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Markets, Systemic Risk, and the  
Subprime Mortgage Crisis

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## SMU Dedman School of Law

### Roy R. Ray Lecture

# Markets, Systemic Risk, and the Subprime Mortgage Crisis<sup>1</sup>

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*Abstract: The recent subprime mortgage meltdown is undermining financial market stability and has the potential to cause a true systemic breakdown, collapsing the world's financial system like a row of dominoes. This essay uses the subprime crisis to demonstrate that existing protections against systemic risk, which focus on banks and largely ignore financial markets, are misguided. Because companies increasingly access financial markets without going through banks, an effective framework for containing systemic risk must focus on markets.*

#### Introduction.

In a forthcoming article, I have examined financial-market anomalies and obvious market protections that failed, seeking insight into the subprime mortgage crisis.<sup>3</sup> The crisis can be explained in large part by three categories of factors: conflicts,

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<sup>1</sup> Copyright © 2008 by Steven L. Schwarcz. This essay is based on the author's Roy R. Ray Lecture at the Southern Methodist University School of Law [being delivered] on March 25, 2008. Parts of the essay also derive from the author's forthcoming articles, *Systemic Risk*, [cite], and *Protecting Financial Markets: Lessons from the Subprime Mortgage Crisis*, [cite].

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<sup>3</sup> Schwarcz, *Protecting Financial Markets*, *supra* note 1, at \_\_\_.

complacency, and complexity. Running throughout these categories is a fourth factor, cupidity; but because greed so ingrained in human nature and so intertwined with the other categories, it adds little insight to view it as a separate category.

For example, the excesses of the originate-and-distribute model of mortgage securitization—under which mortgage lenders sell off loans as they are made which are then packaged into mortgage-backed securities and sold to investors—can be managed by avoiding conflicts, such as aligning the interests of the mortgage lenders and investors.<sup>4</sup> The excesses of the form of complacency perhaps most responsible for the subprime mortgage crisis—widespread investor infatuation with securities that have no established market and, instead, are valued by being marked-to-model—have at least in the near-term been discredited by the losses associated with the subprime crisis itself.<sup>5</sup> Complexity, the third category, was a central culprit responsible for the failure of disclosure in the subprime crisis, but viable solutions appear to be second best.<sup>6</sup>

The subprime crisis, however, is increasingly likely to trigger an even more systemic collapse of our financial markets *for reasons that go beyond these categories*. The risk of this collapse (“systemic risk”) is, more generally, regarded as the risk that an economic shock—in the present case, the subprime mortgage crisis—can trigger a chain of market failures, resulting in increases in the cost of capital or decreases in its availability.<sup>7</sup> Because systemic risk is positively correlated with markets, investors cannot diversify it away.<sup>8</sup>

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<sup>4</sup> *Id.* at \_\_\_.

<sup>5</sup> *Id.* at \_\_\_.

<sup>6</sup> *Id.* at \_\_\_. See also Steven L. Schwarcz, *Rethinking the Disclosure Paradigm in a World of Complexity*, 2004 U. ILL. L. REV. 1.

<sup>7</sup> Schwarcz, *Systemic Risk*, *supra* note 1, at \_\_\_.

<sup>8</sup> Cf. RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 446 (6<sup>th</sup> ed. 2003) (arguing that risk that is positively correlated with the market itself cannot be diversified away).

Governments in the United States and abroad are seriously concerned about the subprime crisis and its potential systemic consequences.<sup>9</sup> I will use this crisis to demonstrate, however, that existing protections against systemic risk are insufficient.

### Analysis.

In the past, regulators have thought about systemic risk primarily in terms of institutional failures—in the Great Depression, for example, bank failures<sup>10</sup>; and in the 1990s, the near-failure of hedge fund Long-Term Capital Management (“LTCM”).<sup>11</sup> Yet companies increasingly obtain their capital from financial markets, not from banks or other financial institutions. This shift, referred to as disintermediation,<sup>12</sup> makes financial markets increasingly central to any examination of systemic risk. Some financial leaders are already beginning to call for an expanded focus on markets.<sup>13</sup>

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<sup>9</sup> See, e.g., *Systemic Risk: Examining Regulators’ Ability to Respond to Threats to the Financial System: Hearing Before the H. Committee on Financial Services*, 110<sup>th</sup> Cong. (Oct. 2, 2007), available at [http://www.house.gov/apps/list/hearing/financialsvcs\\_dem/ht1002072.shtml](http://www.house.gov/apps/list/hearing/financialsvcs_dem/ht1002072.shtml); Lauren Young, *Bernanke’s New Entourage*, BUS. WK, Feb. 11, 2008, at 60 (discussing the Federal Reserve’s concern over the subprime mortgage crisis and its potential systemic effect); [add foreign cites].

<sup>10</sup> In response to the stock market downturn of August 1929 and the crash of October 1929, depositors en masse attempted to convert their bank deposits into cash. Many banks were unable to satisfy all of these demands, causing them to fail and contracting the money supply. These failures, in turn, caused many otherwise solvent banks to default, and many companies, deprived of liquidity, were forced into bankruptcy. Gary Richardson, *Bank Distress During the Great Contraction, 1929 to 1933, New Data from the Archives of the Board of Governors* 24 (Nat’l Bureau of Econ. Research, Working Paper No. 12590, 2006); FREDERIC S. MISHKIN, *THE ECONOMICS OF MONEY, BANKING, AND FINANCIAL MARKETS* 261 (7th ed. update 2006).

<sup>11</sup> Statement by William J. McDonough, President of the Federal Reserve Bank of New York, before the Committee on Banking and Financial Services, U.S. House of Representatives, Oct. 1, 1998 (discussing likely consequences of a systemic collapse triggered by a failure of LTCM).

<sup>12</sup> WESLEY B. TRUITT, *THE CORPORATION* 107–09 (2006); Steven L. Schwarcz, *Enron and the Use and Abuse of Special Purpose Entities in Corporate Structures*, 70 U. CIN. L. REV. 1309, 1315 (2002).

<sup>13</sup> See John Gieve (Deputy Governor, Bank of England), Speech at the Centre for the Study of Financial Innovation Roundtable: Financial System Risks in the UK—Issues and Challenges (July 25, 2006); Andre Icard (Deputy Manager for the Bank for Int’l Settlements [BIS]), *Risk Measurement and Systemic Risk*, Speech at the Fourth Joint

The subprime mortgage crisis confirms the importance of this expanded focus. The crisis was triggered not by institutional failure but by market failure. Once investors realized that highly-rated subprime mortgage-backed securities could lose money, they began shunning all complex securitization products,<sup>14</sup> including asset-backed commercial paper which was thought to be almost as safe as cash.<sup>15</sup> The impact of this crisis is already becoming systemic, extending beyond mortgage- and asset-backed securities to the auction-rate securities market, which many regarded as highly-liquid and secure,<sup>16</sup> and to credit markets generally.<sup>17</sup>

Existing protections against systemic risk are failing in the subprime crisis because they focus almost exclusively on banks, not markets. And general regulatory

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Central Bank Research Conference on Risk Management and Systemic Risk (Nov. 8, 2005), *available at* [www.bis.org/speeches/sp051108.htm](http://www.bis.org/speeches/sp051108.htm) (discussing the “evolution of systemic risk” to include interdependencies among banks, financial markets, and market infrastructure); Yutaka Yamaguchi, *Triangular View of Systemic Risk and Central Bank Responsibility*, Speech for the Third Conference on Risk Measurement and Systemic Risk (Bank for Int’l Settlements) (2002), *available at* <http://www.bis.org/cgfs/conf/mar02h.pdf>. (warning that in order to understand systemic risk, one must investigate the nexus among the banking system, financial markets, and the real economy).

<sup>14</sup> Cf. Markus Brunnermeier, “2007 Liquidity Crisis” (on file with author) (speculating that when investors realized how difficult it was to value mortgage structured products, the volatility of all structured products increased). This problem is sometime referred to as “adverse selection.” In the subprime crisis, investors became uncertain which securitization products were good and which were bad. They therefore stopped investing in all securitization products. This partly resulted from an inability to value some of the more complex mortgage-backed securities for which there was no active trading market. Valuation therefore was priced off quantitative models. Marking-to-model, however, creates intrinsic valuation uncertainties, and indeed the valuations priced off those models proved hopelessly unreliable.

<sup>15</sup> [cite]

<sup>16</sup> [cite]

<sup>17</sup> See, e.g., Martin Feldstein, *Our Economic Dilemma*, WALL ST. J., Feb. 20, 2008, at A15 (observing “the paralysis of the credit markets”). Part of the reason that credits markets generally are being affected is adverse selection as to credit counterparties (not merely adverse selection as to securitization products, discussed *supra* note 14). Investors have become uncertain which counterparties have large investments in questionable securities, making such counterparties potentially financially shaky.

protections against market failure—primarily disclosure under the securities laws,<sup>18</sup> and the “market discipline” approach of the current Administration<sup>19</sup>—are not directed against systemic risk per se.

More tailored financial-market regulation is needed because systemic risk is somewhat unique. It results from a type of tragedy of the commons<sup>20</sup> in which the motivation of market participants “is to protect themselves but not the system as a whole. . . . No firm . . . has an incentive to limit its risk taking in order to reduce the danger of contagion for other firms.”<sup>21</sup> Even if market participants were able to collectively act to prevent systemic risk, they might not choose to do so because the externalities of systemic failure include social costs that can extend far beyond market participants, such as widespread poverty, unemployment, and crime.<sup>22</sup> Market participants will not want to internalize these costs and thus will take an insufficient amount of care in preventing them. Therefore, like a tragedy of the commons, the benefits of exploiting finite capital resources accrue to individual market participants, each of whom is motivated to

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<sup>18</sup> See, e.g., Greg Lumelsky, *Does Russia Need a Securities Law?*, 18 NW. J. INT’L L. & BUS. 111, 122-23 (Fall 1997) (observing that “[s]ince before the New Deal, the U.S. philosophy of securities regulation has been based on the provision of continuous, accurate, public disclosure as a remedy against fraud and as a way to reduce risk associated with the purchase and sale of securities”).

<sup>19</sup> Ben S. Bernanke, Chairman, Board of Governors, U.S. Federal Reserve System, Remarks at the Federal Reserve Bank of Atlanta’s 2006 Financial Markets Conference, Sea Island, Georgia (May 16, 2006) (transcript available at <http://www.federalreserve.gov/Boarddocs/speeches/2006/200605162/default.htm>); Anthony W. Ryan, Assistant Secretary for Financial Markets, U.S. Department of the Treasury, Remarks before the Managed Funds Association Conference 2 (June 11, 2007) (transcript on file with author).

<sup>20</sup> See, e.g., Garret Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968) (exemplifying a tragedy of the commons by a commonly-owned pasture that is overgrazed because no individual owner has the right to exclude use by other owners).

<sup>21</sup> See REPORT OF THE PRESIDENT’S WORKING GROUP ON FINANCIAL MARKETS, HEDGE FUNDS, LEVERAGE, AND THE LESSONS OF LONG TERM CAPITAL MANAGEMENT 31 (April 1999) (hereinafter, “PRESIDENT’S WORKING GROUP”).

<sup>22</sup> The widespread poverty and unemployment caused by the Great Depression, for example, apparently fostered a significant increase in crime. See Jeffrey L. Kirchmeier, *Another Place Beyond Here: The Death Penalty Moratorium Movement in the United States*, 73 U. COLO. L. REV. 1, 11 (Winter 2002) (discussing an explosion of executions as probably resulting from increased crime due to the Great Depression).

maximize use of the resource, whereas the costs of exploitation, which affect the real economy, are distributed among an even wider class of persons.

Individual market participants also may choose to act selfishly because their returns are assured whereas a systemic collapse is not necessarily inevitable. LTCM, for instance, knew there was a risk of failure if the markets became irrational but chose to stick with models that made it money.<sup>23</sup> Ignoring a possible greater risk for the sake of personal gain is not unique to the world of finance. Before the *Challenger* disaster, engineers knew of the risk that the rubber O-rings might fail at cold temperature and argued that the launch should be delayed until warmer weather. Engineers also identified the potential for wing damage before the *Columbia* disaster. In both cases, however, NASA administrators appeared to have been less concerned about the possible safety risks than about the impact on their personal reputations of canceling flights.<sup>24</sup>

So what can we do? It would be ideal to eliminate the risk of systemic collapse, *ab initio*. This could be achieved by preventing financial panics, since they are often the triggers that commence a chain of market failures. For example, doubt arising over a financial market's future liquidity can trigger a stampede to sell first while the market is still liquid, thereby inadvertently destroying the market's liquidity. Contractual counterparties rush to try to close out their positions, causing prices to drop sharply,<sup>25</sup>

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<sup>23</sup> ROGER LOWENSTEIN, *WHEN GENIUS FAILED: THE RISE AND FALL OF LONG-TERM CAPITAL MANAGEMENT* 71–75, 173 (2000).

<sup>24</sup> RICHARD BOOKSTABER, *A DEMON OF OUR OWN DESIGN: MARKETS, HEDGE FUNDS, AND THE PERILS OF FINANCIAL INNOVATION* 159–61 (2007).

<sup>25</sup> This vicious cycle can be exacerbated by the common requirement that a securities account be adjusted in response to a change in the market value of the securities. An investor, for example, may buy securities on credit from a securities broker-dealer, securing the purchase price by pledging the securities as collateral. To guard against the price of the securities falling to the point where their value as collateral is insufficient to repay the purchase price, broker-dealer requires the investor to maintain a minimum collateral value. If the market value of the securities falls below this minimum, the broker-dealer will issue a "margin call" requiring the investor to deposit additional collateral, usually in the form of money or additional securities, to satisfy this minimum. Failure to do so triggers a default, enabling the broker-dealer to foreclose on the collateral. ZVI BODIE, ALEX KANE & ALAN J. MARCUS, *INVESTMENTS* 78-79 (7th ed.

which in turn leads to a vicious cycle in which prices plummet and investors lose confidence.<sup>26</sup>

It is impossible to prevent financial panics because they “can be set off by any number of things.”<sup>27</sup> In the context of the subprime mortgage crisis, for example, scholars and politicians talk about imposing “suitability” requirements on mortgage loans and otherwise restricting “predatory” lending.<sup>28</sup> But these types of solutions not only potentially increase the cost of credit and restrict its availability<sup>29</sup> but, more importantly, fail to address the next financial crisis, which may be unrelated to home values or mortgages.

A more fundamental, yet targeted, regulatory response to systemic risk is to try to ensure market liquidity. Although ensuring liquidity cannot always prevent financial panics that trigger systemic risk, it can address any systemic problem by diminishing the vicious cycle caused by financial panics.<sup>30</sup> This broad-spectrum capability is important in a world where financial intermediation evolves at a speed faster than one can anticipate.<sup>31</sup>

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2008). Although “marking-to-market” in this fashion can make trading performance transparent and prevent managers and traders from concealing losses, the “collective and mechanical exercise of such discipline on a widespread scale after a large market shock can create the type of liquidity spiral that leads to a market crisis.” *Current Trends in Economic Research on Systemic Risk*, FRBNY ECON. POLICY REV. 17, 17 (Nov. 2007).

<sup>26</sup> Cf. PRESIDENT’S WORKING GROUP, *supra* note 21, at 23 (observing that the “indirect impact” on markets of the failure of individual market participants is potentially “more serious” than such failure itself: “[v]olatility and sharp declines in asset prices [that] can heighten uncertainty about credit risk and disrupt the intermediation of credit,” which in turn “could cause a contraction of credit and liquidity, and ultimately[] heighten the risk of a contraction in real economic activity”).

<sup>27</sup> Eduardo Porter, *Shanghai What-if: How a Shock Can Become a Shock Wave*, N.Y. TIMES, Mar. 4, 2007, at WK3 (quoting this observation by Alan Blinder, Princeton University economist and former Vice Chairman, Board of Governors, U.S. Federal Reserve System).

<sup>28</sup> [cite]

<sup>29</sup> [cite to forthcoming article by Prof. G. Marcus Cole in University of Utah Law Review Symposium on the subprime mortgage crisis.]

<sup>30</sup> See *infra* notes 33-35 and accompanying text.

<sup>31</sup> Yamaguchi, *supra* note 13, at 3.



Proposal.

So how can regulation ensure market liquidity? Although there are various possible approaches,<sup>32</sup> I believe the most effective is to create a governmental liquidity provider of last resort (“LPOLR”).<sup>33</sup> By advertising its willingness to purchase securities in panicked markets and, when necessary, actually purchasing such securities,<sup>34</sup> such a liquidity provider can reduce doubt over future market liquidity, thereby avoiding a stampede to sell and the resulting vicious cycle of plummeting prices.<sup>35</sup> This is radically different from so-called “liquidity injections” by the U.S. Federal Reserve in response to the subprime mortgage crisis, which do not actually ensure market liquidity but merely provide a more attractive borrowing environment for banks.<sup>36</sup>

Any regulatory proposal must, however, take cost into account.<sup>37</sup> There are, theoretically, two primary costs in establishing a LPOLR. The first is moral hazard—the greater tendency of people who are protected from the consequences of risky behavior to engage in such behavior<sup>38</sup>—which would result from the LPOLR assuring speculative

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<sup>32</sup> See Schwarcz, *Systemic Risk*, *supra* note 1 (examining historical approaches as well as potential future regulatory approaches to complement monetary policy, such as increasing disclosure requirements and imposing financial-exposure limits and leverage restrictions on financial institution).

<sup>33</sup> Cf. E.P. DAVIS, DEBT, FINANCIAL FRAGILITY, AND SYSTEMIC RISK 268 (1992) (suggesting there may be a need for a “market maker of last resort” to protect financial markets).

<sup>34</sup> To mitigate moral hazard, I later propose that the LPOLR follow a policy of constructive ambiguity under which it has discretion whether to purchase securities. See *infra* notes 39-40 and accompanying text.

<sup>35</sup> See *supra* notes 25-26 and accompanying text.

<sup>36</sup> See, e.g., Jeremy W. Peters, *The Basics: The Banks Roll Up Their Sleeves*, N.Y. TIMES, Aug. 19, 2007, Wk. in Rev., at 2 (observing that when the Federal Reserve makes “liquidity injections” into the banking system, “the Fed doesn’t even use real money,” and explaining that liquidity results from offering Fed loans to banks at the discount rate, a lower interest rate than the “fed funds rate” that banks would charge other banks on interbank loans).

<sup>37</sup> See, e.g., JOHN EATWELL & LANCE TAYLOR, GLOBAL FINANCE AT RISK 19 (2000) (observing that “regulation can be expensive and oppressive or even downright wrongheaded. Overly fastidious regulation may result in risks being overpriced, and hence will stifle enterprise. . . . A balance needs to be struck . . .”).

<sup>38</sup> See, e.g., Charles G. Hallinan, *The “Fresh Start” Policy in Consumer Bankruptcy: A Historical Inventory and an Interpretive Theory*, 21 U. RICH. L. REV. 49, 84 (1986).

investors that their investments would be safe if market prices ever collapse. The second cost is the shifting of the economic burden from market participants to taxpayers, who effectively would fund the LPOLR's purchases.<sup>39</sup> Both of these costs can be managed and arguably avoided, however. To mitigate moral hazard, the LPOLR could follow a policy of "constructive ambiguity" under which it has the right but not the obligation to purchase securities, and the rules by which it decides whether to purchase would be uncertain to third parties.<sup>40</sup> To further mitigate moral hazard and to avoid shifting costs to taxpayers, the LPOLR should purchase securities only at a deep enough discount to ensure ultimate repayment of its investments, ideally at a profit, while stabilizing market prices well below the levels paid by speculating investors.

Even if these costs cannot be completely eliminated, I would contend that a LPOLR should be justified because of the devastating effect of a systemic collapse of the financial system. For example, just taking into account direct, not social, costs,<sup>41</sup> the tab from the subprime mortgage crisis—even if it doesn't cause a full systemic collapse—"could run up to \$500 billion" globally.<sup>42</sup> When there is a risk of catastrophic events or large, irreversible effects but the actual level of risk is indeterminate, regulators often apply a precautionary principle that presumes benefits will outweigh costs.<sup>43</sup>

One may ask: If a LPOLR can profitably invest to stabilize markets, why won't private investors do the same, eliminating the need for a governmental liquidity provider? At least part of the answer is that individuals at investing firms engage in herd behavior,

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<sup>39</sup> Cf. Steven L. Schwarcz, *Sovereign Debt Restructuring: A Bankruptcy Reorganization Approach*, 85 CORNELL L. REV. 956, 961-66 (2000) (discussing the moral hazard and taxpayer costs created when the IMF acts as a lender of last resort to financially-troubled nations).

<sup>40</sup> Cf. DAVIS, *supra* note 33, at 123.

<sup>41</sup> Cf. *supra* note 22 and accompanying text (discussing social costs).

<sup>42</sup> David Henry & Matthew Goldstein, *The Bear Flu: How It Spread*, BUS. WK., Jan. 7, 2008, at 30, 32. See also *Tightening the Safety Belt*, ECONOMIST, Nov. 22, 2007 (graph showing Goldman Sachs prediction of \$148 billion of losses on subprime CDOs); *Postcards from the Ledge*, ECONOMIST, Dec. 19, 2007 (estimating that, in the U.S., "[s]ubprime borrowers will probably default on \$200 billion-300 billion of mortgages").

not wanting to jeopardize their reputations and jobs by causing their firms to invest at a time when other investors have abandoned the market.<sup>44</sup> A governmental LPOLR is needed to correct this market failure.

Who should act as the LPOLR? In a U.S. national context, the Federal Reserve Bank could act in this capacity.<sup>45</sup> In a foreign national context, the obvious contender would be the nation's central bank. In a multinational context, however, the choice is less obvious. One possibility is the International Monetary Fund (IMF), which sometimes takes on this type of role by providing liquidity to troubled countries.<sup>46</sup> Other possible choices include one or more national central banks, such as the U.S. Federal Reserve Bank or the European Central Bank, although any national central bank acting as a LPOLR would face possible conflicts of interest between its national and international responsibilities.<sup>47</sup> My goal, however, is less to suggest who should act in these capacities than to urge that one or more governmental organizations do so before it's too late.

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<sup>43</sup> See, e.g., Cass R. Sunstein, *Irreversible and Catastrophic*, 91 CORNELL L. REV. 841, 848 (May 2006).

<sup>44</sup> See, e.g., Stephen M. Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023, 1038 (2000) (discussing herd behavior).

<sup>45</sup> The Fed's power to act in this capacity is presently ambiguous, however. In "unusual and exigent circumstances," section 13(3) of the Federal Reserve Act enables "the Board of Governors of the Federal Reserve System [to] authorize any Federal reserve bank . . . to discount for any individual, partnership, or corporation, notes, drafts, and bills of exchange" if such individual, partnership, or corporation is "unable to secure adequate credit accommodations from other banking institutions." 12 U.S.C. § 343. Although this may well enable the Federal Reserve to fund failing institutions, it is dubious it enables the Fed to purchase securities in falling markets. If, therefore, the Federal Reserve Bank is to act as a LPOLR, the Federal Reserve Act may need to be amended.

<sup>46</sup> Schwarcz, *Sovereign Debt Restructuring*, *supra* note 39, at 961.

<sup>47</sup> Although one might question whether a single international LPOLR is feasible given the different approaches to financial regulation and supervision among various nations of the world, these differences do not appear to undermine the concept of a unified regulatory approach to systemic risk. International cooperation is the natural and most effective response of states that share an interest in averting a common crisis that affects them individually—despite the many historical, cultural, and legal differences that distinguish nations. See, e.g., James D. Fearon, *Bargaining, Enforcement, and International Cooperation*, 52 INTERNATIONAL ORGANIZATION, Spring 1998, at 271; RICHARD J. HERRING & ROBERT E. LITAN, FINANCIAL REGULATION IN THE GLOBAL ECONOMY 120–123 (1994) (suggesting systemic risk is analogous to epidemiological

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risk, in that both can be effectively resolved by international collaboration when “countries agree[] on how to act . . . [and their] cooperation advance[s] to the point of establishing an international agency and jointly financing international action to control and attempt to eradicate” the contagion). Basel II effectively illustrates, for example, that a single regulatory scheme for financial risk can be applied, at least in the banking context, across diverse national financial systems. *See* Bank for International Settlements, *Basel II and Financial Institution Resiliency*, June 27, 2007, available at: <http://www.bis.org/press/p070627.htm%5D>.