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## Sovereign debt in the second great contraction: Is this time different?

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## The 2011 Martin Feldstein Lecture

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### Sovereign Debt in the Second Great Contraction: Is This Time Different?

Kenneth S. Rogoff\*



*Kenneth S. Rogoff*

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As the aftershocks of the recent financial crisis continue to radiate, it is a troubling period for the global economy. While the current popular moniker for the recent crisis is “The Great Recession,” perhaps a more appropriate description is “The Second Great Contraction”, as Carmen M. Reinhart and I have argued. This term is parallel to Friedman and Schwartz’s description of the Great Depression as “The Great Contraction,” referring to the global contraction of debt and credit, in addition of course to output and employment. Unfortunately, a long sub-par recovery is typical of deep financial crises.<sup>1</sup>

My remarks will focus on one aspect of the ongoing great contraction, sovereign defaults on external debt. Long historical experience shows that major global banking and financial crises often are followed by a wave of sovereign debt problems.<sup>2</sup> With the euro zone periphery countries already under severe duress, and with a significant risk that default problems will spread east as generous IMF loan programs unwind, it is becoming increasingly clear that this time is not different. Indeed, there is even a palpable risk that sovereign debt woes will result in a partial breakup of the euro zone, a risk that a number of American economists, including Martin Feldstein for whom this lecture is named, have long warned of.

To say the least, this is an extraordinarily important moment for basic academic research in international macroeconomics. The Great Depression, of course, challenged economists to explain how, if we really live in a world of Walrasian perfectly clearing goods and labor markets, could it be possible for a country like the United States to have sustained unemployment for almost a decade, reaching as high as a quarter of the working population.<sup>3</sup> Through three quarters of a century of debate, economists have more or less reached a

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*\*This is a written and abbreviated version of the Martin Feldstein Lecture given on July 14, 2011. Kenneth S. Rogoff is a Research Associate in the NBER’s Program on International Finance and Macroeconomics and the Thomas D. Cabot Professor of Public Policy at Harvard University.*

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truce whereby all but a few die-hard real business cycle theorists acknowledge that short-term nominal frictions in goods and labor markets have a significant influence on macroeconomic fluctuations. I use the term "truce" because there is little agreement on the roots of monetary non-neutrality, leaving many open questions about the ultimate welfare effects of policy.

The Second Great Contraction similarly challenges the plausibility of another widely employed assumption in modern macroeconomic theory: that financial markets are perfect and complete in the profound Arrow-Debreu sense of spanning an incomprehensible range of public and private risks. Students of modern macroeconomic theory understand that the assumption of complete financial markets is a huge analytical convenience, allowing one to aggregate individuals and firms while eschewing the need to keep careful score of how shocks idiosyncratically affect winners and losers. There is certainly a great deal of analysis of more general cases allowing for limited asset markets, private information, and yes, sovereign credit risk.<sup>4</sup> Yet, because any departure from complete financial markets quickly can become an accounting and aggregation nightmare, mainstream macroeconomic theorists have been understandably reluctant to embrace alternatives that might be useful in one dimension but difficult to generalize in others, much less to parameterize and quantify.

Still, even before the onset of the Second Great Contraction, it should have bothered macro-theorists more that such a large fraction of world capital markets consists of non-contingent debt, including public and private bonds, as well as bank credit. It is difficult to pin down global aggregates, but a recent McKinsey study found that at the end of 2008, the equity market accounted for roughly \$34 trillion out of \$178 trillion in global assets, with government debt, private credit, and banking accounting for the rest. This figure, of course, is exaggerated by the global stock market crash that occurred after the collapse of Lehman Brothers in 2008, but even at the pre-crisis equity level of \$54 trillion, equity markets represented less than one third of the total. True, there is an entire zoology of derivative markets that makes some of the debt contingent, but incorporating these would not dramatically change the basic point.

There is also a large literature on why so many intertemporal lending contracts, both domestic and international, involve debt that has minimal explicit risk-sharing features.<sup>5</sup> That is, economists

have many models of why non-indexed debt contracts are so disproportionately important in real world finance. The major rationales include asymmetric information and adverse selection, costly state verification, and difficulty in verifying the state in court of law. The last, emphasized by Hart and Moore, is perhaps the most prominent reason cited for why so many sovereign debt contracts have minimal contingencies.<sup>6</sup> This problem, hard enough to circumvent in domestic contracts, is arguably even more profound in the international context. Shiller<sup>7</sup> for example sensibly advocates for having sovereign claims that are indexed to country GDP, and explains why expanded use of such instruments would allow for large gains in international risk sharing. But even aside from explicit default risk, it is difficult to rely too heavily on contracts where the borrower has enormous discretion over creation of statistics (here GDP) that are to be used for indexation. The Argentine government's apparent systematic under-reporting of inflation in recent years is a well known case in point.

There is little doubt that an inability to index international debt flows is a fundamental limitation on the size of global financial markets. But the problem of sovereign default on payment owed to foreigners runs deeper and potentially compromises any form of external claim. After all, foreign direct investment (where companies buy, build, and run plants abroad) is a very highly indexed claim. But the fact that countries routinely tax, regulate, and even nationalize foreign direct investment makes various degrees of default altogether too easy. *En passant*, part of the reason a troubled debtor country such as Greece cannot easily raise large amounts of funds by selling state-owned assets to foreigners is precisely that foreigners rightly distrust how their future claims will be adjudicated. The same institutions' limitations that create a temptation to default on debt can create a temptation to renege on broader state contingent claims. The issue is one of legal enforcement, not simply information as is central to most standard corporate finance analyses.

The economic theory of sover-

eign default has yielded some interesting insights, although the endgame to the European debt crisis may well force a rethinking of the standard models.<sup>8</sup> The most popular theoretical frameworks for analyzing sovereign default are variants of Eaton and Gersovitz's reputational model of international borrowing, and Cohen and Sachs's corporate finance style approach, where the penalty to default is proportional to income.<sup>9</sup> From a theorist's perspective, the Eaton and Gersovitz approach is perhaps the more elegant, as it does not require any knowledge or understanding of international legal conventions; indeed, it assumes legal enforcement irrelevant. The decision to default depends on the trade-off between the short-run benefits and the longer-run costs of financial market autarky that results when a country loses its reputation for repayment. Of course, it is not at all obvious why, if a government defaults on its debt, its loss of reputation will be one-dimensional.<sup>10</sup> Sovereign default is typically associated with broad social duress and institutional breakdowns, not to mention a wide range of sanctions in areas that potentially span from trade to foreign policy. Of course, in the case of the European Union, the potential for broader sanctions is particularly great, given the complex range of interlocking treaties that arguably blur the lines of sovereignty. A second problem with the reputation model is more subtle, having to do with the fact that it is not enough to cut off a defaulting country from borrowing in international capital markets, it must also be cut off from holding assets.<sup>11</sup> This may sound like a small nuance, but it is actually quite important, as the appeal of the pure reputation for repayment models is that they allow one to dispense with any assumptions about the international legal system. And, this is precisely the third problem, at least with the current generation of models. It seems implausible that the imposition of an international sovereign bankruptcy court — a soft variant of which was proposed by the IMF in 2001<sup>12</sup> — would have no implication for sovereign lending, but this issue is left outside reputation-for-repayment models (where foreign creditor legal rights are brushed aside).

Although requiring further parameterization, models that assume that foreign creditors have legal rights, at least over the defaulting country's foreign trade and finance, have proven fertile for policy analysis. Bulow and I<sup>13</sup> show how, if foreign creditors can invoke legal rights to interfere with trade and finance between a defaulting country and its partners, then it is possible to game foreign taxpayers into subsidizing repayments. This, of course, is precisely the moral hazard problem famously emphasized by 1998 Meltzer Commission report to the U.S. Congress on the IMF and the World Bank.<sup>14</sup> Bargaining theoretic models are also useful in analyzing the debt buybacks and other popular debt alleviation schemes that were popular during the 1980s developing country debt crisis, and they have been discussed in the European context today. Bulow and I<sup>15</sup> show that in contrast to the standard corporate finance example, creditors are likely to gain when a country in default employs voluntary participation market buybacks of debt at discount. The basic distinction comes from the fact that in the country case, the resources used in a buyback are typically not ones creditors could expect to seize in the event of default. The buyback typically enhances the stream of cash paid to creditors and bids up the price of any debt that is not tendered in the buyback.

Nevertheless, despite important continuing advances in the sovereign debt literature,<sup>16</sup> there are major deficiencies. The models as yet are of remarkably little use in benchmarking the point at which a country will default on its sovereign debt. Empirical benchmarks and historical experience provide a far better guide. In particular, serial default on sovereign external debt appears to be a nearly universal phenomenon as countries make the transition from emerging markets. Indeed, as Reinhart and I demonstrate in our book, it is a far more universal phenomenon than is commonly recognized, mainly because intervals between sovereign default can be half a century or more. By contrast, the typical cross-country datasets studied by most macroeconomists generally span only a few decades. The origins of serial default and its connection to broader eco-



conomic development are poorly understood at best. Given the limitations of the theoretical literature, policymakers and practitioners must rely on historical quantitative benchmarks, such as those discussed in my papers with Reinhart and by Reinhart and Savastano.<sup>17</sup> These benchmarks turn out to depend importantly on a country's past history of default. Countries with a long history of serial default run into difficulties at much lower levels of debt than countries with a relatively good (if seldom perfect) record of repayment.

Another very important fact that is generally not explained in the theoretical literature is that sovereign defaults rarely happen in a vacuum, and often are connected with other types of financial crises. In their seminal empirical paper on the twin crises, Kaminsky and Reinhart emphasize the deep links between banking and exchange rate crises.<sup>18</sup> Reinhart and I explore the relation between financial crises and sovereign debt crises, finding empirically that waves of financial crises are typically associated with a wave of sovereign debt crises within a few years.<sup>19</sup> While there is some work on trying to draw these linkages, such as Chang and Velasco<sup>20</sup>, there is nothing that lends itself to easy parameterization. Of course, the feedback between banking vulnerability and sovereign debt is front and center in the current euro area crisis.

The fact that international capital markets do not seem to operate as in the perfect markets framework of real business cycle models, of course, is a central implication of the classic paper by Feldstein and Charles Horioka<sup>21</sup>. They use a regression framework to formalize the basic point that for most countries, most of the time, national savings and investment are very large relative to the size of current accounts. Of course, they drew the implication that international financial markets are not nearly as integrated in practice as one might expect in theory. Since then, although much of the empirical literature has supported their basic findings, more recent results have tended to show increasing rates of integration by the Feldstein/Horioka measure.<sup>22</sup> Of course, assuming that the recent financial crisis is followed

in due time by a wave of sovereign defaults, as my work with Reinhart suggests is quite typical, then it is possible the Feldstein/Horioka puzzle may become even more pronounced in the coming years.<sup>23</sup>

In sum, the likely coming wave of sovereign defaults may be a challenge for the global economy, but it is also an important opportunity for research economists to rethink their canonical models of sovereign debt. Problems such as serial default and deep banking crises, which have been neatly ignored in so much of modern macroeconomics, are likely to command our attention for some time to come.

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<sup>1</sup> See *This Time is Different: Eight Centuries of Financial Folly*, Princeton University Press, 2009, chapters 10 and 14, as well as C. M. Reinhart and K. S. Rogoff, "The Aftermath of Financial Crises," NBER Working Paper No. 14656, January 2009, and American Economic Review, 99, May 2009, pp. 466–72. See also "Growth in a Time of Debt," NBER Working Paper No. 15639, January 2010, and American Economic Review, 100 (2), May 2010, pp. 573–78.

<sup>2</sup> The point that waves of financial crises often are followed by waves of sovereign debt crises is highlighted in *This Time is Different: Eight Centuries of Financial Folly*, and explored in much greater detail in "From Financial Crash to Debt Crisis," forthcoming, American Economic Review, August 2011.

<sup>3</sup> Of course, although the Second Great Contraction has not been the Second Great Depression, unemployment today still exceeds 9 percent.

<sup>4</sup> A number of examples of capital market imperfections are illustrated in M. Obstfeld and K. S. Rogoff, *The Foundations of International Macroeconomics*, MIT Press, 1996.

<sup>5</sup> For an excellent survey of the issues, see J. Stein, "Agency Information and Corporate Investment," *Handbook of the Economics of Finance*, G. Constantinides, M. Harris, and R. Stulz, eds., Elsevier Science BV, 2003.

<sup>6</sup> O. Hart and J. Moore, "Incomplete Contracts and Renegotiation," *Econometrica* 56 (4), July 1988. See also

R.M. Townsend, "Optimal Contracts and Competitive Markets with Costly State Verification," *Journal of Economic Theory* 21 (1979).

<sup>7</sup> R. J. Shiller, *Macro Markets: Creating Institutions to Manage Society's Largest Economic Risks*, Oxford, UK Clarendon Press, 1993.

<sup>8</sup> The discussion below draws on J. Bulow and K. S. Rogoff, "Sovereign Debt Repurchases: No Cure for Overhang," *Quarterly Journal of Economics* 106, November 1991, pp. 1219–35; "Sovereign Debt: Is to Forgive to Forget?," *American Economic Review* 79, March 1989, pp. 43–50; "A Constant Recontracting Model of Sovereign Debt," *The Journal of Political Economy* 97, February 1989, pp. 155–78; "The Buyback Boondoggle," *Brookings Papers on Economic Activity*: no. 2, 1988, pp. 675–98; and M. Obstfeld and K. S. Rogoff, *Foundations of International Macroeconomics*, MIT Press, 1996.

<sup>9</sup> J. Eaton and M. Gersovitz, "Debt with Potential Repudiation: Theory and Estimation," *Review of Economics Studies* 48, (1981), pp. 76–88; D.M. Cohen, and J. D. Sachs, "Growth and External Debt under Risk of Debt Repudiation," *European Economic Review* 30, June 1986, pp. 529–60.

<sup>10</sup> See Bulow and Rogoff, *op cit*, and H. Cole and P. Kehoe, "Models of Sovereign Debt: Partial versus General Reputations," *International Economic Review* 39, February 1998, pp. 55–70.

<sup>11</sup> The fact that sanctions must cut off a country from financial markets and not simply borrowing is demonstrated in Bulow and Rogoff (1989).

<sup>12</sup> For a survey of proposals for international bankruptcy courts, see K.S. Rogoff and J. Zettelmeyer, "Bankruptcy Procedures for Sovereigns: A History of Ideas, 1976–2001," *International Monetary Fund Staff Papers* 49, September 2002, pp. 471–507.

<sup>13</sup> J. Bulow and K. S. Rogoff, "Multilateral Negotiations for Rescheduling Developing Country Debt: A Bargaining-Theoretic Framework," *International Monetary Fund Staff Papers* 35, December 1988, pp. 644–57.

<sup>14</sup> Report of the International Financial

Institution Advisory Commission, Allan H. Meltzer, Chair, U.S. Congress, Joint Economic Committee, Washington D.C., March 2000.

<sup>15</sup> J. Bulow and K. S. Rogoff, "Sovereign Debt Repurchases: No Cure for Overhang," *Quarterly Journal of Economics* 106, November 1991, pp. 1219–35; "Sovereign Debt: Is to Forgive to Forget?," *American Economic Review* 79, March 1989, pp. 43–50; "A Constant Recontracting Model of Sovereign Debt," *The Journal of Political Economy* 97, February 1989, pp. 155–78; "The Buyback Boondoggle," *Brookings Papers on Economic Activity*: no. 2, 1988, pp. 675–98.

<sup>16</sup> For example, M. Aguiar, M. Amador, and G. Gopinath, "Investment Cycle and Debt Overhang," *Review of Economic*

*Studies*, January 2009, or the literature reviewed in chapter 6 of Obstfeld and Rogoff, 1996.

<sup>17</sup> See Reinhart and Rogoff, 2009, chapter 9, and C. Reinhart, K. S. Rogoff, and M. Savastano, "Debt Intolerance," in W. Brainard and G. Perry, eds., *Brookings Papers on Economic Activity 1: 2003*, pp. 1–74.

<sup>18</sup> G. L. Kaminsky and C. M. Reinhart, "The Twin Crises: The Causes of Banking and Balance of Payments Problems," *American Economic Review* 89(3), June 1999, pp. 473–500.

<sup>19</sup> "From Financial Crash to Debt Crisis," forthcoming, *American Economic Review*, August 2011.

<sup>20</sup> R. Chang and Andres Velasco, "A Model of Financial Crises in Emerging Markets," *Quarterly Journal of Economics* 116 (May

2011), pp. 489–517.

<sup>21</sup> M. Feldstein, and C. Horioka, "Domestic Saving and International Capital Flows," *Economic Journal* Vol. 90, No. 358, 1980, pp. 314–29.

<sup>22</sup> O. J. Blanchard and F. Giovazzi, "Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle," in G. Perry and W. Brainard, eds., *Brookings Papers on Economic Activity*, September 2002.

<sup>23</sup> This Time is Different: Eight Centuries of Financial Folly, *Princeton University Press*, 2009, chapters 10 and 14, as well as C. M. Reinhart and K. S. Rogoff, "The Aftermath of Financial Crises," *NBER Working Paper No. 14656*, January 2009, and *American Economic Review*, 99, (May 2009), pp. 466–72.

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## Research Summaries

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### Selection and Asymmetric Information in Insurance Markets

Liran Einav and Amy Finkelstein \*

Since the seminal theoretical work of Arrow, Akerlof, and Rothschild and Stiglitz, economists have been aware of the potential for market failures arising from the existence of asymmetric information in private insur-

ance markets. The possibility that competitive forces may not push toward efficiency in such a large and important class of markets creates interesting and difficult economic and policy issues. It also poses a challenge for empirical research: identifying and quantifying the effects of asymmetric information and tracing its implications for welfare, competition, and government policy.

The empirical research in this area has advanced rapidly over the past decade. However, although providing valuable descriptive information about the workings of an insurance market, tests for whether asymmetric information actually exists in particular insurance markets and in what

form have some important limitations. Notably, without a clear mapping from patterns in the data to underlying economic primitives, the tests are relatively uninformative about the extent of market inefficiency or the welfare impact of potential market interventions.

Motivated by these concerns, we and our coauthors have written a series of papers that attempt to incorporate theoretically grounded specifications of consumer preferences and firms' pricing into this analysis. Our models can be used to quantify both the welfare distortions arising from asymmetric information and the potential welfare consequences of such government policies as

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