table 1).² The leading country in both rankings is Switzerland with a value of 5.72/6.85 out of 7, closely followed by Finland, which is twice ranked with the second highest competitiveness in the sample (36 countries). The sustainability-adjusted competitiveness of Switzerland is rated more than one point higher than the original score. The same pattern can be found in Finland, where the SCI is 0.81 points higher than the GCI. The list of the ten best performing countries of both indexes varies only in two countries. While Canada and the US score the highest in the GCI, they are replaced by Norway and Austria when it comes to sustainability. The remaining countries that are represented in both top-10 lists are the Netherlands, Sweden, Germany, United Kingdom, Japan and Denmark.

Looking at the overall sample, it is notable that almost all the countries of the upper-half score higher when sustainability indicators are adjusted. One exception are the United States. While the country obtains the seventh place in the general GCI ranking with 5.47 points, it drops by 11 places when ranked by the SCI with a score of only 5.31. Looking at the sustainable-adjusted indexes individually reveals that it is environmental sustainability which biases the US SCI downwards.

The other end of the sample shows, that the countries with the lowest GCI value, namely Romania, Macedonia, Croatia and Greece, have an even lower SCI. The same applies to the southern European countries of Spain, Italy, and Portugal as well as Turkey, Hungary and Bulgaria.

There are also nations that perform badly in terms of sustainability in one category but are able to compensate for this by the other category. This is the case in Australia, Cyprus, and Denmark. In each case it is the environmental component that shifts the competitiveness score downwards and the social component that help to compensate for the failure. The same pattern can be found in the average score values: The average of the SCI is 5.07, which is 0.26 points higher than the GCI.

² The analysis below refers to the ranking of 36 countries in Table 1.

But taking a closer look into the individual components, we see that the average environmental sustainability-adjusted GCI only reaches a score of 4.95, whereas the average social sustainability-adjusted GCI is 5.18.

To sum up, adding sustainability shifts the score of competitive countries upwards and that of countries with a relatively weak competitiveness downwards. In addition, environmental sustainability is realised to a lesser degree than social sustainability.

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Table 1

Adjustment to the GCI scores by sustainability indicators

	GCI		SCI		Social sustainability-adjusted GCI		Environmental sustainability-adjusted GCI	
	Score	Rank	Score		Score		Score	
Switzerland	5.72	1	6.85	↑	6.83	↑	6.87	↑
Finland	5.55	2	6.36	↑	6.45	↑	6.26	↑
Sweden	5.53	3	6.16	↑	6.17	↑	6.15	↑
Netherlands	5.50	4	6.21	↑	6.54	↑	5.88	↑
Germany	5.48	5	6.14	↑	6.37	↑	5.92	↑
United States	5.47	6	5.31	↓	5.63	↑	5.00	↓
United Kingdom	5.45	7	5.82	↑	6.03	↑	5.62	↑
Japan	5.40	8	5.76	↑	6.10	↑	5.42	↑
Denmark	5.29	9	5.73	↑	6.21	↑	5.25	↓
Canada	5.27	10	5.63	↑	5.93	↑	5.33	↑
Norway	5.27	11	6.15	↑	6.32	↑	5.98	↑
Austria	5.22	12	6.02	↑	6.17	↑	5.86	↑
Belgium	5.21	13	5.68	↑	5.90	↑	5.46	↑
Australia	5.12	14	5.46	↑	5.83	↑	5.08	↓
France	5.11	15	5.5	↑	5.59	↑	5.40	↑
New Zealand	5.09	16	5.68	↑	5.82	↑	5.53	↑
Ireland	4.91	17	5.18	↑	5.26	↑	5.11	↑
Iceland	4.74	18	5.44	↑	5.45	↑	5.43	↑
Estonia	4.64	19	4.83	↑	4.82	↑	4.85	↑
Spain	4.60	20	4.55	↓	4.66	↑	4.45	↓
Czech Republic	4.51	21	4.77	↑	4.89	↑	4.66	↑
Poland	4.46	22	4.37	↓	4.32	↓	4.42	↓
Italy	4.46	23	4.39	↓	4.38	↓	4.40	↓
Turkey	4.45	24	4.04	↓	4.24	↓	3.84	↓
Lithuania	4.41	25	4.61	↑	4.52	↑	4.71	↑
Portugal	4.40	26	4.36	↓	4.58	↑	4.15	↓
Latvia	4.35	27	4.62	↑	4.55	↑	4.69	↑
Slovenia	4.34	28	4.66	↑	4.76	↑	4.56	↑
Cyprus	4.32	29	4.34	↑	4.63	↑	4.05	↓
Hungary	4.30	30	4.30	→	4.29	↓	4.32	↑
Bulgaria	4.27	31	4.07	↓	4.17	↓	3.97	↓
Slovak Republic	4.14	32	4.27	↑	4.18	↑	4.36	↑
Romania	4.07	33	3.72	↓	3.71	↓	3.73	↓
Macedonia	4.04	34	3.65	↓	3.66	↓	3.64	↓
Croatia	4.04	35	4.02	↓	3.84	↓	4.20	↑
Greece	3.86	36	3.71	↓	3.59	↓	3.82	↓
Average	4.81		5.07		5.18		4.95	

The arrows indicate a higher/lower value than the GCI.

Source: WEF 2012.

BANK SUPERVISION: APPOINTING THE HEAD OF THE SUPERVISORY AUTHORITY

By virtue of bank failures and financial turmoil, the recent financial crisis has highlighted the importance of a well-functioning bank supervision and regulation system. Against this background the World Bank conducted its fourth survey on Bank Regulation and Supervision between 2011 and 2012. The World Bank's survey was addressed to the head of banking supervision in central banks or the head of a separate banking supervision agency. Responses were given by that person or a relevant senior-level staff member and cover the time period of 2008–2010 (Čihák et al. 2012; World Bank 2012).

In its survey the World Bank asked, among other things, about the legal framework of such appointments, the recruiting term and the removal of the head of the supervisory agency. Given that the supervisory authority is part of the central bank in some countries, this question also relates to the appointment of the head of the central bank in such cases. The independence of the central bank is central to implementing independent monetary policy and achieving low and stable inflation rates, as shown by a study of Alesina and Summers (1993). The autonomy argument also holds for the supervisory authority, which must be able to exercise its control functions independently and without state or private intervention. Otherwise, an exertion of influence can lead to a decrease in supervision and increase the risk of banks and other financial institutions engaging in deceptive or fraudulent behaviour. One important aspect of the legal framework for supervisory agencies is the design of the appointment process, the term served by a head and his/her eventual removal. A cross-country comparison is provided in Tables 1 and 2 below.

Appointment: one of the World Bank survey questions covered the power to appoint the head of the supervisory agency. In nearly all countries this post is assigned via a decision taken by one of the three following bodies: the head of government (i.e., the president or prime minister), the finance minister or some other cabinet level authority, or a legislative body (such as the parliament or congress). The decision is only taken by the supervisory authority itself in Estonia, Iceland and Malta, whereas in Belgium and Luxembourg the appointment is made by royal degree or respectively by the *Grand Duc*. The

head is appointed at the recommendation or proposal of the board or council of the reserve bank in Greece, Italy and New Zealand. Only five countries (Austria, Germany, Ireland, Latvia and New Zealand) rely on the recommendations of external experts or a panel of experts in their appointment decisions.

Term: in most countries the head of the supervisory agency is appointed for a fixed term. Germany, Lithuania, Malta and Iceland are the only countries in which there is no such fixed time span. The length of the term varies, with limits of five or six years in most countries. In about one third of the countries considered the maximum number of allowed terms ranges from one to three.

Removal: The decision to remove the head of the supervisory agency is taken by the same institutional body as the appointment decision in many countries. The legal terms for removal are, however, prescribed by a number of criteria. These criteria include for example, that the head has not adequately discharged his/her responsibilities, that s/he has hindered the work of the agency or is guilty of serious misconduct. The institutional bodies responsible for taking this decision are mainly governmental and only reside in the supervisory agency in a small number of countries. In some cases, however, this decision is taken after a consultation with the board or council of the relevant supervisory authority.

The framework for the appointment of the head is only one of many aspects that determine the supervisory agency's scope of action and its work. Other important issues involve the mandate and structure, the budget and the legal responsibility and liability of the supervisory authority. The World Bank survey on bank regulation and supervision draws a detailed picture of these areas, as well as of the financial regulation system as a whole. It addresses various important questions that allow for in-depth analysis and cross-country comparisons. For other areas of interest in the field of bank regulation and supervision, please consult the related DICE topics of “*Bank Regulation and Legal Framework*”, “*Bank Supervision*” and “*Deposit Insurance*”, as well as the DICE Report article “*Bank Resolution: National Legislation and Frameworks*”.

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Table 1

Supervision: appointment of the head of the supervisory authority, 2008 – 2010					
	How is the head of the supervisory agency appointed? Decision of ...				Appointment based on a recommendation by an external expert or a panel of experts?
	Head of government (e.g., President, Prime Minister)	Finance Minister or other cabinet level authority	Legislative body, such as Parliament or Congress	Other / explanation	
Austria	Yes	No	No	–	Yes
Belgium	No	No	No	Appointed by Royal decree.	No
Bulgaria	No	No	Yes	–	No
Croatia	No	No	Yes	–	No
Cyprus	Yes	No	No	–	No
Denmark	No	Yes	No	–	No
Estonia	No	No	No	Appointed by Supervisory council.	No
Finland	No	No	Yes	–	No
France	Yes	No	No	–	No
Germany	No	Yes	No	–	Yes
Greece	No	No	No	Appointed by Presidential Decree on proposal of Council of Ministers following proposal by Bank's General Council.	No
Hungary	Yes	No	No	–	No
Ireland	No	Yes	No	–	Yes
Italy	No	No	No	Appointed by Presidential Decree on proposal of Prime Minister following resolution of Council of Ministers after hearing opinion of Bank of Italy's Board of Directors.	No
Latvia	No	No	Yes	–	Yes
Lithuania	No	No	Yes	–	No
Luxembourg	No	No	No	Appointed by the Grand Duc on proposal of government.	No
Malta	No	No	No	Appointed by the Malta Financial Services Authority.	No
Netherlands	Yes	No	No	–	No
Poland	Yes	No	No	–	No
Portugal	No	Yes	No	–	No
Romania	No	No	Yes	–	Yes
Slovak	No	No	Yes	–	Yes
Slovenia	No	No	Yes	–	No
Spain	Yes	No	No	–	No
United Kingdom	No	Yes	No	–	–
Iceland	No	No	No	Hired by the Board of Directors of FME, which is appointed by the Minister of Economic Affairs.	No
Montenegro	Yes	No	Yes	–	No
Serbia	No	No	Yes	–	No
Norway	No	Yes	No	–	No
Switzerland	No	Yes	No	–	No
Turkey	No	No	No	Appointed by Council of Ministers.	No
Australia	Yes	No	No	–	No
Canada	No	Yes	No	–	No
Korea	Yes	No	No	–	No
New Zealand	No	Yes	No	On advice of the Board of the Reserve Bank.	Yes
United States	Yes	Yes	Yes	–	No

Source: World Bank (2012), Bank Regulation and Supervision Survey IV, <http://go.worldbank.org/SNUSW978P0>.

Table 2

Supervision: term and removal of the head of the supervisory authority, 2008 – 2010

	Term length if fixed term (years)	Maximum number of permitted terms	Can the head of the supervisory agency be removed by a decision of...?			
			Head of government (e.g., President, Prime Minister)	Finance Minister or other cabinet level authority	Legislative body, such as Parliament or Congress	Other / explanation
Austria	5	No	No	Yes	No	–
Belgium	5	No	No	No	No	–
Bulgaria	6	No	No	No	Yes	–
Croatia	6	No	No	No	Yes	–
Cyprus	5	No	No	No	No	–
Denmark	–	No	Yes	No	No	–
Estonia	4	No	Yes	Yes	Yes	Supervisory council.
Finland	5	No	No	No	Yes	–
France	6	2	Yes	No	No	–
Germany	–	–	Yes	Yes	No	–
Greece	6	No	No	No	No	Decision by the General Meeting of Shareholders.
Hungary	6	No	Yes	No	No	–
Ireland	5	No	No	No	No	–
Italy	6	2	No	No	No	Removal only in the case provided by article 14.2 of the statute of the ESCB (incapacity or serious misconduct) through a decree issued by the President. ^{a)}
Latvia	6	No	No	No	Yes	–
Lithuania	–	No	No	No	Yes	–
Luxembourg	5	No	No	No	No	The government after consulting the board of the CSSF may make a proposal to the Grand Duc. ^{b)}
Malta	–	No	No	No	No	Removal in terms of the Authority's handbook.
Netherlands	7	No	Yes	No	No	–
Poland	5	No	Yes	No	No	Only under very limited circumstances.
Portugal	5	2	No	No	No	Only in the circumstances envisaged in Article 14.2 of the ESCB/ECB Statute.
Romania	5	No	No	No	Yes	–
Slovak Republic	5	2	No	No	Yes	–
Slovenia	6	No	No	No	Yes	–
Spain	6	1	No	No	No	Government
United Kingdom	–	–	–	–	–	Can be removed by the Treasury.
Iceland	–	No	No	No	No	Board of Directors of FME.
Montenegro	6	2	No	No	Yes	–
Serbia	6	No	No	No	Yes	–
Norway	6	–	No	Yes	No	–
Switzerland	4	3	No	Yes	No	–
Turkey	6	1	No	No	No	–
Australia	5	No	Yes	No	No	–
Canada	7	No	No	Yes	No	–
Korea	3	2	No	Yes	Yes	–
New Zealand	5	No	No	Yes	No	The Governor-General, on the advice of the Minister of Finance. ^{c)}
United States	5	No	Yes	Yes	Yes	–

^{a)} Acting on a proposal from the Prime Minister following the adoption of a resolution by the Council of Ministers after hearing the opinion of the Bank of Italy's Board of Directors.

^{b)} Proposal regarding the dismissal of a member of the executive board who no longer meets the conditions stipulated for his duties or who is guilty of serious misconduct.

^{c)} A number of criteria would have to be met, Section 49 of the RBNZ Act 1989 applies. This has not happened before and would be highly unusual.

Source: World Bank (2012), Bank Regulation and Supervision Survey IV, <http://go.worldbank.org/SNUSW978P0>.

GENDER QUOTAS ON BOARDROOM REPRESENTATION IN EUROPE¹

Gender imbalance on corporate boards has become a hot topic in Europe during the last decade. Women are still underrepresented in decision-making positions in business, especially at the highest levels of the corporate ladder. In 2012, women occupied only 16 percent of board seats of the 600 largest publicly listed companies in EU member states on average. Data from the European Commission shows a wide divergence among the respective countries: while the share of women in boardrooms is over 25 percent in Finland, France, Latvia and Sweden, the figure averages out at just eight percent in southern member states. In Germany 18 percent of leadership positions in business are held by women. Other European countries boast higher shares of women in boardrooms, with Norway at 44 percent and Iceland at 36 percent (European Commission 2013). To increase the share of women on corporate boards, several countries in Europe have implemented mandatory legislative measures in the form of gender quotas.

Austria, Denmark, Finland, Greece and Slovenia have adopted legislative or administrative measures by subjecting companies owned or controlled by the state to gender quotas. Seven European countries – Belgium, France, Iceland, Italy, the Netherlands, Norway and Spain – have established gender quotas at board level for both for state-owned or state-controlled companies as well as for private companies. Table 1 gives a brief overview of legislative initiatives on gender quotas in these seven countries. The policies implemented differ considerably in terms of the companies covered, the target quotas to be reached, implementation periods and sanctions for non-compliance. A detailed table on policies addressing legislative measures on gender quotas on boardrooms in Europe can be downloaded from the DICE online database.

Norway is considered a pioneer when it comes to setting binding gender targets for company boards. It was the first country in the world to pass a bill on a legal gender quota of 40 percent in company boardrooms. Initially, in 2004, the law was only mandatory for boards of state-owned companies, while public limited companies were given the chance to meet the targets voluntarily. Two

years later in 2006 the targets became binding for them, too. From 2007 onwards large companies in Spain have been encouraged by law to reach proportions of at least 40 percent of each gender in boardrooms by 2015. In Iceland, the boards of directors of publicly owned companies and public limited companies with more than 50 employees must be staffed with at least 40 percent of men and women respectively by 1st September 2013. The French parliament enacted a gender quota law in 2011, making a share of at least 20 percent of each gender in boardrooms mandatory within three years, and 40 percent within six years. The Norwegian, Belgian, Italian, French and Icelandic laws are enforced through strict penalties in case of non-compliance, whereas Spain and the Netherlands have renounced strict sanctioning rules. The Netherlands, Belgium and Italy have agreed on quotas of 30 percent and one-third respectively (Table 1).

From the viewpoint of economic allocation theory, one argument against the introduction of gender quotas is that they represent state interference in company decision-making processes. This argument is based on the assumption that decision-making in companies prior to the introduction of the gender quota was rational and of maximum benefit to the company. Although competition should mean that only those companies that make optimal decisions survive, the possibility that companies facing competition make sub-optimal (long-term) decisions cannot be completely excluded, if one considers, for example, the effects of implicit (subconscious) discrimination on employment decisions (Bertrand, Chugh and Mullainathan 2005). The inequality between men and women in the labour market would then constitute a waste of resources from an economic point of view and hence entail welfare losses to society.

Empirically it can be shown that in Norway, which was the first country to introduce a quota for women of 40 percent on supervisory boards in 2003, the value of the companies concerned dropped significantly. The authors of the study show that this was primarily due to the lack of experience of the women who were appointed to company boards as a response to the quota legislation (Ahern and Dittmar 2012). However, these negative effects may disappear in the mid to long-term. In fact, another study shows that the most successful companies have leadership teams with a more or less balanced number of men and women, provided that both have the same level of professional experience (Hoogendoorn, Oosterbeek and van Praag 2013). The presence of female leaders may also break down longstanding prejudices against women in the medium term (Dasgupta and

¹ The text is based on the following article: Bauernschuster and Fichtl (2013).

Asgari 2004; Beaman et al. 2009). However, there is no evidence (to date) that quotas for women at supervisory board level increase the share of women at middle and top management level.

Legally fixed gender quotas may go some way towards addressing the underlying causes of the under-representation of women on governing bodies (especially with regard to discrimination, prejudices and social role models for women), but they should not be seen as a panacea. Given that motherhood remains the most important reason for the differing career paths of men and women (Bertrand, Goldin and Katz 2010), measures to favour a work-life balance should remain at the centre of the political debate. Especially in countries with insufficient childcare facilities, the focus should be on their expansion combined with the introduction of more flexible opening hours and links to other local childcare offerings. However, even if motherhood is only accompanied by short career breaks and part-time work, it often prevents career progression (Blau and Kahn 2013). Measures on a company level such as family-friendly working times, expanded home office solutions, or expanded part-time possibilities (including for top-level positions) could also enable mothers to move further up the career ladder (OECD 2012).

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Table 1

Legislative measures for gender quotas on boardroom representation in Europe				
Country	Year of introduction (implementation until)	Quotas for each gender, at least	Valid for board of directors* of	Sanctions for non-compliant companies
Norway	2003: state-owned companies (2004) 2006: private companies (2008)	40% (in boards with more than 9 members, less than 9 members: range from 33.33% to 50%)	State-owned, municipal and cooperative companies and public limited companies listed on the Norwegian stock exchange.	Official warnings, financial penalties, delisting of the company from the stock exchange.
Spain	2007 (2015)	40%	Listed companies on IBEX 35 with more than 250 employees.	No sanctions for failure to comply, but taking into account in procedures to award a public contract or the “equality label”.
Iceland	2010 (2013)	40%	Publicly owned companies and public limited companies with more than 50 employees.	Declaration of corrective measures, financial penalties.
France	2011 (2014: 1st stage; 2017: 2nd stage)	1st stage: 20% 2nd stage: 40%	Listed companies on the stock exchange, non-listed companies with at least 500 employees and revenues of over EUR 50 million, and state-owned companies.	Suspension of benefits of directors. Nullification of the board elections, but the decisions adopted by the board remain valid.
Netherlands	2011 (2016 – review)	30%	Larger private and public limited companies, and companies that do meet at least two of the following three criteria: Total value of company’s assets > EUR 17.5 Mill.; Net annual turnover > EUR 35 Mill.; Annual average number of employees > 250. Also valid for management boards.	Failure must be reported in the annual report; Declaration of corrective measures; “Comply or explain” mechanism.
Belgium	2011 (2012 for state-owned companies; 2017–2019 for listed companies)	One-third	Publicly listed companies and state-owned companies.	Appointments to any vacant positions are invalid as long the quota is not fulfilled; Suspension of any advantage, financial or otherwise, for board members.
Italy	2011 (2015)	One-third	Publicly listed companies and state-owned companies. Also valid for management boards.	Progressive sanctions: Official warnings, fines, forfeiture of the offices of elected board members.

* Supervisory board in case of separated supervisory and executive functions.
Note: Five countries (Denmark, Finland, Greece, Austria, and Slovenia) have adopted legislative or administrative measures in relation to gender balance quotas of companies owned or controlled by the state, but not for private companies.
Source: Ifo Institute on the basis of European Commission (2012) and OECD (2012).

BANK RESOLUTION: NATIONAL LEGISLATION AND FRAMEWORKS

The resolution of systemically important financial institutions (SIFIs) is an important part of the political discourse on shaping the future financial system. For example, EU countries are currently working on the legislation and the institutional framework to resolve banks within a banking union. This article summarises the main reasons why bank resolution deserves special attention and provides an overview of the legislation and bank resolution frameworks in different countries between 2008 and 2010 based on statistics provided by the World Bank (2012).

Resolving banks is more difficult than the resolution of non-financial firms because of the role that banks play in an economy. They take in deposits from savers and supply credit to investors, they provide payment services and are also important participants in financial markets. If a bank is what is commonly referred to as “systemically important”, its failure to perform these functions can destabilise the entire banking system. In the past, it was generally expected that governments would intervene and save SIFIs under distress to avoid the costs of their failure. This implicit bail-out guarantee, also known as the “too big to fail” phenomenon, may have distortionary effects on the risk-taking and resource allocation incentives of banks (Stern and Feldman 2004).

One potential way to solve the “too big to fail” problem is the establishment of a credible resolution mechanism for SIFIs. As far as its design is concerned, it is worth looking at the national resolution frameworks that are already in place and are applied in the resolution of smaller banks. The first question that is answered in Table 1 is whether the 37 countries have separate bank insolvency frameworks in addition to the framework for non-financial firms. In fact, 12 countries do not have a separate insolvency framework for banks. In many countries there are also differences in the resolution frameworks for banks and bank holding companies.

For the resolution of banks different mechanisms are put in place in different countries. Firstly, open market assistance exists in all but six of the countries listed in Table 1. Open market assistance implies that authorities step in and help to operate the failing bank. Often the management of the failing bank is replaced. The main goals of open market assistance are the minimisation of

costs for tax payers and deposit insurance funds by continuing the banks’ business, thereby keeping the assets of a failing bank intact, which facilitates the subsequent selling of the bank, or at least its healthy assets, to financial institutions that are not under distress.

Another mechanism is the so-called “purchase and assumption transaction” whereby some or all of the failing bank’s healthy assets are purchased by a financial institution that is not under distress. The healthy institution also takes over all or some of the liabilities of the bank in resolution. It is the mechanism most commonly used to resolve banks in the US (FDIC 2003) because uninsured deposits are usually assumed by the purchasing institution. All but five countries listed in Table 1 have a purchase and assumption mechanism in place.

Bridge banks are less common with 22 countries not using this instrument of bank resolution. Bridge banks are financial institutions that are authorised to run the business of the bank in resolution until the purchase of the failing banks’ assets to a healthy institution is completed. They can be considered a specialised form of purchase and assumption transaction.

During the recent financial crisis some governments intervened by conserving or nationalising banks. Mechanisms for such government intervention are put in place in 25 countries. They come into play when selling off a bank’s assets to other healthy institutions is not achievable.

As Table 1 shows, although there are some countries that do not have separate legislation for the resolution of banks in addition to the rules for resolving non-financial firms, all countries have different mechanisms to resolve banks in place already. The problem is that they have not been applied to large complex financial institutions. Transforming the existing mechanisms so that they make it possible to credibly wind down such SIFIs is a major challenge for governments and regulators.

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Table 1

Bank insolvency / resolution: legislation and framework, 2008 – 2010

	Is there a separate bank insolvency framework that is distinct from that of non-financial firms?	Is the insolvency framework the same for bank holding companies and banks?	Which mechanisms are provided in existing legislation to resolve a problem bank prior to its closure and liquidation?			
			Open bank assistance	Purchase and assumption transaction (with or without government support)	Government intervention (e.g., via conservatorship or nationalization)	Bridge bank
Austria	No	Yes	Yes	Yes	Yes	No
Belgium	No	Yes	Yes	Yes	Yes	No
Bulgaria	Yes	No	Yes	Yes	No	No
Croatia	Yes	No	Yes	Yes	Yes	No
Cyprus	Yes	No	Yes	Yes	Yes	Yes
Denmark	Yes	Yes	–	Yes	Yes	Yes
Estonia	Yes	Yes	Yes	Yes	Yes	Yes
Finland	No	Yes	No	No	Yes	No
France	Yes	No	Yes	Yes	Yes	No
Germany	No	Yes	No	Yes	No	Yes
Greece	No	Yes	No	Yes	No	No
Hungary	No	Yes	No	Yes	Yes	No
Ireland	No	Yes	Yes	Yes	Yes	No
Italy	Yes	No	Yes	Yes	No	No
Latvia	Yes	No	No	Yes	Yes	Yes
Lithuania	No	No	No	No	Yes	No
Luxembourg	Yes	No	No	No	No	No
Malta	No	Yes	Yes	Yes	Yes	Yes
Netherlands	Yes	No	Yes	Yes	No	No
Poland	Yes	No	Yes	Yes	Yes	Yes
Portugal	Yes	No	Yes	Yes	Yes	No
Romania	Yes	No	Yes	Yes	No	No
Slovak Republic	Yes	Yes	No	Yes	Yes	No
Slovenia	Yes	No	Yes	Yes	No	No
Spain	No	Yes	Yes	Yes	Yes	Yes
United Kingdom	Yes	No	No	Yes	Yes	Yes
Iceland	Yes	No	Yes	Yes	Yes	Yes
Montenegro	Yes	Yes	Yes	Yes	No	No
Serbia	Yes	No	Yes	Yes	Yes	Yes
Norway	Yes	Yes	Yes	No	Yes	Yes
Switzerland	Yes	Yes	Yes	Yes	Yes	No
Turkey	Yes	No	No	Yes	Yes	No
Australia	No	Yes	No	Yes	No	No
Canada	Yes	No	No	Yes	No	Yes
Korea	No	Yes	Yes	Yes	Yes	No
New Zealand	Yes	Yes	No	No	No	No
United States	Yes	No	Yes	Yes	Yes	Yes

Note: The table draws on a more detailed version, available for download in the DICE Database under Business and Financial Markets / Banking and Insurance / Bank Regulation and Legal Framework, www.ifdc.de/w/VcC76czl.
Source: Čihák et al. (2012); World Bank (2012).

NEW AT DICE DATABASE

Recent entries to the DICE Database

In the third quarter of 2013 the DICE Database received a number of new entries, consisting partly of updates and partly of new topics. Some topics are mentioned below.

- Political Constraints Index on Feasibility of Policy Change
- Trust in the European Institutions
- Gender Inequality Index
- Press Freedom Index
- State/Province Governments: Locally Elected
- Employment in Knowledge-intensive Service Sectors and in High- and Medium-high-technology Manufacturing Sectors
- Public Social Expenditure by Function
- Commitment to Development Index
- Index of Economic Freedom

The interactive graphics application **Visual Storytelling** has been further expanded.

FORTHCOMING CONFERENCES

8th Workshop on Macroeconomics and Business Cycle

21–22 November 2013, in Dresden

The two day workshop is jointly organised by the Dresden Branch of the Ifo Institute for Economic Research and the Helmut Schmidt University in Hamburg. It is intended to provide a forum for the exchange and discussion of current research in the field of macroeconomics, while contributing to better networking of economic research. The workshop is held in German language.

Scientific organisers:
Michael Weber, Robert Lehmann

7th Workshop on Political Economy 2013

29–30 November 2013, in Dresden

CESifo, the Center of Public Economics at TU Dresden and the Ifo Institute for Economic Research Dresden will jointly organize a workshop on Political Economy. In the tradition of the previous workshops the conference will take place in Saxony's capital Dresden.

The two-day workshop will serve as a forum to present current research results in political economy and will give researchers the opportunity to network.

Scientific organisers:
Christian Lessmann, Gunther Markwardt

Macroeconomics and Survey Data 2013

06–07 December, in Munich

This conference, organised by The Business Cycle Analysis and Survey Department of Ifo in association with Ruediger Bachmann (RWTH Aachen University) and Eric Sims (University of Notre Dame), will discuss ongoing research on survey and micro data and its role and usage in macroeconomics

Scientific organisers:
Ruediger Bachmann, Eric Sims and Klaus Wohlrabe

CESifo Economics Studies & CEMIR conference on Migration 2013

13–14 December, in Munich

The conference gathers a highly distinguished group of scholars presenting their research on the economic and political determinants and consequences of immigration policies. Economists and political scientists will share their insight and cutting edge research based on original data, and rigorous method and design to shed light on the highly debated topic of immigration policies and reforms.

Scientific organisers:
Francesc Ortega and Giovanni Peri

NEW BOOK ON INSTITUTIONS

The Bankers' New Clothes: What's Wrong with Banking and What to Do about It

Anat Admati and Martin Hellwig,
Princeton University Press 2013

Political Transformations and Public Finances

Mark Dincecco
Cambridge University Press 2013

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