

Law & Finance Events



UNIVERSITY OF
OXFORD

Leverhulme Lectures 2010

5.30-6.30pm, Gulbenkian Lecture Theatre,
Faculty of Law, St. Cross Road, Oxford OX1 3UL

Tuesday, 9 November:

The Global Financial Crisis and Systemic Risk

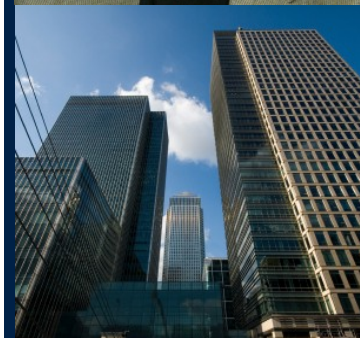
Wednesday, 10 November:

Regulating Complexity in Financial Markets

Thursday, 11 November:

The Future of Securitisation

Professor Steven L. Schwarcz,
Stanley A. Star Professor of Law and Business,
Duke University; Leverhulme Visiting Professor
of Law, Oxford University (Michaelmas 2010).



LEVERHULME LECTURE
THE GLOBAL FINANCIAL CRISIS AND SYSTEMIC
RISK¹

9 November 2010, Oxford University

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This lecture examines the causes of the global financial crisis, showing it was triggered by market failures, not by financial institution failures, and arguing that any regulatory framework for managing systemic risk must address markets as well as institutions. The lecture also analyzes how regulation should be designed under that broader framework to mitigate systemic risk and its consequences. Finally, the lecture examines the potential systemic effects of sovereign debt crises, demonstrating how regulation can mitigate those effects.

¹ © 2010 by Steven L. Schwarcz. This lecture is based in part on the following works: *Systemic Risk*, 97 GEORGETOWN L. J. 193 (2008), available at http://ssrn.com/abstract_id=1008326; *Protecting Financial Markets: Lessons from the Subprime Mortgage Meltdown*, 93 MINNESOTA L. REV. 373 (2008), available at http://ssrn.com/abstract_id=1107444; *Conflicts and Financial Collapse: The Problem of Secondary-Management Agency Costs*, 26 YALE J. ON REG. 457 (2009), available at http://ssrn.com/abstract_id=1322536; *Disclosure's Failure in the Subprime Mortgage Crisis*, 2008 UTAH. L. REV. 1109, available at http://ssrn.com/abstract_id=1113034; *Understanding the Subprime Financial Crisis*, 60 S. C. L. REV. 549 (2009), available at http://ssrn.com/abstract_id=1288687; *Sovereign Debt Restructuring: A Bankruptcy Reorganization Approach*, 85 CORNELL L. REV. 956 (2000), available at http://scholarship.law.duke.edu/faculty_scholarship/508/; and *Facing the Debt Challenge of Countries That Are 'Too Big To Fail'*, forthcoming in SOVEREIGN DEBT: FROM SAFETY TO DEFAULT (Robert W. Kolb, ed. 2010-11), available at <http://ssrn.com/abstract=1635872>.

INTRODUCTION

Although banks and other financial institutions are important sources of capital, and although a chain of bank failures remains an important symbol of systemic risk, the ongoing trend towards disintermediation—or enabling companies to access the ultimate source of funds, the capital markets, without going through banks or other financial intermediaries—is making these failures less critical than in the past. Companies today are able to obtain most of their financing through the capital markets without the use of intermediaries. As a result, capital markets themselves are increasingly central to any examination of systemic risk. Systemic disturbances can erupt outside the banking system and spread through capital-market linkages, rather than merely through banking relationships.

This has been dramatically illustrated by the global financial crisis. Although many think the crisis started with the bankruptcy of Lehman Brothers, the initial trigger was the collapse of the market for mortgage-backed securities. A significant number of these securities were backed by subprime (or risky) home mortgages, which were expected to be refinanced through home appreciation. When home prices stopped appreciating, the borrowers could not refinance. In many cases, they defaulted.

These defaults in turn caused substantial amounts of investment-grade rated securities backed by these mortgages to be downgraded and, in some cases, to default. Investors began losing confidence in these and other rated securities, and their market prices started falling.

Lehman Brothers, which held large amounts of mortgage-backed securities, was particularly exposed. Firms that had been doing business with Lehman—its ‘counterparties’—began demanding additional safeguards, which Lehman could not provide. As a result, absent a bailout, Lehman could not continue doing business.

The refusal of the U.S. Government to save Lehman Brothers, and Lehman’s resulting bankruptcy, added to this cascade. Securities markets became so panicked that even the short-term commercial paper market virtually shut down, and the market prices of mortgage-backed securities collapsed substantially below the intrinsic value of the mortgage assets underlying those securities. {Give example of July 2008 Orion Finance SIV case in English High Court of Justice, in which I was an expert. Its mortgage-backed securities had a market value of around 22 cents/dollar, whereas the present value of its reasonably-expected cash flows would yield a value around 88 cents/dollar. }

The cascade became a death spiral as banks and other financial institutions holding mortgage-backed securities had to write down their value under mark-to-market accounting rules, causing these institutions to appear more financially risky, in turn triggering widespread concern over counterparty risk. The high leverage of many firms, which effectively required fire-sales of assets, exacerbated the fall.

Although governments have taken numerous steps to address the collapse, most of those steps have focused on institutions, not markets. Such a narrow focus worked well when banks and institutions were the primary

source of corporate financing. But as the financial crisis reveals, this focus is insufficient now that companies obtain much of their financing directly through capital markets.

I believe that *institutional* systemic risk and *market* systemic risk should not be viewed each in isolation. Institutions and markets can both be triggers and transmitters of systemic risk.

ANALYSIS

How should we regulate systemic risk? This is a subset of the problem of regulating *financial* risk. Scholars argue that the primary if not sole justification for regulating financial risk is maximizing economic efficiency. Because systemic risk is a form of financial risk, efficiency should be a central goal in its regulation.

Efficiency, however, has a somewhat unique added dimension in the context of systemic risk. Without regulation, the externalities caused by systemic risk would not be prevented or internalized because systemic risk pertains to risks to the financial system itself. Market participants are motivated to protect themselves but not necessarily to protect the system as a whole.

As a result, there is a type of “tragedy of the commons,” a collective action problem in which the benefits of exploiting finite capital resources accrue to individual market participants, each of whom is motivated to maximize use of the resources, whereas the costs of exploitation, which

affect the real economy, are distributed among an even wider class of persons. Any regulation of systemic risk thus should focus not only on traditional efficiency *but also on stability* of the financial system.

In examining regulatory approaches to systemic risk, one should also take into account the costs of regulation. There are direct costs, such as hiring government employees to monitor and enforce the regulations. But more importantly there can be indirect costs, such as overregulation that stifles innovation and competitiveness.

Subject to that caveat, consider the following possible regulatory approaches.

Averting Panics. The ideal regulatory approach would aim to eliminate the risk of systemic collapse from the outset. Theoretically this goal could be achieved by preventing financial panics, since they are often the triggers that commence a chain of failures. The global financial crisis itself, for example, was initially triggered by financial market panic. Any regulation aimed at preventing panics that trigger systemic risk, however, could fail to anticipate all the causes of the panics. Furthermore, even when identified, panics cannot always be averted easily because investors are not always rational.

Requiring Increased Disclosure. Another potential regulatory approach is to improve disclosure. Disclosing risks traditionally has been viewed, at least under U.S. and most foreign securities laws, as the primary market-regulatory mechanism. It works by reducing, if not eliminating,

asymmetric information among market players, making the risks transparent to all.

In the context of systemic risk, however, individual market participants who fully understand that risk will be motivated to protect themselves but not the system as a whole.

Furthermore, the efficacy of disclosure is limited by the increasing complexity of transactions and markets—complexity being, I believe, the greatest 21st Century challenge for our financial system. In the recent financial crisis, for example, there is little question that virtually everything was disclosed regarding the complex mortgage-backed securities. Yet many institutional investors bought these securities based primarily on their ratings, without fully understanding them.

There are a host of reasons why this occurred. (i) Analysts overrelied on heuristics such as rating-agency ratings. (ii) Analysts and investors followed the herd in their investment choices. (iii) Conflicts of interest were driven by short-term management compensation schemes, especially for technically sophisticated secondary managers (and tomorrow I'll discuss how mathematical modeling, like value-at-risk (VaR), contributed to this); this is a conflict unlike the traditional focus of scholars and politicians on conflicts between senior managers and shareholders. (iv) The retention by underwriters of residual risk portions may have fostered false confidence in buyers, in effect creating a *mutual misunderstanding*; this could be exacerbated in the future by the political solution that sellers retain a minimum unhedged position in each class of securities they sell.

Requiring increased disclosure would therefore do little to reduce systemic risk. We should, however, address the conflicts of interest that are inherent in short-term compensation structures, especially of secondary managers.

Imposing Financial-Exposure Limits. The failure of one or more large institutions could create defaults large enough to de-stabilize other highly-leveraged investors, increasing the likelihood of a systemic market meltdown. This suggests another possible approach to regulation: placing limits on an institution's financial exposure.

These limits could be imposed in various ways, such as (i) limiting an institution's leverage; (ii) limiting an institution's right to make risky investments, such as the so-called Volker Rule's proposal to limit proprietary trading; and (iii) limiting amounts of inter-institution exposure. Consider each in turn.

(i) Limiting an institution's leverage could reduce the risk that an institution fails in the first place. It also could reduce the likelihood of transmitting financial contagion between institutions. But limiting leverage can create significant costs. Some leverage is good, and there is no optimal across-the-board amount of leverage that is right for every institution.

(ii) Limiting an institution's right to make investments is a highly paternalistic approach, substituting a blanket regulatory prescription for a

firm's own business judgment. In general, I would be highly skeptical of any rule that attempts to protect a sophisticated financial institution from itself.

(iii) Inter-institution financial-exposure limits would facilitate stability by diversifying risk, in effect by reducing the losses of any given contractual counterparty and thus the likelihood that such losses would cause the counterparty to fail. Limits also might reduce the urgency, and hence the panic, that contractual counterparties feel about closing out their positions.

This approach already applies to banks through lending limits, which restrict the amount of bank exposure to any given customer's risk. Its application beyond banks to other financial institutions is potentially appealing given the increasing blurring of lines between banks and non-bank financial institutions and the high volumes of financial assets circulating among non-bank financial entities.

It is questionable, though, whether the government should impose financial exposure limits on institutions. Large financial institutions already try to protect themselves through risk management and risk mitigation. The financial crisis has raised questions, though, whether conflicts of interest among managers and other failures can undermine institutional risk management.

Limiting Financial Institution Size. This is related to financial exposure limits; but here there is also the moral-hazard potential that institutions who believe they are "too big to fail" will engage in risky projects. There is, however, no clear evidence of such risky behavior, and

financial institutional losses in the global financial crisis can all be explained by other reasons. (I later argue that a privately-funded systemic risk fund can minimize *even the potential* for such risky behavior.)

I would caution against artificially limiting financial institution size. Size should be governed by the economies of scale and scope needed for institutions to successfully compete, domestically and abroad—so long as that size is manageable. We should watch out, however, for institutions that increase their size, especially by acquisition of other institutions, primarily to satisfy senior management egos. That is yet another reason why management compensation should, ideally, be tied to long-term results.

Ensuring Liquidity. Ensuring liquidity could facilitate stability in two ways: by providing liquidity to prevent financial institutions from defaulting, and by providing liquidity to capital markets as necessary to keep them functioning.

In the United States, the Federal Reserve Bank has had the role of providing liquidity to prevent financial institutions from defaulting, by acting as a lender of last resort. Acting as a lender of last resort to institutions can be costly, however. By providing a lifeline, a lender of last resort can at least theoretically foster moral hazard by encouraging financial institutions—especially those that believe they are “too big to fail”—to be fiscally reckless. It also can shift costs to taxpayers since loans made to institutions will not be repaid if the institutions eventually fail. For these reasons, the Dodd-Frank Act in the U.S. sharply limits the power of the Federal Reserve to make emergency loans to individual or insolvent

financial institutions. I regard that categorical limitation as perverse; a lender of last resort can be an important safeguard if used judiciously.

Regardless of how one views a lender of last resort to financial institutions, the global financial crisis has shown that, in an era of disintermediation, more attention needs to be focused on providing liquidity to capital markets as necessary to keep them functioning. This approach should also be less costly than lending to institutions. A market liquidity provider of last resort, especially if it acts at the outset of a market panic, can profitably invest in securities at a deep discount from the market price and still provide a “floor” to how low the market will drop. Buying at a deep discount will mitigate moral hazard and also make it likely that the market liquidity provider will be repaid.

One might ask why, if a market liquidity provider of last resort can invest at a deep discount to stabilize markets and still make money, private investors won't also do so, thereby eliminating the need for some sort of governmental market liquidity provider. One answer is that individuals at investing firms will not want to jeopardize their reputations (and jobs) by causing their firms to invest at a time when other investors have abandoned the market. Another answer is that private investors usually want to buy and sell securities, not waiting for their maturities, whereas a market liquidity provider of last resort should be able to wait until maturity, if necessary.

Ad Hoc Approaches. The cost and effectiveness of ad hoc, or purely reactive, regulatory responses to systemic risk are, of course, partly dependent on what those responses turn out to be. Ad hoc approaches do not

always work. Sometimes they are too late and the harm has been done or no longer can be prevented, and sometimes there is insufficient time to fashion and implement an optimal solution.

But ad hoc approaches should not be dismissed out of hand. They can help to minimize the difficulties in measuring, and balancing, costs and benefits; and they can reduce moral-hazard cost to the extent an institution cannot know in advance whether, if it faces financial failure, it will be bailed out or fail.

Market Discipline. Under a market-discipline approach, the regulator's job is to ensure that market participants exercise the type of diligence that enables the market to work efficiently. This was the type of approach taken by the United States government under the second Bush administration.

Textbooks claim that perfect markets would never need external regulation, thereby providing support for a market-discipline approach. However actual markets, including financial markets, are not perfect. Furthermore, as illustrated by the tragedy of the commons, a firm can lack sufficient incentive to limit its risk taking in order to reduce the danger of systemic contagion for other firms.

The financial crisis dramatically confirms that market discipline alone cannot always prevent systemic risk.

RECOMMENDATIONS

Of the regulatory approaches identified so far, I would recommend at least two: ensure that managers (including secondary managers) of financial institutions are compensated based on long-term firm performance; and establish a market liquidity provider of last resort.

Let me expand on the latter recommendation. A market liquidity provider of last resort would have the best chance of minimizing a systemic collapse under any number of circumstances. But to be successful, it must be made operational in advance of a market collapse, which can occur rapidly and without warning.

Chaos theory supports the concept of a market liquidity provider of last resort. In complex engineering systems, failures are inevitable. Therefore modularity is needed to break the transmission of these failures and limit their systemic consequences. Such a mechanism usually exists for banks (a liquidity provider of last resort); we also need one for complex financial markets.

Recent experience in the financial crisis supports establishment of a market liquidity provider of last resort. In response to the collapse of the commercial paper market, the U.S. Federal Reserve created the Commercial Paper Funding Facility (“CPFF”) to act as a lender of last resort for that market, with the goal of addressing “temporary liquidity distortions” by purchasing commercial paper from highly rated issuers that could not

otherwise sell their paper.² The CFFF apparently helped to stabilize the commercial paper market.³

I also would recommend a third regulatory approach: in response to the tragedy-of-the-commons problem, to require financial institutions of systemic significance to contribute to a fund that would be used to mitigate systemic externalities—such as by funding the market liquidity provider or providing bank bailout monies. This approach was originally in the Dodd-Frank Act, but it was taken out at the last minute because of opposition by politicians who believed (in my opinion, wrongly) that it would increase moral hazard by institutionalizing bailouts.

A privately-funded systemic risk fund not only can mitigate systemic externalities but also can help minimize the potential for risky behavior caused by institutions that believe they are too big to fail. The too-big-to-fail problem is effectively an externality imposed on government (and ultimately taxpayers) by an institution engaging in such risky behavior. A privately-funded systemic risk fund would help to internalize that externality. Furthermore, the ability of government to require additional contributions to this type of fund should motivate contributors to the fund to monitor each other to reduce the potential for such risky behavior.

Recently, the European Commission has been toying with the idea of a systemic risk fund in connection with its proposal to tax the financial

² See Tobias Adrian, Karin Kimbrough, & Dina Marchioni, ‘The Federal Reserve’s Commercial Paper Funding Facility,’ FRBNY Econ. Policy Rev. (forthcoming).

sector. Although the ultimate use of the tax revenues is currently unresolved, news reports indicate that an originally contemplated use was a systemic risk fund. The IMF also appears to be using the European Commission tax proposal as a platform to announce that ‘new taxes on banks [are] needed to provide an insurance fund for future financial meltdowns and to curb excessive risktaking.’⁴

INTERNATIONAL DIMENSIONS

Because financial markets and institutions increasingly cross sovereign borders, any regulatory approaches must be designed to work in an international context. We should consider (a) the feasibility of internationally regulating systemic risk, (b) the extent to which a market liquidity provider of last resort or other regulatory solutions are universal or should be different for different countries, and (c) the potential for a regulatory race to the bottom, international regulatory arbitrage, or even undermining national competitiveness if regulation is done only on a national level. For example, the European Commission recognizes that to avoid making the EU financial sector uncompetitive, any tax on the financial sector should be applied in all financial centres.

SOVEREIGN DEBT ISSUES RELATING TO SYSTEMIC RISK

³ *Id.* at 11 (concluding that “[t]he CPFF indeed had a stabilizing effect on the commercial paper market”).

⁴ Larry Elliott & Jill Treanor, *IMF: Supervise and Tax Banks or Risk Crisis*, THE GUARDIAN, Oct. 8, 2010, at 25 (London-final ed.) (paraphrasing an announcement by IMF Managing Director Dominique Strauss-Kahn).

Any discussion of the global financial crisis and systemic risk should also address the problem of sovereign debt restructuring. Even relatively small nations, like Greece, can be seen as too big to fail if their default could trigger wider economic collapse. As a result, they are often bailed out.

Bailouts can foster true moral hazard because nations, unlike financial institutions, cannot be liquidated, and governments have strong political incentives to avoid reducing services or raising taxes. The Greek government, for example, did little to impose fiscal austerity even as debts accumulated. Furthermore, bailouts are terribly expensive—in the case of Greece costing potentially hundreds of billions of euros.

This is a growing problem: as global capital markets increasingly (and inevitably) embrace sovereign bonds, the potential for a country's debt default to trigger a larger systemic collapse becomes even more tightly linked.

The alternative to a bailout is an orderly debt restructuring, but that's usually impractical because of two market failures: a holdout problem, and a funding problem. The holdout problem is that any given creditor has an incentive to strategically hold out from agreeing to a reasonable debt-restructuring plan, hoping that the imperative of others to settle will persuade them to allocate the holdout more than its fair share of the settlement or purchase the holdout's claim.⁵ The funding problem is that a

⁵ This problem was playfully illustrated in the 1999 British movie, *Waking Ned Devine*. Devine, an elderly man in a remote Irish village, wins the national lottery but immediately dies of shock (without heirs). The townspeople want to have one of their

country is likely to need to borrow new money to pay critical expenses during the debt restructuring process but no lender is likely to be willing to lend such funds unless its right to repayment has priority over existing debt claims. Any effective solution to the sovereign debt dilemma would have to address these two problems.

Addressing the Holdout Problem

The holdout problem can be addressed by legislating, through international treaty, a form of “super-majority” voting on sovereign debt-restructuring plans, in which the vote by the overwhelming majority of similarly situated creditors can bind dissenting creditors. This is the tried-and-true method by which insolvency law, including Chapter 11 of the U.S. Bankruptcy Code, successfully and equitably addresses the holdout problem in a corporate context and achieves consensual debt restructuring. Because only similarly situated creditors can vote to bind dissenting creditors, and because any outcome of voting will bind all those creditors alike, the outcomes of votes should benefit the claims of holdouts and dissenters as much as the claims of the super-majority.

The IMF actually proposed, some years back, a sovereign debt restructuring convention similar to this, based on scholarly research of the problem (including my own research). The convention was never adopted, however, because of political opposition in the United States by the second Bush Administration, apparently based on philosophical dogma that free-

own impersonate him, thereby receiving the lottery money—which would be split evenly among the residents. But one resident threatens to reveal the ruse to the authorities unless she receives a disproportionately high share.

market solutions always ought to trump legislative ones. They instead favored solving the holdout problem contractually through what are referred to as collective-action clauses, allowing essential payment terms of a loan facility to be changed through super-majority, as opposed to unanimous, voting.

There are, however, two fundamental problems with collective-action clauses. First, collective-action clauses are not always included in sovereign loan and bond agreements. In the Greek debt crisis, for example, 90 percent of the total debt was *not* governed by collective-action clauses. Second, even if every sovereign loan and bond agreement included collective-action clauses, those clauses only work on an agreement-by-agreement basis. Therefore, any one or more syndicate of banks or group of bondholders that fails to achieve a super-majority vote would itself be a holdout vis-à-vis other creditors. It therefore is unlikely that collective-action clauses can ever effectively resolve the holdout problem in sovereign-debt restructuring.

I therefore believe that an international convention, in which super-majority voting can bind all of a nation's creditors, is needed to solve the holdout problem.

Addressing the Funding Problem

Such a convention could also address the funding problem. A simple remedy would be to grant a first priority right of repayment to loans of new money made to enable a country to pay critical expenses during the debt restructuring process. Existing creditors can be protected by giving them the right to object to a new-money loan if its amount is too high or its terms are

inappropriate. Existing creditors will also be further protected because a country that abuses new-money lending privileges will be unlikely to receive super-majority creditor approval for a debt-restructuring plan.

Consensus and Disputes

Once these market failures have been addressed, the remainder of the sovereign debt restructuring process can be consensual. A consensual process would not undermine the rule of law, as would an attempt by a nation to impose a “haircut” on its bonds such as by unilaterally reducing the principal amount of the bonds or the rate of interest payable thereunder. Nor should a consensual restructuring increase borrowing costs for other nations. Indeed, a nation whose debt has been consensually restructured should itself be able to borrow new money at attractive rates.

Nor would a sovereign debt restructuring process need to depend on the creation of a “bankruptcy” court or other costly institutional arbiter. Indeed, the experience of corporate debt restructuring in the United States under Chapter 11 confirms that the parties themselves do most of the negotiating. When parties cannot reach agreement on issues, a relatively low-cost and straightforward procedure already exists under international law for this purpose. The International Centre for Settlement of Investment Disputes (ICSID), an autonomous body created under the auspices of the World Bank, provides facilities for arbitration of investment disputes. The ICSID arbitration procedure is well established, commonly used, and widely accepted, and it should be a useful model to the extent that a tribunal is needed to resolve sovereign debt restructuring disputes.