

## Sovereign Debt and Financial Crisis:

### Theory and Historical Evidence

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This issue of the *Journal of the European Economic Association* presents papers from the October 2014 conference on Sovereign Debt Crises organized by Şebnem Kalemli-Özcan, Carmen Reinhart, and Ken Rogoff. This project arose from the need to provide rigorous research on the topic. The so-called “Great Contraction” in the world’s advanced economies is the most severe and synchronized global financial crisis since the Great Depression. It has forced all concerned parties to reassess the roles played by public and private debt, as well as the importance of international financial linkages. Nations in the European Union continue to struggle with a crisis over the debts of periphery countries, most notably Greece but also Ireland, Spain, Portugal, and Italy. The failure of most advanced countries to recover—or to regain pre-crisis levels of employment and growth in its aftermath—raises fears of experiencing the equivalent of Japan’s “lost decade”. In the wake of the crisis, it is clear that the macroeconomic models previously used by central banks and others have severe limitations. In particular, these models do not adequately incorporate financial frictions and are almost always estimated over relatively narrow data sets that do not span financial crises. The recent crisis

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also raises many other issues, including the links among government and private sector debt, the financial sector, and the political processes governing the resolution of fiscal and financial distress.

The papers in this volume address three key issues:

1. the role of global imbalances in sovereign debt crises;
2. links between public and private debt and/or the relationship between sovereign debt and banking crises; and
3. historical evidence and country experiences that bear on these themes.

In what follows we provide a brief summary of each paper.

The classic theoretical literature on sovereign default focuses mainly on the case where the debt holders are foreign creditors. This simplification is often justified by the greater importance, over some periods, of debt to foreigners as compared with domestic debt—at least in emerging markets. Yet Rogoff and Reinhart (2009) show that domestic debt has been important in most periods across much of the world. Indeed, a great deal of the external debt underlying the European sovereign debt crisis is intra-European and can therefore be viewed as occupying gray area between sovereign and subsovereign debt.

One reason why so much attention has been focused on the case of external lenders is that “us versus them” strategic interactions are easier to model. In the case of domestic debt, Pablo D’Erasmus and Enrique G. Mendoza (2016) tackle this issue—in “Distributional Incentives in an Equilibrium Model of Default”—by assuming that wealth is distributed unequally between debt holders and nonholders. However, these authors find that if the government is utilitarian

then there is no equilibrium with debt. Equilibria with debt can arise either because the government's interests are skewed in favor of bondholders or because there are exogenous costs of defaulting. It is noteworthy that increases in the former case as debt ownership becomes more concentrated; the reason is that the government's influence over the welfare of agents who do *not* hold debt declines on a per capita basis. In the utilitarian case with exogenous default costs, we obtain the more "natural" result that debt is increasing in the fraction of agents who hold debt. D'Erasmus and Mendoza acknowledge that using a two-period framework somewhat limits their model's empirical applicability, although further research might extend that model to an infinite-horizon setting.

Several authors (see e.g. Obstfeld, 2013, on "keeping one's powder dry") have argued that one reason why sovereigns are careful to keep debt levels from drifting upward indefinitely is because they fear such "tail risks" as wars and financial crises. In "Sovereigns versus Banks: Credit, Crises, and Consequences," Jordà, Schularick, and Taylor (2016) explore a historical database on public- and private-sector debt build-ups for advanced countries for the period 1872–2012. Although high public-sector debt build-ups are found *not* to be correlated with a greater likelihood of financial crisis, a high level of public-sector debt does tend to exacerbate the negative effects of post-crisis financial sector deleveraging. We presume that this dynamic reflects the constrained public sector's reduced capacity to serve as a backstop and thus recapitalize the financial sector, to undertake countercyclical fiscal policy, or to withstand a sustained reduction in tax revenues. (These results echo Reinhart and Rogoff, 2011, who find that banking crises can lead to public debt crises—as recently occurred in Spain, Ireland, and

Iceland.) As in earlier work by these authors, this paper employs the local projection method developed by Jordà (2005).

In “Systematic and Idiosyncratic Sovereign Debt Crises,” Graciela Laura Kaminsky and Pablo Vega-García (2016) examine a two-century data set on emerging market sovereign defaults with a focus on Latin America. They show that defaults tend to be clustered, often as result of a growth slowdown in the most advanced economies or following an international collapse of liquidity. Indeed, almost two thirds of all defaults are clustered during periods of systemic crisis. These defaults tend to be accompanied by larger creditor losses and longer by periods before market access is restored. Their work extends and quantifies earlier work on clustering of global defaults by Bordo and Murshid (2000) and Reinhart and Rogoff (2011). Kaminsky and Vega-García show that the severe nature of systemically driven debt crises is a recurrent phenomenon. The 1980s Latin debt crisis, for example, started with a fall in commodity prices accompanied by high real interest rates triggered in large part by US disinflation in the early 1980s; the 2008 global financial crisis was set off by US subprime crisis. The authors use exports to measure economic activity and construct historical series in terms of trade shocks while using international commodity prices as a proxy for each country’s main exports. To capture liquidity, Kaminsky and Vega-García observe global real interest rates and view the size of capital flows to non-Latin emerging markets as a barometer of economic activity. These authors note that much of the extent theoretical literature examines only one country at a time. They argue for the importance of multi-country theoretical analysis in light of the overwhelming empirical evidence for clustering effects.

It is well known that, in the run-up to the European debt crisis, the “northern” countries ran surpluses while the periphery ran deficits; of course, these imbalances helped instigate the subsequent banking crisis. Less well known is that the periphery country deficits stemmed from deficits vis-à-vis not only Northern European but also Asian economies. In “The Euro and the Geography of International Debt Flows,” Galina Hale and Maurice Obstfeld (2016) document that German and especially French banks financed these periphery deficits with respect to Asia. This process was in many ways parallel to the “recycling” of petroleum exporter deficits in the 1970s, when oil economies placed money in US banks. In turn, US banks made loans to emerging market economies and thereby helped finance energy imports. These exchanges not surprisingly left US banks vulnerable when Latin American countries encountered debt repayment problems in the early 1980s. French and German banks likewise built up claims on the periphery that were far in excess of their respective countries’ bilateral surpluses vis-à-vis the European periphery. These facts, which are laid out clearly in the Hale and Obstfeld analysis, suggest that poor banking regulation in the North contributed significantly to the crisis. Thus the simple morality tale of a thrifty North and an impecunious South misses completely a key factor underlying the crisis.

This intermediation of funds by Northern banks has since been reversed, as argued by Filippo Brutti and Philip Sauré (2016) in “Repatriation of Debt in the Euro Crisis.” The authors use data on bank portfolios to show that banks have reduced their cross-border holdings and increased their holdings of locally issued debt. Such repatriation mainly concerned the public debt of Southern counties. The authors interpret their findings from the perspective of the secondary market theory of sovereign debt advanced by Broner, Martin, and Ventura (2010).

According to this theory, since sovereigns are naturally more concerned about the well-being of domestic than of foreign citizens, it follows that—when a crisis reduces the sovereign’s willingness to pay—sovereign debt should flow (as Brutti and Sauré confirm) from foreigners to domestic investors through secondary markets. Given that defaults are more likely to occur in a crisis, such flows should be greater for public than for private debt; this prediction, too, is confirmed by the authors’ data on bank flows.

Practically none of the current research that analyzes sovereign debt restructurings distinguishes adequately between cases where creditors and debtors pre-emptively renegotiate debt in advance of outright repayment and cases in which there is a prolonged period of non-repayment and negotiation. In “Sovereign Debt Restructurings, Preemptive or Post Default,” Tamon Asunuma and Christoph Trebesch (2016) code a new data set that covers all sovereign debt restructurings between 1978 and 2010. A somewhat surprising result is the large share (38%) of restructurings that can be coded as pre-emptive. The authors introduce a model that embeds a renegotiation period within the conventional sovereign default model; then they use this model to predict the circumstances under which default will be pre-emptive versus “outright”. Their analysis endogenizes both the restructuring decision and the haircut size, although they assume exogenously that output costs are higher in the outright default case. The Asunuma and Trebesch model helps explain the empirical finding that GDP per capita tends to decline more markedly when there is eventually pre-emptive default (than when there is outright default) yet thereafter recovers its pre-crisis peak comparatively more rapidly. In the model, pre-emptive default is more likely when the country anticipates a greater risk of default

in the coming period. Their analysis incorporates the data set on defaults developed by Cruces and Trebesch (2013).

Carmen Reinhart and Christoph Trebesch (2016) examine 48 spells of default and subsequent restructuring of external sovereign debt. They focus on the debt overhang that resulted from World War I, which was dominated by official external sovereign debt (i.e., debts owed to government creditors). This episode has been largely overlooked in previous empirical research, which has studied sovereign defaults on the loans of private creditors almost exclusively. Reinhart and Trebesch compare this intrawar episode to the better-documented emerging market cases from 1970 onward, which were primarily defaults on foreign banks and bondholders. Their paper, which is the first to compute various measures of debt relief for a representative group of crises and countries, finds that such relief averaged over the countries amounts to 16 and 21 percent of GDP and for interwar years to 36 and 43 percent of GDP. These authors also study the aftermath of debt relief by tracing the evolution of real per capita GDP, sovereign credit ratings, debt servicing costs, and the level of government debt (external and total) in a 10-year window around the relief event. Because the timing of debt relief is endogenous, they undertake a differences-in-differences analysis focusing on episodes in which debt relief is synchronous; examples include the Hoover Moratorium of 1931 and the Baker plan of 1986 (Brady initiative of 1990). During the five years following decisive debt relief, per capita GDP is found to increase 11 and 20 percent for emerging markets and advanced economies, respectively. Also, within five years, the ratio of total government debt to GDP falls by 27 percentage points across emerging market episodes and by 22 percentage points in the interwar sample. The authors note, however, that significant improvements in growth and

ratings materialize only if the debt relief deal involves a reduction in the debt's face value.

Reinhart and Trebesch find that rescheduling operations that included maturity extensions and interest reductions were *not* followed by significant economic growth (after the researchers control for time and country fixed effects and conduct a counterfactual analysis).

Finally, with respect to the political determinants of debt accumulation, it is argued by Müller, Storesletten, and Zilibotti (2016) that right-leaning governments accumulate more debt than left-leaning governments because voters are heterogeneous. In “The Political Color of Fiscal Responsibility,” these authors present a model in which forward-looking voters can induce left-leaning governments to accumulate less public debt and thereby ensure the future provision of public goods. However, such governments respond counter-cyclically to productivity shocks and thus accumulate more debt during recessions. After establishing these results for a closed economy and also for a small open economy, the authors provide empirical evidence for the United States (and for OECD countries) using data from Reinhart and Rogoff (2010) on public debt since the 1950s.

Overall, the papers reviewed here document the importance of public and private debt and their frequently negative synergy. These papers reveal how either debt type can cause debt overhang problems, hence limiting investment and growth, as well as how monetary and fiscal policy might be constrained in dealing with these issues during a crisis—either by the country's membership in an economic union or by the reduced room to maneuver in fiscal space that follows from carrying high levels of public debt. The empirical nature and extensive use of historical data that characterize many of the conference papers reflect a marked methodological shift in international macroeconomic research. We believe that the new

approaches represented here will leave a mark in the field that endures long after the dust from the 2008 global financial crisis has finally settled.

## Works Cited

- Asunuma, Tamon, and Christoph Trebesch. "Sovereign Debt Restructurings, Preemptive or Post Default." *Journal of the European Economic Association*, 2016.
- Bordo, Michael, and Antu Murshid. *Are financial crises becoming increasingly more contagious? What is the historical evidence on contagion?* Working Paper 7900, Cambridge: NBER, 2000.
- Broner, Fernando, Martin Alberto, and Ventura Jaume. "Sovereign risk and secondary markets." *The American Economic Review* 100, no. 4 (2010): 1523-1555.
- Brutti, Filippo, and Philip Sauré. "Repatriation of Debt in the Euro Crisis." *Journal of the European Economic Association*, 2016.
- Cruces, Juan, and Christoph Trebesch. "Sovereign Defaults: The Price of Haircuts." *American Economic Journal: Macroeconomics* 5, no. 3 (2013): 85-117.
- D'Erasmus, Pablo, and Enrique Mendoza. "Distributional incentives in an equilibrium model of default." *Journal of the European Economic Association*, 2016.
- Hale, Galina, and Maurice Obstfeld. "The Euro and The Geography of International Debt Flows." *Journal of the European Economic Association*, 2016.
- Jordà, Óscar. "Estimation and inference of impulse responses by local projections." *American Economic Review*, 2005: 161-182.
- Jordà, Óscar, Moritz Schularick, and Alan Taylor. "Sovereign versus Banks: Credit, Crises, and Consequences." *Journal of the European Economic Association*, 2016.
- Kaminsky, Graciela Laura, and Pablo Vega-García. "Systematic and Idiosyncratic Sovereign Debt Crises." *Journal of the European Economic Association*, 2016.
- Müller, Andreas, Kjetil Storesletten, and Fabrizio Zilibotti. "Sovereign Debt and Structural Reforms." *Journal of the European Economic Association*, 2016.
- Obstfeld, Maurice. *On Keeping Your Powder Dry: Fiscal Foundations of Financial and Price Stability*. Working Paper 9563, London: CEPR, 2013.
- Reinhart, Carmen, and Kenneth Rogoff. "Growth in times of debt." *The American Economic Review* 100, no. 2 (2010): 573-578.
- Reinhart, Carmen, and Kenneth Rogoff. "The Forgotten History of Domestic Debt." *The Economic Journal* 121, no. 552 (2011): 319-350.
- Reinhart, Carmen, and Christoph Trebesch. "Sovereign Debt Relief and its Aftermath." *Journal of the European Economic Association*, 2016.

Rogoff, Kenneth, and Carmen Reinhart. *This Time is Different: Eight Centuries of Financial Folly*. Princeton: Princeton University Press, 2009.