



RESTORING  
FINANCIAL  
STABILITY

**How to Repair a Failed System**

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# **Restoring Financial Stability: How to Repair a Failed System**

An Independent View

from

New York University Stern School of Business

Edited by Viral V. Acharya and Matthew Richardson

In 18 short, targeted and definitive White Papers – each tracing the core of the problem, the policy alternatives, and a specific course of action – 32 academics, combining a solid understanding of financial economics with the practice of modern finance, suggest solutions, in the public interest, to the central issues of today's financial crisis.

This overview contains the Executive Summaries of these White Papers, to be published in their entirety by John Wiley & Sons in March 2009.



# Preface

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As 2008 was drawing to a close, we were reflecting on the dramatic and often unprecedented events of the past year in financial markets and the broader economy. Nothing like this had occurred in our lifetimes. In our academic world, few events had as much potential for providing us and our colleagues with a rich source of raw material for good research and teaching for a long time to come. This is the ultimate teachable moment and it is essential to teach it. We were in the middle of a financial and economic hurricane that was certain to leave behind massive financial and economic damage. It will eventually blow over, as all hurricanes do, but it is not too early to begin to think about what changes to the system can mitigate the damage and hopefully make future financial storms less likely.

With one of the largest and best faculties in the world focused on finance, economics, and related disciplines – academics deeply rooted in their respective disciplines and also heavily exposed to the practice of modern financial institutions - we thought that the financial crisis provided a unique opportunity to harness our collective expertise and make a serious contribution to the repair efforts that are getting underway. We convened a small group of interested faculty, the idea caught on, and we decided to execute this project. All faculty members in the relevant disciplines at the Stern School were invited to participate if they had the time and the interest, and 32 colleagues did so (participants are listed at the end of this volume).

Next, key topics related to the crisis and its resolution were identified, and individual teams of authors set to work. As a common format we used the “White Paper.” Each starts by discussing the nature of the problem, where things went wrong and where we are today, what options are available to repair the immediate damage and prevent a recurrence at the least possible cost to financial efficiency and growth, and a recommended course of action with respect to public policy or business conduct. Each White Paper (many of which are substantially more definitive than we initially envisaged) is accompanied by a short, easily accessible Executive Summary. Each White Paper was intensively debated both formally and informally among the group over six weeks or so, although no attempt was made to enforce uniformity of views.

This has been a unique opportunity to bring our cumulative expertise to bear on an overarching set of issues that will affect the national and global financial landscape going forward. We know that the repair process in the months and years to come will be highly politicized, and that special interests of all kinds will work hard to affect the outcomes. We also know that some of those entrusted with the repair have also been responsible for some of the damage. So we present here a set of views that are at once informed, carefully considered and debated, independent and focused exclusively on the public interest.

Thomas F. Cooley, Dean

New York

Ingo Walter, Vice Dean

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# Restoring Financial Stability: How to Repair a Failed System

Edited by **Viral V. Acharya and Matthew Richardson**

## Summary

In eighteen short, targeted and definitive White Papers - each tracing the core of a problem facing the financial sector, evaluating the policy alternatives, and recommending a specific course of action – members of the Stern faculty apply sound principles and provide a blueprint for reconfiguring the financial architecture and regulation after the crisis.

## Section I: Causes of the Financial Crisis of 2007-2008

Chapter 1: Mortgage Origination and Securitization in the Financial Crisis 9

Authors: Dwight Jaffee, Anthony Lynch, Stijn Van Nieuwerburgh and Matthew Richardson

While securitization drove the unprecedented growth in subprime loans, and these loans inadvertently created a wave of refinancings or defaults around the reset date, the systemic dimensions of the crisis arose from the leveraged concentration of risky mortgage-backed securities on the books of a small number of key financial institutions.

Chapter 2: How Banks Played the Leverage “Game”? 11

Authors: Viral V. Acharya and Philipp Schnabl

Through off-balance-sheet credit risk transfer that incorporated recourse back to their balance-sheets, banks avoided regulatory capital requirements, took on excessive leverage, and used the freed-up capital to lend down the quality curve and bet on aggregate risks – with important implications going forward for regulating and defining the boundaries of financial firms.

Chapter 3: The Rating Agencies 13

Authors: Matthew Richardson and Lawrence White

Although the major rating agencies bear much responsibility for the mortgage securities debacle of 2007-2009, a thorough understanding of how and why the agencies grew to be so important is necessary before policymakers can craft sensible regulatory solutions.

## **Section II: Financial Institutions**

Chapter 4: What to Do About the Government Sponsored Enterprises? 15

Authors: Dwight Jaffee, Stijn Van Nieuwerburgh, Matthew Richardson, Lawrence White and Robert Wright

Because private profit taking with socialized risk is untenable, the GSE's investment function should be shuttered and its securitization and guarantor role folded into a government agency.

Chapter 5: Enhanced Regulation of Large Complex Financial Institutions 17

Authors: Anthony Saunders, Roy Smith and Ingo Walter

Traces the growth and complexity of the new generation of Goliaths in US and global financial markets - all of which are now at the heart of the ongoing crisis - and explains why a special, dedicated regulator is necessary to protect the safety and soundness of the financial system from problems arising in institutions that are too big or too interconnected to fail.

Chapter 6: Hedge Funds in the Aftermath of the Financial Crisis 19

Authors: Stephen Brown, Marcin Kacperczyk, Alexander Ljungqvist, Anthony Lynch, Lasse Pedersen and Matthew Richardson

Since hedge funds provide liquidity to the market and do not receive guarantees from the government, except for registration and appropriate disclosure, any additional regulation of hedge funds is in general not warranted, except to the extent that hedge funds are generating systemic risk and so are imposing externalities on the financial system.

## **Section III: Governance, Incentives and Fair-value Accounting**

Chapter 7: Corporate Governance in the Modern Financial Sector 21

Authors: Viral V. Acharya, Jennifer Carpenter, Xavier Gabaix, Kose John, Matthew Richardson, Marti Subrahmanyam, Rangarajan Sundaram, and Eitan Zemel

Mistakes in corporate governance are likely to have played a central role in the global financial crisis; the white paper provides a review of what should be done, and shouldn't be done, to improve corporate governance in financial firms.

Chapter 8: Rethinking Compensation in Financial Firms 23

Authors: Gian Luca Clementi, Thomas Cooley, Matthew Richardson, and Ingo Walter

Misalignment of top management compensation and short-term rewards to key, high-performance, risk-taking employees has been associated with both shareholder losses and the current crisis in the financial system, warranting a careful reexamination of compensation practices by individual firms and more broadly in the market for financial talent.

Chapter 9: Fair Value Accounting: Policy Issues Raised by the Credit Crunch 25

Authors: Stephen Ryan

Recent criticisms of fair value accounting are overstated and do not acknowledge that alternative measurement approaches would throw an accounting cloak over the very real and sizeable problems that economic policymakers must confront; hence, policymakers should support existing fair value accounting requirements, their extension to all financial instruments, and expanded mandatory and voluntary disclosure of the effects of market illiquidity on fair values.

#### **Section IV: Derivatives, Short Selling and Transparency**

Chapter 10: Derivatives – The Ultimate Financial Innovation 27

Authors: Viral V. Acharya, Menachem Brenner, Robert Engle, Anthony Lynch and Matthew Richardson

The benefits of derivatives outweigh the costs associated with misusing them; however, trading in OTC derivatives should be transparent and regulated like exchange-traded ones.

Chapter 11: Centralized Clearing for Credit Derivatives 29

Authors: Viral V. Acharya, Robert Engle, Stephen Figlewski, Anthony Lynch and Marti Subrahmanyam

Existing Credit Default Swaps have played an important role in exacerbating the current financial crisis because the over-the-counter market they trade in is highly fragmented and opaque; to keep them from playing such a central role in the next crisis, they should move to centralized clearing with greater transparency.

Chapter 12: Short Selling 31

Authors: Menachem Brenner and Marti Subrahmanyam

The benefits of short sales are far more salutary than its costs; consequently, there should be no restrictions placed on short selling, with the exception of a ban on “naked” shorting and a requirement for timely, transparent reporting.

#### **Section V: The Role of the Fed**

Chapter 13: Regulating Systemic Risk 33

Authors: Viral V. Acharya, Lasse Pedersen, Thomas Philippon and Matthew Richardson

Prudential regulation should be based on a financial firm’s contribution to losses during periods of increased aggregate risk in the financial system, and should take the form of a capital charge against each firm’s incremental contribution to systemic risk, an FDIC-style premium for systemic externalities, and/or the compulsory purchase of composite public and private aggregate risk insurance.

Chapter 14: Private Lessons for Public Banking: The Case for Conditionality in LOLR Facilities 35

Authors: Viral V. Acharya and David Backus

Central banks’ lender-of-last-resort facilities address the problem of illiquidity, but can exacerbate issues of insolvency; consequently, these facilities should involve strict conditionality, such as the material adverse change clause in private lines of credit, and thereby be accessible only to healthy institutions.

## **Section VI: The Bailout**

Chapter 15: The Financial Sector “Bailout”: Sowing the Seeds of the Next Crisis 37

Authors: Viral V. Acharya and Rangarajan Sundaram

In contrast to the financial sector rescue plan undertaken by the UK, that of the US is excessively favorable to a small set of financial institutions, represents a significant wealth transfer from taxpayers to financial institutions, places no important restrictions on the institutions' operations, and offers no clear path back to a market-based system; in many ways, it may be sowing the seeds of the next crisis.

Chapter 16: Mortgages and Households 39

Authors: Andrew Caplin and Thomas Cooley

Existing approaches to dealing with troubled mortgages are doomed to failure because of inherent design flaws, but a clear alternative that relies on shared appreciation mortgages makes both economic and public policy sense without requiring big taxpayer subsidies.

Chapter 17: Where Should the Bailout Stop? 41

Authors: Edward Altman and Thomas Philippon

Car manufacturers should be allowed to reorganize under the protection of the bankruptcy code, and the government should provide Debtor-in-Possession financing of last resort – but no bailout.

## **Section VII: International Coordination**

Chapter 18: International Alignment of Financial Sector Regulation 43

Authors: Viral V. Acharya, Paul Wachtel and Ingo Walter

Attempts to repair national financial architectures may ultimately fail in the absence of international coordination. We recommend that large country central banks assume the key role of systemic risk regulators of large, complex financial institutions (LCFIs), convene to agree on a set of sensible core principles for such regulation, present a plan with specific recommendations to national authorities and build a consensus for its acceptance, and monitor its implementation.

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## Chapter 1: Executive Summary

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# Mortgage Origination and Securitization in the Financial Crisis

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*Dwight Jaffe, Anthony Lynch, Matthew Richardson and Stijn Van Nieuwerburgh*

### Background

One of major catalysts for the current financial crisis was the spate of defaults and foreclosures in 2007 and 2008, which also generated considerable dead weight costs in their own right. Two big reasons for all the defaults and foreclosures were the downturn in house prices, coupled with a dramatic decline in the quality of mortgage loans. Several factors in the mortgage market contributed to this latter reason:

- Loan quality declined in large part because of one particular unintended consequence of securitization, namely, that mortgage lenders did not bear the costs of these declines in loan quality, and so did not care about them.
- Another likely reason for the decline in loan quality was the failure of lenders to understand exactly the terms of the loans they were being offered, which rendered them unable to internalize the costs of default and foreclosure fully.
- The majority of the loans in the subprime sector were hybrid adjustable rate mortgages (ARMs) with fixed rates for 2 to 3 years and adjustable rates thereafter. Because these adjustable rates were offered at very high spreads, the mortgages were, for all intended purposes, meant to be refinanced or to default at the end of the 2 to 3 year period. The 2/28 and 3/27 ARMs were being offered around the same time thus creating the potential for an unexpected systemic wave of refinancings or defaults.

The main reason for the financial crisis, however, was not these factors. We argue that the primary culprit was that financial institutions did not follow the business model of securitization by transferring the credit risk from their balance sheets to capital market investors. That is, by holding large amounts of mortgage-backed securities (MBSs) tied to nonprime mortgages at the time of their defaults, a number of financial institutions (like Citigroup, UBS and Merrill Lynch) suffered huge losses as the values of these securities tumbled.

### The Issues

How should mortgage loan origination and securitization be regulated in the aftermath of the crisis? Some of the major regulatory questions are:

1. Can “predatory lending” be identified and, if so, how can it be regulated? Will this regulation get rid of the systemic nature of some of the mortgage products?
2. How much standardization of mortgage loans is needed? How should conforming limits be set?
3. What regulatory limits (if any) should be placed on securitization?

A set of principles can help frame the answers to these questions.



Choice and innovation is good and non-standard contracts can add value, because different households, by virtue of where they are in the life-cycle and the properties of their labor income risk, prefer different contracts. At the same time, standardization is good because it promotes liquidity in the mortgage backed securities (MBS) market because standardization makes the securities easier to value. Standardization also limits predatory lending. There is clearly a tension between providing mortgage customers with choice and innovation while at the same time protecting them from predatory lending practices

Loan originators and mortgage brokers need to be incentivized to internalize the externalities created by the dead-weight costs associated with defaults and foreclosures. Making sure mortgage customers fully understand the terms of all loan products offered to them helps them to internalize the costs that they bear in the event of default or foreclosure. Including provisions for efficient renegotiation and reorganization of a loan in event of default can not only reduce the deadweight costs of foreclosure but can also make it more difficult to securitize the loan. There is therefore a trade-off and the exact nature of any included provisions is likely to be important.

## Policy Recommendations

1. The recent amendments to Regulation Z (Truth in Lending) by the Federal Reserve Board are a big step towards protecting consumers from predatory practices among mortgage originators in the subprime space. The new protections need to be construed literally so that they do not restrict the income and asset combinations that creditors are allowed to find acceptable. It is highly likely that this will remove the systemic nature of the mortgage products.
2. Conforming loans should continue to be standardized and efforts should be made towards standardization for non-conforming loans. Households should also have access to non-standardized products which should be subject to additional regulatory vetting to ensure that no predatory lending is involved. Under the Housing and Economic Recovery Act of 2008 (HERA), the conforming national loan limit is set each year based on changes in average home prices over the previous year, but cannot decline from year to year. We support this calculation of the limit. We call for the GSEs' current mandate under the government's economic stimulus package to purchase loans beyond the conforming national loan limit in "high-cost" areas to become permanent. We also support tying the conforming "high-cost" area limits to regional house price indices. Since 125% of the median house price seems quite conservative, we favor that number over the more stringent 115% that has been adopted for next year. Finally, we support the abolition of the maximum dollar cap on the loan.
3. As before, loan originators should be able to securitize any standardized conforming mortgage products in the form of mortgage-backed securities. Loan originators of nonconforming loans should have "skin-in-the-game." While the private market should be able to solve this problem without regulation, one of the impediments is that these solutions will fail if anywhere in the securitization chain a government guaranteed financial institution (e.g., GSE, deposit institution, "too-big-to-fail" firm) is involved. For these cases, the guaranteed institutions may need to require that the originators (i) hold a fraction of the loans; (ii) amortize the origination fee over some period of the loan; or (iii) not be able to "sell" the mortgage servicing rights.

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## Chapter 2: Executive Summary

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# How Banks Played the Leverage “Game”

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*Viral V. Acharya and Philipp Schnabl*

### Background

Credit risk transfer mechanisms such as securitization are simply supposed to transfer assets and risk off bank balance sheets and on to other investors in the economy. Nevertheless, it appears that in the build-up to the financial crisis, banks increased their leverage and exposure to aggregate risk precisely by availing themselves of such mechanisms. In the process, they exposed themselves to the risk that a significant economy-wide shock would be sufficient to wipe out their capital base rapidly. And, as we all know, this risk did indeed materialize, starting with an increase in delinquencies on sub-prime mortgages in 2006 and 2007 followed by the subsequent collapse in home prices.

### The Issues

The immediate policy questions are as follows:

1. How could excessive leverage and aggregate risk get built up to such a scale in a financial sector that is so heavily regulated?
2. In particular, how and why did capital adequacy requirements fail in their stated job of limiting bank leverage and risk?

### Credit Risk Transfer and Regulatory Arbitrage

Our analysis of the credit risk transfer mechanisms employed during the period 2003-2007 suggest the answer is simple: While credit risk transfer may have economic merit as a risk-transfer tool, its “dark” side is that many of its incarnations may have been clever innovations of the financial sector to arbitrage regulation. Such regulatory arbitrage took two principal forms: first, setting up of asset-backed commercial paper (ABCP) “conduits” (and its sister concerns such as “SIVs”) by banks, and, second, significant retention by banks of AAA-rated asset-backed securities.

- ABCP conduits: Banks set up off-balance-sheet ABCP conduits where they transferred some of the assets they would have otherwise held on their books, funded them with a sliver of equity and the rest with rollover commercial paper, and provided *liquidity enhancement* and *credit enhancement* to these conduits. The enhancements implied that investors in conduits had recourse to banks in case the quality of assets deteriorated. Put simply, investors would return the assets back to bank once they suffered a loss. Such enhancements were treated as capital-light in existing Basel rules for capital requirements. As banks rolled out more and more ABCP conduits, they increased their short-term liabilities. But their effective or contingent leverage remained in the “shadow” banking system. What is more, they were able to free up capital to originate more assets, generally of lower quality, and hide them in the shadow banking system.

- Retention of AAA-rated ABS: Banks also exploited the fact that they could get capital relief by simply switching away from loans into investments in the form of AAA-rated tranches of CDOs and CLOs, which again had a significantly lower capital charge. About 30% of all AAA asset-backed securities remained *within* the banking system, and if one includes ABCP conduits and SIVs that had recourse, this fraction rises to 50%. While AAA-rated securities are typically expected to carry low absolute risk, the fact that the newer assets originated by banks were down-the-quality-curve was ignored and thus their ratings were overly generous.

Regulatory arbitrage as a business model is a dangerous undertaking. While it brings short-run rewards, the lack of any core economic value rears its ugly head in economic downturns. Not surprisingly, banks that had were more funded through ABCP relative to their equity and had greater capital-light investments, suffered the greatest losses and equity price declines during the crisis.

## Policy Recommendations

1. Regulation that focuses narrowly on just one performance metric of banks will be easy to game. The current regulatory focus is on a single ratio (capital to suitably risk-weighted assets). Regulators should take a more rounded approach that examines bank balance-sheets as equity or credit analysts would do. By relying on several aspects (such as loans to deposits, insured deposit to assets, holdings of liquid treasuries and OECD government bonds relative to assets, etc.) regulators would have an “early warning” system that raises a flag when further investigation is needed.
2. Regulators should recognize that isolated failures of credit intermediaries are not a problem for economies per se; but systemic failures of many credit intermediaries are. This intuitive observation suggests that regulation designed to make banks individually safer may encourage excessive credit risk transfer that makes aggregate crises more severe. Hence, the bank regulation apparatus around us needs to be reformed and focused more on aggregate risk to the economy rather than on a single capital ratio tied to individual bank risk.

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## Chapter 3: Executive Summary

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# The Rating Agencies: Is Regulation the Answer?

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*Matthew Richardson and Lawrence White*

### Background

Credit rating agencies — the three major ones being Moody's, Standard & Poor's, and Fitch—are firms that offer judgments about the creditworthiness of bonds. Specifically, the agencies measure the likelihood of default on debt issued by various kinds of entities, such as corporations, governments, and (most recently) securitizers of mortgages and other loan obligations. The lenders in credit markets, including investors in bonds, are always trying to ascertain the creditworthiness of borrowers. Credit rating agencies are one potential source of such information—but they are far from the only potential source. Starting in the 1930s, financial regulators have required that their financial institutions heed the judgments of the rating agencies with respect to these institutions' bond investments. These regulations, motivated by the desire for safety in bond portfolios, have played a major role in thrusting the agencies into the center of the bond markets. By creating a category ("nationally recognized statistical rating organization", or NRSRO; in 1975) of rating agency that had to be heeded, and then subsequently maintaining a barrier to entry into the category, the Securities and Exchange Commission (SEC) further enhanced the importance of the three major rating agencies.

The three major rating agencies in the U.S. played a central role in the recent housing bubble and then in the subprime mortgage debacle of 2007-08. The successful sale of the mortgage-related debt securities that had subprime residential mortgages and other debt obligations as their underlying collateral depended crucially on these agencies' initial ratings on these securities. When house prices stopped going up, and began to decline instead, these initial ratings proved to be excessively optimistic -- especially for the mortgages that were originated in 2005 and 2006. Mortgage bonds collapsed, bringing the rest of the U.S. financial sector crashing down as well.

### Issues

Most market participants now agree that the quality of the ratings of collateralized debt obligations, even *ex ante*, was poor. The question is why, and whether changes in regulation can forestall future such behavior. The answer lies in the nature of the competition across the NRSROs. In theory, competition among rating agencies should be a good thing, leading to innovation and higher quality research. There is, however, a problem when this competition is put into practice. On the one hand, in the "issuer pays" model followed by the three major players, competition can lead to inflated ratings because the company chooses who should rate them. On the other hand, in the "investor pays" model where one might expect the incentives to be better aligned, there is a free rider problem, and it is not clear how the free market can solve it. Business models aside, financial regulation may itself be the root cause of the problem since the basis of the NRSRO's authority as the central source of information about the creditworthiness of bonds decreases competition and incentives to innovation.

Appropriate public policy actions depend importantly on what one perceives as the fundamental problem vis-à-vis the credit rating agencies, and also on one's confidence in the ability of regulators to devise effective remedies. We propose two possible models.

## Policy Recommendations

With respect to the rating agency's business model of "issuer pays," the SEC should create a department that houses a centralized clearing platform for ratings agencies.

1. A company that would like its debt rated goes to the centralized clearing platform. Depending on the attributes of the security (i.e., type of debt, complexity of firm and issue, whether other debt outstanding is already rated, etc...), a flat fee would be assessed.
2. From a sample of approved rating agencies, the centralized clearing platform chooses which agency will rate the debt. While this choice could be random, a more systematic choice process could enhance beneficial competition. The choice would be based on the agency's experience at rating this type of debt, some historical perspective on how well the agency rates this type of debt relative to other ratings agencies, past audits of the rating agency's quality, and so forth.
3. For a fee, the rating agency would then go ahead and rate the debt.

This model has the advantage of simultaneously solving (i) the free rider problem because the issuer still pays, (ii) the conflict of interest problem because the agency is chosen by the regulating body, and (iii) the competition problem because the regulator's choice can be based on some degree of excellence, thereby providing the rating agency with incentives to invest resources, innovate, and perform high quality work. It does, however, put tremendous faith in the ability of the regulator to monitor and evaluate the rating agencies' performance.

Alternatively, a 180-degree turn would be to withdraw the financial regulations that thrust the rating agencies into the center of the bond markets.

1. The regulatory goal would still be for financial institutions to have safe bond portfolios, but those institutions would have more latitude and flexibility with respect to where they could seek advice.
2. Therefore, regulated financial institutions would be free to take advice from sources that they considered to be most reliable - based on the track record of the advisor, the business model of the advisor (including the possibilities of conflicts of interest), the other activities of the advisor (which might pose potential conflicts), and anything else that the institution considered relevant.
3. Again, the institution would have to justify its choice of advisor to its regulator. But, subject to that constraint, the bond-advisory information market would be opened to new ideas - about business models, methodologies, and technologies - and new entry in a way that has not been true since the 1930s.

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## Chapter 4: Executive Summary

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# What to Do About the Government Sponsored Enterprises

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*Dwight Jaffee, Stijn Van Nieuwerburgh, Matthew Richardson, Lawrence White and Robert Wright*

### Background

The primary function of the two government sponsored enterprises (GSEs), Fannie Mae and Freddie Mac, is to purchase and securitize mortgages. The securitized mortgages are sold off to outside investors with a guarantee of full payment of principal and interest. In addition, the GSEs hold some of the purchased mortgages as investments, and, in theory, help provide liquidity to the secondary market by repurchasing the mortgage-backed securities (MBS). They are major enterprises and play an unquestionably important role in the market for residential mortgages. The residential mortgage market is approximately 10 trillion dollars in size, 55% of which is securitized. The GSEs retain a mortgage portfolio of \$1.5 trillion and have securitized (and thus guaranteed the defaults of) \$3.8 trillion of existing mortgages. Though private institutions, the GSEs accept some regulatory oversight in return for an implicit government guarantee of support. As a result, the GSEs' activities are funded through "cheap" credit made available in capital markets under the presumed guarantee. The structure of the GSEs leads to the classic moral hazard problem in which the lack of capital market discipline and cheap credit provides an incentive for excessive risk taking. In fact, even though the GSEs' portfolio contained a variety of risks, including nonprime mortgages and long-maturity prime ones, the GSEs had leverage ratios of the order of 25 to 1.

The GSEs had two clear, negative influences on the financial system during the current crisis. The first was their investments into the subprime and Alt-A areas. By 2007, over 15% of their own outstanding mortgage portfolio was invested in non-prime assets, an amount representing 10% of the entire market for these assets. While not the only institutional culprit here, it is reasonable to assume that the mere size of the GSEs created "froth" and "excess" liquidity in the market. The second, and more important, effect was to introduce systemic risk into the system and therefore add to the growing financial crisis. This systemic risk came in three forms. First, by owning such a large (and levered) portfolio of relatively illiquid MBSs, the failure of the GSEs would have led to a fire sale of these assets that would in turn have infected the rest of the financial system, holding similar assets. Second, as one of the largest investors in capital markets with notional amount positions of \$1.38 trillion and \$523 billion in interest rate swaps and OTC derivatives respectively, the GSEs presented considerable counterparty risk to the system, similar in spirit to LTCM in the Fall of 1998. Third, the failure of the GSEs would have disrupted the firms' ongoing MBS issue/guarantee business, with major consequences for the US mortgage markets and obvious dire consequences for the real economy.

## The Issues

It is now clear, of course, that the fears of a systemic meltdown were all too accurate, and that the GSE model - combining a public mission with an implicit guarantee and a profit maximizing strategy - is untenable. Given that the GSE model itself is flawed, what is the appropriate reform to be followed? Let us consider the following series of questions and answers regarding mortgages:

1. Should mortgages be securitized or not?

A majority of the current outstanding mortgages are securitized and spread throughout the worldwide investment community. It seems hard to believe that this quantity of assets could be placed as whole loans within the banking and mortgage lending sectors.

2. If securitized, should the principal and interest be guaranteed?

While there is room for securitization both with and without guarantees, approximately 68% of the MBS market is agency-backed whereas 32% is non-agency, some of which is also privately insured. Over the past forty years, a \$4 trillion investment community has arisen which focuses on interest rate and prepayment risk as opposed to default risk. A substantial amount of human capital (i.e., knowledge and training) and investment networks are devoted to this product. Removing guarantees would cause a deadweight loss to all the human capital invested thus far.

3. If guaranteed, should the guarantor be the government or a private institution?

There are several obstacles to complete privatization of the guarantee function. Generally, private institutions are not good insurers against systemic risk because, by definition, systemic risk occurs very infrequently yet requires large amounts of capital on hand to address that rare eventuality. Moreover, even if a party were willing, who will insure the insurers? Is there any way to credibly signal that the government would not bailout these private institutions in times of a crisis?

## Policy Recommendations

1. The GSE firms should continue their mortgage guarantee and securitization programs for conforming mortgage loans. But in order to reduce the moral hazard problem the programs should now operate within government agencies, in a format parallel to the current Federal Housing Administration (FHA) and successful GNMA programs.
2. The investor function of the GSEs should be discontinued. The current setup leads to “froth” in the marketplace such as the support for weak Alt-A and subprime loans, and, even more serious, systemic risk due to the moral hazard problem of the GSEs taking risky bets.

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## Chapter 5: Executive Summary

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# Enhanced Regulation of Large, Complex Financial Institutions

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*Anthony Saunders, Roy C. Smith, and Ingo Walter*

### Background

Deregulation in the 1990s gave rise to a new generation of what the Federal Reserve has called “large complex financial institutions” (LCFIs). These are huge private sector enterprises engaged in a broad array of financial services including commercial banking, investment banking, asset management and insurance. Banking regulators now generally regard them as too-big-to-fail (TBTF).

The expanding LCFI share of the US financial services market suggests that the beneficial effects of economies of scale and scope and related operating-efficiencies outweigh the costs of complexity, increased risk-exposure and conflicts of interest. But their record of massive credit write-offs, regulatory infractions, repeated legal settlements, and poor long-term share price performance suggest the opposite conclusion.

In today’s global financial crisis, all of the LCFIs bailed out by governments were rescued because the social cost of their failure was considered unacceptable. Whether it was Bear Stearns, FNMA, Citigroup or AIG, creditors who bet that these firms were too big to fail have won while taxpayers have lost. The implicit public subsidy was there all along, and will surely be there going forward. If it continues, this public subsidy will create perverse incentives and major distortions in financial market competition in favor of LCFIs—and against financial intermediaries who have to survive on their own. Unless a new regulatory approach to LCFIs is taken up while the current crisis has captured everyone’s attention, we may very well be back in yet another crisis only a few years down the road.

### The Issues

Current discussions of regulatory reform center on redefining risk-adjusted capital adequacy for financial intermediaries, requiring greater transparency for financial products, establishing a solid infrastructure for derivatives trading, and otherwise improving the financial system’s robustness with as little damage as possible to its efficiency and creativity. The policy options for financial institutions include *regulation by function* (insurance, commercial banking, asset management and securities) or alternatively *regulation by type of institution* or charter (basically commercial banks, broker-dealers, managed funds and insurance companies) covering all of their businesses. We believe that for the vast majority of financial firms—those that are not LCFIs—the first option, regulation by function, stands the best chance of success. It will develop the depth of expertise needed to understand highly specialized intermediation dynamics, and ensure that firms chartered to business in these key functions maintain high standards and conduct themselves appropriately.



## A Different Approach to Regulating LCFIs

We believe that regulation by function is not enough in the case of LCFIs. We advocate a third option - a special, *dedicated regulator for LCFIs*.

Why? Because LCFIs are both different in character from functional specialists and pose a much more insidious threat to the global financial system. Our proposed special LCFI regulator would be responsible *only* for financial firms identified as such, and would work closely with function-based regulators responsible for all other financial intermediaries. The dedicated LCFI regulator would encompass all of the constituent functional areas of regulation-by-function, but at the same time be familiar with the consequences and the complex and network-based linkages between the various financial activities that arise within LCFIs – complexity that itself could lead to systemic failure.

Most importantly, the regulator would have the power and the obligation to ensure that LCFIs operate consistently with priority attention to the institution's safety and soundness, even if this can only be achieved at the cost of reduced growth and profitability.

## Policy Recommendations

As discussions of regulatory reform go forward, we recommend the creation and empowerment of a dedicated regulator for LCFIs. This would require that LCFIs be identified as such and subjected to an enhanced level of regulation to ensure their safety and soundness. Identification of those LCFIs to be subject to special regulation would be based on measures of size in combination with measures of complexity or interconnectedness. The LCFI regulator would specifically focus on capturing key risk exposures and their interlinkages within the financial system, and on avoiding many of the risk management failures and governance problems that characterize the current crisis. The dedicated U.S. LCFI regulator would necessarily have to be linked as seamlessly as possible to his/her counterparts in the Basel Accord participant countries so as to insure an effective level of global coordination and prevent regulatory arbitrage. Of equal importance the LCFI regulator, using information collected in this role, will be able to price more accurately the government guarantee that inevitably underpins LCFIs. Such pricing may enable setting a fair baseline insurance cost or premium that is linked to the asset size and institution-specific risk attributes of individual LCFIs, coupled to surcharges based on measurable systemic risk exposures.

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## Chapter 6: Executive Summary

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# Hedge Funds in the Aftermath of the Financial Crisis

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*Stephen Brown, Marcin Kacperczyk, Alexander Ljungqvist, Anthony Lynch, Lasse Pedersen, Matthew Richardson*

### Background

The available data show a remarkable diversity of management styles under the "hedge fund" banner. Hedge funds are major participants in the so-called shadow banking system, which runs parallel to the more standard banking system. Hedge funds have the ability to short sell assets, which allows them to use leverage, and leverage means that their equity value, absent limited liability, can go negative. Hedge funds add value to the financial system in a number of ways: (i) by providing liquidity to the market; (ii) by correcting fundamental mispricing in the market; (iii) through their trading, by increasing price discovery; and (iv) by providing investors access to leverage and to investment strategies that perform well.

Hedge funds have certainly been in the thick of the current financial crisis. For example, it was the collapse of two highly levered Bear Stearns hedge funds that initiated the collapse of the subprime-backed collateralized debt obligations (CDOs). But hedge funds didn't cause the growth in the subprime mortgage market, or make housing prices collapse so that subprime loans would default, or force financial institutions (GSEs, commercial banks and broker-dealers) to hold \$785 billion worth of CDOs on their books. In fact, there is very little evidence to suggest that hedge funds caused the financial crisis or that they contributed to its severity in any significant way. That being said, hedge funds, or subsets of hedge funds, may still generate systemic risk that imposes externalities on the financial system. A fund that is sufficiently large and levered (like Long Term Capital Management [LTCM] in 1998) could generate systemic risk.

### The Issues

Hedge funds are, for the most part, unregulated.

At first glance, not regulating hedge funds seems patently unfair, as it allows them to take advantage of regulatory arbitrage, namely the ability to offer intermediation services in direct competition with regulated institutions like banks. However, this ignores the substantive advantage that banks have through either the explicit guarantee of deposit insurance or the implicit "too-big-to-fail" guarantee.

The immediate policy issues are the following:

- Should hedge funds be exempted from any of the financial system regulations aimed at managing the systemic risk in the financial system (and the associated externalities)?
- Under what circumstances should hedge funds be subject to additional regulation?
- What forms should the additional regulation (if any) take?

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## Policy Recommendations

1. By the proprietary nature of their trading, hedge funds are not very transparent to the market. Lack of transparency of financial institutions can magnify financial crises due to counterparty concerns. A minimal condition would be that, in order to help regulators measure and manage possible systemic risk, **hedge funds (of sufficient size) should be required to provide regulators with regular and timely information about both their asset positions and leverage levels.**
2. Since hedge funds do not receive guarantees from the government and so are not subject to the moral hazard problems associated with such guarantees, any additional regulation of hedge funds over and above that advocated above is in general not warranted. The exception is when hedge funds impose externalities on the financial system. For example, **if a hedge fund falls into the class of large complex financial institutions, then that fund needs to be treated as a systemic institution to be regulated (and taxed) as such.** We also make several suggestions for cases in which a subset of funds (“systemic-risk” subset) together imposes externalities on the financial system.
3. Managed funds (mutual funds, money market funds, SIVs, and hedge funds) are subject to bank-like runs on their assets. These runs can trigger systemic liquidity spirals. In the current crisis, both the commercial paper market (in August 2007) and money market (in September 2008) seized up when a managed fund in these markets stopped redemptions due to exposures to subprime AAA-rated CDOs and Lehman Brothers’ short-term debt, respectively. **Hedge funds in a systemic-risk subset may need regulation that discourages investors from withdrawing funds after bad performance,** since bad performance (and lack of transparency) by a fund may lead to a run on the fund’s assets under management. Any such regulation would impose costs on the hedge fund investors, which must be balanced against the benefits obtained from the systemic risk reduction. We propose a market-oriented solution that weighs this balance.
4. A more controversial question is whether special regulation is needed for hedge funds with respect to public transparency of asset positions and leverage (e.g., along the lines of more Form 13F-like filings). This decision involves balancing the benefits and costs to hedge funds and investors. The largest concern relating to transparency is counterparty risk, and these counterparty issues are most relevant with OTC derivatives. It may be that by fixing the cracks elsewhere in the system, e.g., creating a clearing house/exchange structure for large OTC derivative markets, **the transparency goal can be reached without having to impose onerous regulation on the hedge fund community.**

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## Chapter 7: Executive Summary

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# Corporate Governance in the Modern Financial Sector

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*Viral V. Acharya, Jennifer Carpenter, Xavier Gabaix, Kose John, Matthew Richardson, Marti Subrahmanyam, Rangarajan Sundaram, Eitan Zemel*

### Background

The large, complex financial institutions (LCFIs) are highly levered entities with over 90% leverage. This highly-levered nature makes them prone to excessive leverage- and risk-taking tendencies. By and large LCFIs also have explicit deposit insurance protection and almost always an implicit too-big-to-fail guarantee. The presence of such guarantees – often un-priced and at best mis-priced – has blunted the edge of the debt monitoring that would otherwise exert an important market discipline on risk-taking by these firms. Although there is mounting evidence pointing to weaknesses in equity governance of these firms, the high leverage they have undertaken and the failure of their internal risk management practices also suggest weakness and failure of regulatory governance.

Perhaps, even more importantly, the ever-increasing complexity of LCFIs has rendered weak, if not impotent, the role of governance from existing shareholders and non-executive board members. For LCFIs, the traditional board model suitable for industry—characterized by infrequent meetings and a landscape that is not likely to undergo fast and dramatic changes—is not entirely suitable. Thus it has become increasingly difficult for LCFI boards to grasp fully the swiftness and forms by which the risk profiles of these institutions can be altered by traders and securities desks.

### The Issues

Can the regulatory governance of LCFIs be altered in some robust way that reins in their risk-taking to efficient levels?

- Can boards and regulators who do not interact on a daily basis with the relevant profit centers of LCFIs ever be expected to achieve desirable outcomes based purely on monitoring and questioning? We believe not. Can they, however, ensure that *internal governance* in the form of judicious design of incentives and compensation is set up correctly to achieve this objective?

### Policy Recommendations

1. On the regulatory front, our most important policy recommendation is that, to the extent feasible, regulators should price the guarantees right – that is, commensurate with the level of risk of these institutions – and on a continual basis.
2. With respect to Boards, a potential mechanism for strengthening regulatory governance may be to require that the board of directors of these LCFIs include a regulator and one or more prominent subordinated debt holders. Since there are several impediments – political as well as practical – to implementing our recommendation uniformly at all banks, an alternative proposal is that all independent board members be educated in the operational details and complex products of the LCFIs.

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3. On the internal governance front, we recommend that regulators and boards pay special attention to, and help improve, capital budgeting practices and performance assessment standards for both top management and traders alike. We do not propose, however, that the regulators mandate compensation structures at micro levels. Rather, we suggest that they seek relatively un-intrusive ways of helping the industry coordinate its efforts in this area. Given that financial firms seem to be caught up in a bad equilibrium where a firm attempting to implement a more efficient long-term compensation plan fears that it will lose its employees to other firms that do not, perhaps this may be the best service regulators can provide. On this front, we have several concrete proposals:
  - a. Compensation structures should induce management to maximize the total value of the enterprise (for example, return on assets – ROA) and not just the equity value (return on equity – ROE) as is commonly the practice. Maximizing the latter when debt is not fairly or continuously priced induces excessive leverage- and risk-taking incentives.
  - b. Return on assets should be benchmarked against a cost of capital that reflects not just the cost in good times when guarantees render the cost of debt essentially flat and invariant to risk, but also in bad times, when these firms are forced to make shareholder-value diluting equity or subordinated debt issuances. An extension of this practice would be to adjust the cost of debt to the “true” (or without guarantee) cost so that management and traders are not creating value *only* through regulatory arbitrage.
  - c. Existing compensation structures seem too short-term, which works to induce perverse risk-taking, and to an extent, regulatory arbitrage, incentives. We propose that LCFIs should use more long-term contracts that include deferred compensation features. Restricted stock, claw backs, and bonus pools tied to long-term profits, would all be features that implement optimal top-management structures.

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## Chapter 8: Executive Summary

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# Rethinking Compensation in Financial Firms

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*Gian Luca Clementi, Thomas Cooley, Matthew Richardson, and Ingo Walter*

### Background

The unprecedented government bailout of financial markets and firms in the current crisis has forced executive compensation in banking and finance into the open. As Paul Volcker noted last April, “The bright new financial system—for all its rich rewards and unimaginable wealth for some—has failed the test of the marketplace by repeatedly risking a cascading breakdown of the system as a whole.” Taxpayers wonder how highly paid banking “talent” could have been instrumental in creating a financial disaster of epic proportions. And having been forced to take equity stakes in most of the largest US and foreign financial firms and guarantee their debt, taxpayers naturally feel that they ought to have a say in how such people, now in publicly supported private institutions, get rewarded. The defenders of privately determined approaches to compensation in financial institutions might wish otherwise, but this is now a high-profile political issue in the US and elsewhere, inexorably intertwined with re-stabilization of the financial system.

### The Issues

Two issues appear to stand out – compensation of top management and compensation of key cohorts of “high performance” employees.

1. To the extent that the pay packages of senior management deviate materially from the long-term financial interests of shareholders, any overcompensation problem is a failure of corporate governance. It is important to note, however, that the top executives of banking and financial firms tend to be paid largely in shares, with at least some minimum retention period required. So some of the top executives in the firms that melted-down have lost fortunes along with their taxpayers. In that sense the system actually works pretty well. Reward and punishment are to some extent aligned, and powerful signals are sent. It may in fact be possible that the financial industry has a better senior management pay-for-performance track record than many other industries. When the system fails, it often seems to involve massive exit packages (rewards for failure) or executives liquidating shares that turn out, after the fact, to have been overvalued at the time of sale. So the real issue may not require the wholesale redesign of top management compensation, but rather should address the difficulties investors have in perceiving risks and accurately valuing the equity of financial firms.
2. It has been suggested that the dynamics of the market for high-performance finance professionals, together with a long-established bonus-pool reward system, has led to an epidemic of “fake alpha” in the industry – that is, compensation based on short-term excess returns through the current bonus pool. Performance over the current accounting period cannot take into account lower returns or losses in subsequent periods for which current activities are responsible. Since it is impossible to determine these until some time has passed, compensation based on current reported earnings may not be justified. This problem has been blamed for perverse incentives facing key employees in the financial industry in areas like sales and trading, securitization and financial engineering. Employees are encouraged to (i) maximize current compensation to themselves, possibly at the expense of

shareholders, (ii) maximize the use of leverage without regard to its impact on bankruptcy risk of the firm, and (iii) report to senior management and regulators that all is well when in fact it is not.

To understand how this point is relevant for the current financial crisis, note that financial firms (i.e., the GSEs, banks and broker/dealers) held 48% of the \$1.65 trillion worth of AAA-rated collateralized debt obligations (CDOs) of non-prime mortgages. This is puzzling because the whole purpose behind securitization is to transfer the credit risk away from financial institutions to capital market investors. By holding onto such large amounts of the AAA-rated, non-agency-backed CDOs, the CDO desks of firms were for all economic purposes writing deep out-of-the-money put options on the housing market. In other words, these desks were taking huge asymmetric bets which would payout in most periods albeit with large exposure to a significant economy-wide shock. Because the risk management systems of the firms treated these AAA CDOs as essentially riskless, the CDO desks booked the premiums as instant profit (which had a spread roughly double that of other AAA-rated securities) and thereby receiving big bonuses with the incentive to load up on them – hence, the financial crisis of 2007-2008.

## Policy Recommendations

It would be surprising if financial firms – alongside the current epidemic of reduced or forfeited top management bonuses as a result of collapsed business conditions – do not start to think through compensation approaches more closely aligned to risk exposure and shareholder interest.

1. Greater disclosure and transparency of compensation practices, not necessarily major retargeting of top management compensation, in order to apply greater market discipline to top management pay practices.
2. For senior management, longer stock holding periods and stricter forfeiture rules would probably make sense – for example, failed senior executives who are ejected might confront a minimum 36 month holding period for the shares they take with them.
3. For high-performance “risk-taking” employees, an interesting idea is the *bonus/malus* approach. In good times, with a rising tide lifting all boats, the combination of the rising tide and leverage makes it impossible to tell good producers from bad ones, since most people generate decent to spectacular returns. It is in bad times that the wheat is separated from the chaff. So compensation should have a multi-year structure, with bad performances subtracting from the bonus pool in the same way that good performances add to it.
4. Given the fluid market for financial talent, no single firm can get very far on its own. Unless there is some consensus on best practices, and the industry moves in tandem toward a new and more rational way of compensating its key performers, individual experiments will surely fail as business picks up, competition intensifies, and happy days are here—again—leaving the taxpayer to pick up the tab once again in the next financial crisis. Consequently, we advocate a “convoy approach” whereby the key financial firms that dominate global markets agree on a basic code of best practice for compensating high-performance risk-taking employees.

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## Chapter 9: Executive Summary

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# Fair Value Accounting: Policy Issues Raised by the Credit Crunch

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*Stephen Ryan*

### Background

The practical applicability of fair value accounting has been tested by the severely illiquid and otherwise disorderly markets for subprime and some other positions during the ongoing credit crunch. This fact has led various parties to raise three main potential criticisms of fair value accounting. First, unrealized losses recognized under fair value accounting may reverse over time. Second, market illiquidity may render fair values difficult to measure, yielding overstated or unreliable reported losses. Third, firms reporting unrealized losses under fair value accounting may yield adverse feedback effects that cause further deterioration of market prices and increase the overall risk of the financial system (“systemic risk”). These parties typically advocate one of two alternatives: either abandoning fair value accounting and returning to some form of amortized cost accounting or, less extreme, altering fair value accounting requirements to reduce the amount of firms’ reported losses. While each of the potential criticisms of fair value accounting contains some truth, all of these criticisms are overstated and do not acknowledge the far more severe limitations of the advocated alternative accounting measurement approaches.

### The Issues

Like any other accounting system, fair value accounting has its limitations, both conceptual and practical. The relevant questions for policymakers to ask are:

1. Does fair value accounting provides more useful information to market participants than the alternative accounting measurement approaches (generally some form of amortized cost accounting)? The answer is yes, because these alternative approaches invariably suppress the reporting of some or all unrealized gains and losses and thereby reduce firms’ incentives for voluntary disclosure. Such suppression of critical information would prolong the price and resources allocation adjustment processes that are necessary to put the current crisis behind us.
2. Can the FASB improve FAS 157’s guidance regarding fair value measurement to cope better with illiquid or otherwise disorderly markets? Once again, the answer is yes; the FASB can provide additional guidance about when market illiquidity is so great that firms may estimate fair values using internal models instead of observable but low quality market information and also about how to estimate illiquidity risk premia.



## A Telling Historical Analogy: The Thrift Crisis

The thrift crisis began when interest rates rose during the first oil crisis/recession in 1973-1975, causing thrifts' fixed-rate mortgage assets to experience large economic losses that were not recognized under amortized cost accounting. Because these economic losses were unrecognized, bank regulators and other economic policymakers allowed the crisis to fester for a decade and a half—effectively encouraging thrifts to invest in risky assets, exploit deposit insurance, and in some cases even commit fraud in the meantime, activities that significantly worsened the ultimate cost of the crisis—until the crisis was effectively addressed through the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 and the Federal Deposit Insurance Corporation Improvement Act of 1991. These acts required troubled thrifts to be shut down with their assets sold through the Resolution Trust Corporation, prohibited regulatory forbearance, and various other direct actions. Similarly direct policymaking is needed now, and it must not be deterred by throwing an accounting cloak over very real and sizeable problems.

## Policy Recommendations

1. Policymakers should support existing fair value accounting requirements and their extension to all financial instruments.
2. The FASB should provide additional guidance about
  - a. when market illiquidity is so great that firms may estimate fair values using internal models instead of observable but low quality market information and
  - b. how to measure illiquidity risk premia.
3. The FASB and SEC should require firms to make additional mandatory disclosures and strongly encourage them to make additional voluntary disclosures about their unrealized fair value gains and losses and how they have resulted from market illiquidity.

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## Chapter 10: Executive Summary

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# Derivatives - The Ultimate Financial Innovation

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*Viral V. Acharya, Menachem Brenner, Robert Engle, Anthony Lynch and Matthew Richardson*

### Background

Derivatives are financial contracts whose value is derived from some underlying asset. These assets can include equities, bonds, exchange rates, commodities, residential and commercial mortgages. The more common forms of these contracts include options, forwards/futures and swaps. A considerable portion of financial innovation over the last 30 years has come from the emergence of derivative markets. Generally, the benefits of derivatives fall into the areas of (i) hedging and risk management, (ii) price discovery, and (iii) enhancement of liquidity. Even in the current financial crisis, the derivative scapegoat, credit default swaps (CDS), has played some positive roles. For example, CDSs enabled lenders to hedge their risk and offer loans. When the securitization market for loans, bonds and mortgages shutdown in the summer of 2007, a number of financial institutions were left holding large loan portfolios. Using the CDS market, some of these financial institutions smartly hedged out their risk exposure. In addition, CDSs and other credit derivatives have played a very important role in disseminating information to both the public and to regulators: from judging the quality of financial firm's bankruptcy prospects in a remarkably prescient way, from providing credit risk estimates that were central to the U.K. government's bailout plan, and from revealing in early 2007 declines in values of subprime-backed assets.

### The Issues

For over 30 years derivatives markets functioned very well, so what went wrong this time?

The problems that arose were not associated with all derivatives, but primarily with over-the-counter (OTC) derivatives and, in particular, the newer credit derivative market. And, even then, the issue should not be with the derivatives as an instrument, but with (i) the way they were traded and cleared, and (ii) how they were used by some financial institutions to increase their exposure to certain asset classes.

Double counting of contracts aside, the CDS and CDO markets are nevertheless huge, having grown to well over \$50 trillion in notional amounts in a short period of time. Yet there was a complete lack of transparency about the underlying exposures of financial institutions to this market. In the OTC market, because contracts are bilateral, no one knows precisely what the total exposure is, where it is concentrated, what the values are of such contracts, and so forth. In the current crisis, this effect was amplified by the complexity of credit derivatives, and especially the subprime CDOs on which, to this date, we still do not have a handle.

Each financial institution and market participant will act in their own interest to manage their risk/return tradeoff. These actions may not take into account the spillover risk throughout the system. The most important principle underlying the regulation of derivatives must encircle two primary issues: (i)

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counterparty credit risk exposure which can generate illiquidity and can cause markets to break down, and (ii) capital erosion, if large and concentrated in institutions that provide liquidity to the financial system, can cause the financial system to break down.

The policy issues are therefore as follows:

- Should the current “no regulation” status of OTC derivatives be changed?
- Given the potential systemic risk of credit derivatives, in particular CDSs, what arrangements (regulations) should be considered?
- Given the opaque nature of these markets, what reporting requirements should be in place?

## Policy Recommendations

1. Since they have the same economic value, there is no reason why regulation of OTC derivatives should not be of a similar nature to those traded on an exchange. One-off OTC transactions could be exempted. Jurisdictional issues need to be resolved.
2. OTC markets that grow “sufficiently large” should be migrated to either Clearing House or Exchange market structures – the CDS market being one prime candidate. Note that the main reason for systemic risk in OTC markets is that bilaterally set collateral and margin requirements in OTC trading do not take account of the counterparty risk externality that each trade imposes on the rest of the system, allowing systemically important exposures to be built up without sufficient capital to mitigate associated risks. With appropriate collateral and margin requirements, the Clearing House or Exchange structures could have little to no counterparty credit risk.
3. To increase transparency throughout the system, trade-level information for some OTC markets, in particular CDS’s, on volume and prices seems a reasonable requirement. There would be no need to reveal who is trading or the amount traded above a certain level. This is a feature of most markets and is now a feature of the corporate bond market which was hitherto entirely OTC but now has trade-level disclosure to TRACE. The TRACE system is a good model and has been quite successful.

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## Chapter 11: Executive Summary

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# Centralized Clearing for Credit Derivatives

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*Viral V. Acharya, Robert Engle, Stephen Figlewski, Anthony Lynch, Marti Subrahmanyam*

### Background

Credit derivatives, mainly Credit Default Swaps (CDS) and Collateralized Debt Obligations (CDOs), have been under great stress during the sub-prime financial crisis and have contributed significantly to its severity. In large part this is because these relatively new products are traded in bilateral transactions over-the-counter (OTC), unlike other major financial derivatives that are traded on exchanges. OTC contracts can be more flexible than standardized exchange-traded derivatives, but they suffer from greater counterparty and operational risks, as well as less transparency.

### The Issues

#### 1. Transparency

The market for CDS provides a clear example of how lack of transparency makes risk assessment difficult. Following the bankruptcy of Lehman Brothers, about \$400 billion of CDS were presented for settlement, but once all the offsetting bilateral trades—invisible to the outsider—were netted out, only about \$6 billion ultimately changed hands. Evaluating and managing counterparty credit risk for CDS is a big problem with systemic implications. In March 2008, the Fed and the Treasury orchestrated a bailout of Bear Stearns because it was "too interconnected" to other financial firms through its extensive and complex network of bilateral OTC contracts to be allowed to fail. The serious consequences of letting a systemically important firm fail became all too apparent when Lehman Brothers had to file for bankruptcy and the credit markets responded by freezing up.

#### 2. Counterparty Risk

CDS and other OTC contracts deal with counterparty credit risk by setting (privately negotiated) collateral requirements for both parties to the deal. But the terms are not standardized and no account is taken of the risk externality by which credit enhancement for one deal affects the risk exposures of other market participants. The shortcomings of this arrangement, including the fact that the OTC environment offers almost no transparency regarding the counterparties' overall risk exposure, became clear in the case of AIG, which had accumulated a huge exposure to CDS, and had to be bailed out after a credit rating downgrade precipitated collateral calls that it could not meet.

### Three Levels of Centralized Clearing

We feel that when an OTC derivatives market becomes large and important enough to have a significant impact on the overall financial system it needs to have centralized clearing in order to aggregate information on outstanding deals and risk exposures for the benefit of regulatory authorities and other market participants. Three different types of central clearing offer different levels of market integration and transparency.

### 1. **Deals Registry**

The most basic arrangement would be a Registry of deals in which counterparties report on trades they have set up bilaterally. A Registry could provide efficiency gains by both holding collateral for the counterparties and facilitating the transfers of funds among institutions.

### 2. **Clearing House as Central Counterparty**

A much stronger form of Clearing House would take on the role of counterparty and guarantor of all contracts, as does the clearinghouse for a futures or options exchange. Deals would still be set up in bilateral negotiation, but once registered with the Clearing House, the CDS would be broken into two separate contracts with the Clearing House in the middle. This kind of clearing facility would greatly reduce counterparty risk in the market, as long as it was adequately protected against default. An important element of that protection is that the Clearing House would set standardized margin requirements on all deals. This facility also has the valuable feature that it allows a firm to completely unwind a trade before maturity, because identical offsetting contracts made with different counterparties would cancel each other out when the Clearing House took the other side. We favor this form of centralized clearing over a pure OTC market structure or a registry for CDS and most other significant derivatives.

### 3. **Derivatives Exchange**

The most centralized form of market organization would be for trading to move to a formal exchange. An exchange offers the advantages of highly visible prices and volumes, broad market participation including retail traders, and elimination of counterparty risk through standardized margins and a contract guarantee supported by the capital of both a clearinghouse and independent market makers. One significant inconvenience of exchange trading is that contracts need to be standardized to permit large amount of trading in the same instrument. This would not be a big problem for CDS's, which are already quite standardized, but would be difficult for more individualized instruments, like CDO tranches. A second problem is that setting up and running an exchange is costly, so it is not suitable for thinly traded instruments.

## **Policy Recommendations**

1. A firm trading credit derivative contracts over-the-counter should be required to provide information to a central Registry on each deal they enter into. Information gathered in this way should be available to regulators and, potentially, to the public in a form that balances the need for counterparties to be able to evaluate each other's risk exposures against firms' proper concerns for keeping the details of their trading strategies confidential.
2. When trading activity in a particular derivative expands to the point that the contract becomes systemically significant, it should move to centralized clearing with a clearinghouse that assumes the role of counterparty and guarantees every trade. This would greatly reduce counterparty risk and further improve market transparency, in addition to offering substantial efficiency gains in trading.
3. Moving trading to a formal exchange may be appropriate for some actively traded and largely standardized derivative instruments, but the major gains from establishing a centralized clearing facility are obtained once there is a clearinghouse that assumes the role of counterparty and guarantees every trade. We therefore feel that the strongest public policy need in the area of OTC derivatives is to require centralized clearing for all systemically important derivatives.

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## Chapter 12: Executive Summary

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# Short Selling

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*Menachem Brenner and Marti G. Subrahmanyam*

### Background

Until the current global financial crisis, the practice of selling shares that one did not own, known as short-selling, was generally permitted in most countries. Of course, there were some restrictions placed on such transactions, such as the requirement to borrow the stock *prior* to the sale ("no naked shorts"), selling at a higher price than the previous trade ("the uptick rule") and disallowing short-selling to capture gains and postpone tax payments ("no shorting against the box").

In a dramatic decision in the early weeks of the current crisis, the SEC banned short-sales of shares of 799 companies on September 18, and subsequently lifted the ban on October 8, this year. However, most countries around the globe, and in particular, the U.K. and Japan, homes to the two other major world financial centers, London and Tokyo, have declared a ban on short selling for "as long as it takes" to stabilize the markets. Even in the U.S., there is continuing pressure on the regulators to reinstate the ban, at least in selected securities or to bring back the "up-tick" rule.

### The Issues

The immediate policy issues are as follows:

1. Should there be any restrictions on short selling equity shares of individual companies, if not a total ban on such transactions?
2. If so, what specific restrictions should be instituted, and under what circumstances should they be enforced by the regulators? In particular, should the "up-tick" rule be reinstated?
3. What is the appropriate framework for timely reporting of short interest and/or short sales to ensure transparency of these transactions to the market?

### Financial Markets: Fairness and Efficiency

A highly desirable feature of financial markets is that they be fair to all participants who wish to trade. An aspect of this fairness is that these markets operate in a transparent manner, making available information to all participants at the same time, so that the markets can be efficient. In efficient financial markets, the prices of financial assets reflect all available information - favorable and unfavorable - that may affect the magnitude and the risk of future cash flows from these assets. An important tenet of fair regulation and taxation of financial markets is the symmetric treatment of buyers and sellers of financial assets. This is because the combined actions of buyers and sellers, reacting to new information, cause that information to be reflected in market prices. This process is referred to as price discovery. Restrictions on short selling constrain the participation of potential sellers, who may have bearish views on a stock. Equally, they also affect buyers who want to be long on a particular company's securities, but limit their risk exposure. For example, buyers of convertible bonds or stocks

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who buy put options to limit their downside losses will find it difficult to buy them from sellers, since the latter use shorting to hedge their own exposure. Thus, restrictions on short selling reduce transactions in the stock market, which in turn, delays price discovery, curtails liquidity and causes prices to fall further. They also increase liquidity risk if the volume of these future transactions is uncertain. Thus, a ban on short sales would generally have adverse consequences for liquidity as well as liquidity risk in a given stock and its derivatives.

At a broader level, the wealth of available empirical evidence in the academic literature as well as accumulated regulatory experience, suggests that restrictions on short-sales are largely ineffective in halting declines of stock. All they do is throw some sand in the gears and delay the inevitable incorporation of bad news into stock prices. It has been shown that in countries with fewer short-selling constraints, there is more efficient price discovery, less co-movement of stocks, and lower volatility than in those where short-selling is more restricted. Most importantly, no study has shown that short-selling constraints reduce the likelihood of crashes. Similar conclusions have been reached regarding the “uptick” rule which prohibits short sales, except when prices move up. In particular, a recent study commissioned by the SEC, which showed the “uptick” rule to be ineffective influenced the SEC to rescind the rule last July.

## Policy Recommendations

1. **Short Selling should never be banned.** In cases where there is strong evidence of market manipulation, a trading halt should be considered, since such manipulation may affect both buyers and sellers.
2. **No “Naked Shorts.”** Regulators should also strictly enforce the requirement that stocks must be borrowed *prior* to a short sale **by any investor who is not a market maker.**
3. The “**up-tick**” rule should **not** be reinstated. It does not reduce volatility; it only slows down the price discovery process.
4. **Reporting Requirements.** Transparency in the form of *timely* reporting is a precondition for efficient financial markets. We propose that daily short selling trading activity, and not just short interest reported with a lag, on all listed stocks, be transmitted online to the exchange/clearing corporation. Every short sale that appears on the sales and trade ticker should be marked as such. (Of course, the identity of the seller would not be disclosed to the public.)

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## Chapter 13: Executive Summary

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# Regulating Systemic Risk

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*Viral V. Acharya, Lasse Pedersen, Thomas Philippon and Matthew Richardson*

### Background

Systemic risk is the risk that the failure and distress of a significant part of the financial sector reduces the availability of credit which in turn may adversely affect the real economy. Not all economic downturns involve systemic risk, but the occurrence of systemic risk has almost invariably transformed economic downturns into deep recessions or even depressions. Such systemic risk has been ubiquitous in the current crisis. It has manifested itself in the moral hazard encouraged by “too-big-to-fail” guarantees, in the externalities created by deleveraging, fire-sales, hidden counter-party risk and liquidity shortages, and in the aggregate decline in home prices.

### The Issues

This systemic risk has raised important policy issues:

1. Will market forces left to their own devices ensure an efficient level of systemic risk in the economy? Or is regulation warranted?
2. If regulation of systemic risk is desirable, what form should it take? Indeed, how should systemic risk be measured or quantified in the first place?

We argue that the “laissez-faire” amount of systemic risk in an economy will likely be inefficiently high because systemic risk involves externalities. That is, each institution manages its own risks but does not consider its impact on the risk of the system as a whole. We draw the analogy of a firm that creates environmental pollution. Such a firm is often regulated to limit the pollution or taxed based on the externality it causes. Regulation is therefore needed. Unfortunately, current financial sector regulations do not address the problem because they seek to limit each institution’s risk seen in isolation; they are not sufficiently focused on systemic risk. As a result, while the risks of an individual firm are properly dealt with in normal times, the system itself remains, or is induced to be, fragile and vulnerable to large macroeconomic shocks.

### Policy Recommendations

Hence, we advocate that financial regulation be focused on limiting systemic risk, and we propose a new set of regulations to achieve this goal.

1. There should be one regulator (say, the Federal Reserve) in charge of systemic risk.
2. The regulator would first assess the systemic risk posed by each firm. The assessment would be based on individual characteristics (leverage, asset quality), on measures of complexity and connectedness (that define large, complex financial institutions), and on statistical measures.



- a. In particular, we propose estimating the contribution of each firm to the downside risk of the economy using the standard risk management tools routinely employed within financial firms to manage firm-level risk, but applied at the macroeconomic level. These include value-at-risk, expected loss, stress tests, and macroeconomic scenario analysis. These tools would allow the regulator to detect the systemic risk of one institution or of a group of institutions.
3. The overall systemic risk assessments should then determine the regulatory constraints imposed on the firms. In particular, each firm would pay for its *own* systemic risk contribution. This charge could take the form of capital requirements, taxes, and required purchase of insurance against aggregate risk.
  - a. Capital requirements would introduce a charge for a firm's assets based on its systemic risk contribution. This would be a "Basel III" approach; or,
  - b. Taxes could be levied based on systemic risk contribution of firms and used to create a systemic fund. This would be a FDIC-style approach but at a systemic level. It would have the added benefit of reducing the incentives for financial institutions to become too big to fail; or,
  - c. Systemic firms could be required to buy insurance – partly from the private sector – against their own losses in a scenario in which there is aggregate economic or financial sector stress. To reduce moral hazard, the payouts on the insurance would go to a government "bailout" fund and not directly into the coffers of the firm. This would allow for price discovery by the private sector, enable the regulator to provide remaining insurance at a price linked to the price charged by the private sector, and lessen the regulatory burden to calculate the relative price of systemic risk for different financial firms.

In all cases, our proposed regulations would focus regulatory attention on systemic risk, provide incentives for regulated firms to limit systemic risk taking, reduce moral hazard, reduce the procyclicality of risk taking, and, use tools tested and well understood by the private sector, potentially also providing market-based estimates of the price of systemic risk.

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## Chapter 14: Executive Summary

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# Private Lessons for Public Banking: The Case for Conditionality in LOLR Facilities

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*Viral V. Acharya and David Backus*

### Background

As we work our way through the current financial crisis, central banks have shifted their attention from managing short-term interest rates to providing liquidity to the financial system. In the US, for example, the Federal Reserve's balance sheet has expanded rapidly, as it offered funds to banks and accepted securities in return: from under a trillion dollars in August 2007 to over two trillion in November 2008, expanding primarily through its lending to banks against illiquid collateral. This "lender of last resort" (LOLR) role is neither new nor unusual, but its massive scale suggests that it is worth some thought to get the details right. We make below what may seem right now to be a perverse argument: *Central banks can learn something from the private sector about how to manage its provision of liquidity.*

### The Issues

Let us start from the beginning. Walter Bagehot codified the nineteenth century's collective wisdom on central bank provision of liquidity in Chapter VII of *Lombard Street* (1873). In many respects, the same principles guide modern central banks. It involves the following elements: (i) Central banks should hold large reserves; (ii) In times of panic, the central bank should freely advance these reserves to any private bank able to offer "what in ordinary times is reckoned a good security" as collateral; (iii) These advances should be charged a penalty rate to discourage applications from banks that do not need it. (Bagehot seemed concerned primarily with the practical goal of conserving limited reserves); and, (iv) This policy of using reserves to stem panics should be clearly communicated. Otherwise, uncertainty about central bank actions can themselves contribute to the panic.

These guidelines remain insightful but we think they miss an important aspect of financial crises: **it is not easy to tell the difference between an illiquid and an insolvent institution.** In fact, that is usually what precipitates matters: no one is sure who is solvent. In those circumstances, a central bank can easily find itself lending to an insolvent institution, perhaps creating an unnecessary delay in its timely reorganization and recapitalization.

Consider an undercapitalized and possibly insolvent bank: call it Lehman Brothers if you like. If it can borrow from the central bank, it faces less pressure to raise more capital privately to solve its underlying problem. It has been a shocking revelation to many that the total capital raised (public and private) is remarkably small when compared to the total losses incurred by financial institutions worldwide (including banks, broker-dealers, insurers and GSEs) from 3Q 2007 to date. Excluding 4Q 2008 which features large-scale capital infusions from governments into the financial sector, financial institutions simply did not raise enough capital, in fact, not even enough to cover their losses. What is more, even firms in difficulty such as Lehman Brothers and Citigroup were paying significant cash dividends – that is taking capital *out* of their balance-sheets – until they failed or were bailed out.

- Could the central banks while providing liquidity to these institutions (many unhealthy at that such as the GSEs, Washington Mutual, Wachovia, Lehman Brothers, and so on) ensure that they restructured – by reducing leverage and risk or converting debt to equity – or recapitalized – by issuing preferred or equity capital in markets?

We believe the answer is yes, provided the liquidity facilities created by central banks granted them the rights to deny liquidity conditional on bank health and characteristics. Such rights are indeed available to private providers of liquidity insurance – namely, the banks – when they allow borrowers to pre-arrange such liquidity facilities from them. The private lines of credit (LCs) serve a similar purpose for borrowers as central banks' LOLR facilities do for banks: they represent contracts pre-arranged by firms with banks for banks to give them liquidity when firms need it. Indeed, LCs often constitute the borrower's last line of defense against an economy-wide shortage of credit, as in the current crisis. The tradeoffs involved are also the same – providing liquidity to avoid deadweight costs of liquidation of a sound enterprise but weighing that against the fact that insurance will reduce the discipline on the enterprise to avoid being in such a situation in the first place. How does the structure of private insurance deal with this tradeoff?

Private lines of credit have the borrower pay a the commitment fee and interest rate once the lines are drawn that are both tied to the firm's credit rating, which allows the lender to respond to changes in credit quality. More importantly, they include covenants (cash-flow based, for example) and a "material adverse change" (MAC) clause that give the lender the ability to refuse the loan if the conditions of the borrower have changed. These terms, and their enforcement observed in practice, suggest that lines of credit are private solutions to liquidity issues, *not solvency issues*. In some respects, central banks' LOLR facilities resemble private lines of credit. Prices aren't tied to credit rating, but central bank lending is secured against collateral, albeit illiquid. What's missing, however, is anything resembling the material adverse change clause. There's nothing, in other words, to keep an undercapitalized bank from using such a facility. This, we view, as a serious limitation in structure of these facilities.

## Policy Recommendations

Our main recommendation is thus that just like private lines of credit, central banks' liquidity facilities should be *conditional*. In particular, central banks should ascertain while providing liquidity to an institution that they are indeed lending to sound institutions.

A straightforward way to achieve this objective is to require in the LOLR facilities that eligible institutions and firms can borrow from the central bank against eligible collateral *only if they meet pre-specified requirements, for example, maximum leverage and minimum capital ratios*. Such conditionality would incentivize weak banks to recapitalize when their losses mount so as to have access to the LOLR facilities and thereby limit moral hazard. Conversely, in absence of such conditionality, weak banks may access liquidity facilities and simply play the waiting game – a way for management to avoid being diluted by fresh capital issuance and thereby risk being even more insolvent if things do not improve. As the Federal Reserve expands its liquidity operations to a wider set of institutions and firms in the economy, the role for such conditionality in its liquidity facilities seems imperative.

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## Chapter 15: Executive Summary

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# The Financial Sector “Bailout”: Sowing the Seeds of the Next Crisis?

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*Viral V. Acharya, Rangarajan Sundaram*

### Background

The two-month period from September to November 2008 has been witness to the most extraordinary level of direct US governmental involvement in financial markets in over seven decades. In part, this intervention took on the form of *ad-hoc* institution-specific rescue packages such as those applied to Bear Stearns, Fannie Mae, Freddie Mac, AIG, and Citigroup. But a substantial part of the effort and huge sums of money have also been committed in an attempt to address the systemic problems which led to the freezing of credit markets. A multi-pronged approach has finally emerged with three key schemes:

1. A loan-guarantee scheme administered by the Federal Deposit Insurance Corporation (FDIC) under which the FDIC guarantees newly-issued senior unsecured debt of banks out to a maturity of three years.
2. A bank recapitalization scheme undertaken by the US Treasury in which the Treasury purchases preferred equity stakes in banks.
3. A commercial paper funding facility (CPFF) operated by the Federal Reserve.

### The Issues

The sheer magnitude of this intervention has raised two central questions of interest:

1. At what prices are these schemes being offered? Are the terms fair from the taxpayer standpoint? Are the terms fair to healthy banks and financial institutions?
2. And, equally importantly, will the bailout achieve its intended purpose of assuaging counterparty risk concerns (which have arisen because the market does not know which banks are healthy and which are not) and thawing the freeze in credit markets at large?

Our analysis of the salient features of each of these programs, their possible economic consequences, and where relevant, comparisons with similar efforts undertaken in other countries, notably the UK, have led us to conclude that:

1. By adopting a one-size-fits-all pricing scheme that is set at too low a level relative to the market, the US loan-guarantee scheme represents a transfer of between \$13 billion and \$70 billion of taxpayer wealth to the banks. In contrast, the UK scheme, which uses a market-based fee structure, appears to price the guarantee fairly.
2. By offering very little in terms of optionality in participation, the US loan guarantee scheme is effectively forced on all banks, giving rise to a pooling outcome. The UK scheme, in comparison, provides considerable optionality in participation, which, combined with its pricing structure, has induced a separating equilibrium where healthy banks have not availed of government guarantees but weaker banks have. Implicitly, the US scheme encourages a system where banks are likely to remain (and to want to remain) on government guarantees until the crisis abates, whereas the UK scheme has paved the way for a smooth transition to market-based outcomes.

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3. The US recapitalization scheme has also provided little in terms of participation optionality for the large banks, but it too is otherwise generous to the banks in that it imposes little direct discipline in the form of replacement of top management or curbs on executive pay, and secures no voting rights for the government. The UK scheme allows for optionality in accepting government funds, and is associated with government voting rights, replacement of management in some cases, and significant curbs on dividend and executive pay.
4. By requiring a threshold credit quality and using a wider spread, the US commercial paper funding facility appears to be more fairly priced than the loan-guarantee scheme, and does not appear to represent a net cost to taxpayers.

Overall, the UK bailout plan appears much better grounded in sound economic principles. While bailouts are unavoidable under extreme economic stress, they ought to be designed and priced correctly even in such times of crisis.

## Policy Recommendations

What follows are some simple rules for regulators to follow:

1. Do not employ a one-size-fits-all approach in pricing; this makes it harder to separate good and bad banks, and ultimately to move back to a market-based system. As corollaries to this overall principle:
2. Rely on market prices wherever available;
3. Reward more those institutions that did well relative to those that did not; and
4. Review incentive systems within banks that led to the crisis in the first place.

By and large, adherence to these principles would reduce any unintended consequences (due to moral hazard) and ensure that the outcomes from the bailout represent a rescue of the system but still in a manner that accrues no undue advantage to a small set of institutions. When bailouts are organized in such fashion, market participants are still disciplined *ex ante* by the prospect of relative gains and losses.

A final issue that arises is what the regulators have planned in terms of exit from the guarantees and recapitalization programs. The US regulators have not priced the guarantees right, and they have offered them for as long as three years. Have they, as a result, raised the possibility of substitution by banks into inefficient assets (for example, by undertaking acquisitions that are profitable *only* with the guarantee)? The typically sticky nature of regulatory responses during past crises makes planned exit an important issue for regulators to ponder, lest we sow the seeds of the next crisis. When the economic outlook improves, we do not want to see abundant liquidity at artificially low prices (due to guarantees) because it creates the possibility that the sequence of events we have just witnessing—excessive leverage, inefficient allocations, asset price bubbles and finally, a crash—may recur.

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## Chapter 16: Executive Summary

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# Mortgages and Households

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*Andrew Caplin and Thomas Cooley*

### Background

According to the most recent data, as many as one in ten mortgages in the U.S. are delinquent or in foreclosure. The continued decline in housing prices has been exacerbated by the decline in the economy. The housing sector is caught in a continued downward spiral.

Foreclosure is a slow and costly process and represents significant deadweight loss for the economy. Estimates are that the cost of foreclosure is 30-35% of the value of a house. Moreover properties that foreclose contaminate the value of neighboring properties.

There is a further important benefit to addressing the mortgage problem and that is that actual foreclosures and the threat of an unknown number of additional foreclosures are passed through the financial system to holders of mortgage and mortgage backed securities, when destabilizing the financial system itself. Default losses are concentrated in the "first loss" and mezzanine tranches of CDOs, which has made them highly toxic to the financial institutions holding them.

### The Issues

Given the attention that has been devoted to the problem of troubled mortgages and the number of programs that have put forward to address it, why have they had so little impact? The simple answer is that they are badly designed.

Some examples: Hope for Homeowners is an FHA Program designed to modify existing loans by writing down the principal, offering insurance against further default and introducing shared appreciation on the property. Fannie-Mae and Freddie-Mac laid out plans for restructuring mortgages that had lower payments but extended the term of the loan or involve balloon payments. The FDIC has proposed to restructure troubled mortgages by lowering payments but with no write-down of principal and with a balloon payment due at the end. So far the response to these programs has not been significant. Why?

First, they start with poor incentives. Both Hope for Homeowners and the FDIC programs are available to homeowners who are delinquent by several months in their payments. If you want to restructure your mortgage, what does this tell you? Stop making payments! Sensibly most bank restructuring programs require borrowers to show good faith by keeping payments current before they consider restructuring.

Another problem is that restructuring per se is not a great solution. For the most part it simply kicks the can down the road. Lowering current payments but requiring either a balloon payment or an extended payback term postpones the problem without solving it. Moreover since it does nothing to address the negative equity of the homeowner, it increases the probability of secondary default if prices or owners' incomes continue to fall. For all of these reasons owners become essentially like renters with all of the adverse incentives that may imply.

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Thus the existing approaches to loan modification do not balance the incentives of the borrowers and the lenders. Shared appreciation mortgages (which are a component of the FHA plan) do this well.

## **Policy Recommendations**

Shared appreciation restructurings offer a debt for equity swap whereby, in return for modifying the loan, the borrower must give up some of the future appreciation in the value of the property. Designed properly, this would discourage borrowers from seeking modifications if they can continue to pay their mortgage.

The biggest obstacle to loan modifications by far is securitization—the fact that an estimated 80% of the troubled loans have been sliced and diced and sold to many investors. This creates an obstacle to servicers who might otherwise be given incentives to modify loans in ways that are in the best interests of society. Existing commercial law allows loan servicers to make only changes that are in the holders' best interest – “not materially adverse to the Owner.” The law also says that if a mortgage is in default or in the servicers' opinion close to it, then servicers have no authority to make changes in interest rates, or principal amount or time of payments. Could Congress pass a law that allowed servicers to modify loans by invoking a standard such as “a good faith effort to advance the collective interests of holders?” Possibly it could, but it may run into the problem that the Constitution provides that “Congress shall make no law impairing the obligations of contract.”

The most important role for public policy therefore is to provide incentives for servicers to restructure and modify loans, to make certain that shared appreciation contracts are part of the policy mix, and to address the legal barriers to modifying securitized loans.

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## Chapter 17: Executive Summary

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# Where Should the Bailout Stop?

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*Edward I. Altman and Thomas Philippon*

### Background

The massive US Government bailout originally intended for the financial industry has now spread to the non-financial sector, and the government is considering bailing out car manufacturers. This is partly the fault of the financial bailout itself, which was poorly designed and too generous to the financial industry. Unfortunately, history and political economy have taught us that ad-hoc government interventions to bail out industries are a recipe for long run economic stagnation. This does not mean, however, that the government should stay on the sidelines. We propose a set of principles for efficient interventions, and we show how these principles apply in the case of General Motors.

### The Issues

The main issues are as follows:

1. Which principles should guide government interventions?
2. Should the financial industry be the only one to receive public support?
3. Should the government offer support to automakers? If yes, how?

We argue that government interventions should be based on a consistent set of principles because interventions without principles are almost guaranteed to be captured by interest groups, to become excessively politicized, and to be inefficient in the long run. We present four broad principles:

1. The market failure must be identified
2. The intervention should use efficient tools
3. The costs for the tax payers should be minimized
4. Government intervention should not create moral hazard

### Case Study - How to Help GM

Based on these principles, there is indeed a case for government intervention in favor of GM, but this intervention should not be a give-away bailout.

The market failure that we identify is the disappearance of the debtor-in-possession (DIP) market because of the financial crisis. This provides a rationale for government intervention (*first principle*). To be efficient, the reorganization should be thorough, and therefore lengthy. This is why it should take place under Chapter 11 of the Bankruptcy Code (*second principle*). To minimize the costs to the tax payers, the government should provide DIP financing (directly or through private financial institutions) because DIP loans are well protected (*third principle*). Finally, reorganization in Bankruptcy does not reward bad management and therefore minimizes moral hazard (*fourth principle*).

We advocate a massive “DIP” loan to GM in bankruptcy. The current bailout plan would offer less of a breathing space to GM and imply more job cuts in the short run than our proposed bankruptcy/DIP financing plan. The DIP loan would allow the restructuring to take place over 18 to 24 months while the

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bailout would be barely sufficient to avoid liquidation in 2009. To further limit the ripple effects of GM's bankruptcy, the government should also consider backstopping warranties and spare parts availability, even if the reorganization fails.

## Policy Recommendations

1. Reorganization under Chapter 11 of the bankruptcy code is an efficient process and should always be the default option.
2. Current Chapter 11 procedures cannot deal with the failure of Large and Complex Financial Institutions because financial crises unfold too quickly. We therefore advocate the creation of specific Bankruptcy procedures to deal with such cases.
3. Car manufacturers should be allowed to reorganize under the protection of the bankruptcy code, and the government should step in to provide DIP financing if necessary.

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## Chapter 18: Executive Summary

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# International Alignment of Financial Sector Regulation

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*Viral V. Acharya, Paul Wachtel and Ingo Walter*

### Background

Many of the policy recommendations being put forward to repair national financial architectures will prove to be ineffective - or at least their edge blunted - if there is a lack of international coordination among central banks and financial stability regulators in implementing them. This issue is important; although cross-border banking and financial flows are extensive, much of bank and financial supervision remains national. There is some consensus on prudential aspects of regulation such as capital requirements and their calculation, but there is hardly any consensus on the core set of principles driving the regulatory stance to providing guarantees and intervening in markets and banking sector.

### The Issues

Complications that could arise from lack of coordination between national regulators are many. These complications are largely due to regulatory arbitrage across national jurisdictions: i.e. if institutions are more strictly regulated in one jurisdiction they may move (their base for) financial intermediation services to jurisdictions that are more lightly regulated. But given their inter-connected nature, such institutions nevertheless expose all jurisdictions to their risk-taking. Individually, jurisdictions may prefer to be regulation-lite in order to attract more institutions and thereby jobs. For example, they may adopt weak accounting standards to allow opacity of off-balance-sheet leverage, not require OTC derivatives to trade on centralized clearinghouse, allow systemically large institutions to grow without imposing a significant additional “tax”, and grant generous bailout packages during a crisis.

- A “beggar-thy-neighbor” competitive approach to regulation in different countries – or even their failure to coordinate without any explicit competitive incentives – will lead to a race to the bottom in regulatory standards. This will end up conferring substantial guarantees to the financial sector, giving rise to excessive leverage- and risk-taking incentives in spite of substantial regulation in each country. Such an outcome should be avoided at all costs. The problem is one of externalities, and the case for coordination is therefore a compelling one. However, is such coordination feasible? If yes, what form will it take?

We believe it is highly unlikely that an international financial sector regulator with power over markets and institutions will emerge in the foreseeable future; countries are simply not willing to surrender authority. It remains unrealistic to expect that an international central bank will be able to close down a large part of the financial sector of a country or determine monetary or fiscal policy for a country; or that international civil servants will supervise or inspect national financial institutions. Indeed, such centralization may not be necessary and may even be undesirable. The issue is one of externalities and coordination may suffice. If national regulators can agree upon a core set of sensible regulatory principles, then the constraints imposed by such alignment would reduce regulatory arbitrage through jurisdictional choice substantially, even if specific national implementations of the principles vary to some extent.

## Policy Recommendations

Our recommended steps to achieve such international coordination for designing the blueprint of global financial architecture are thus as follows:

Central banks of the largest financial markets should convene first, and agree on a broad set of principles for regulation of banks. These principles should cover the following themes:

1. Each central bank should carve out a dedicated role for a powerful LCFI regulator that is in charge of supervising and managing the systemic risk of large, complex financial institutions.
2. The supervisory and control apparatus of each LCFI regulator should feature:
  - a. Coordinating with financial sector firms to provide long-term incentives to senior management and traders and other risk-taking employees;
  - b. Fair pricing of explicit government guarantees such as deposit insurance and, where implicit government guarantees are inevitable, limiting their scope by ring-fencing activities of guaranteed entities;
  - c. Standards for transparency and accounting of off-balance-sheet activities and centralized clearing for large OTC derivative markets to reduce counterparty risk externality;
  - d. Imposition of a systemic risk “tax” on LCFIs, that is based on aggregate risk contribution of institutions rather than their individual risk exposures;
  - e. Agreement on overall objective and design of lender-of-last-resort facilities to deal in a robust manner with liquidity and solvency concerns; and,
  - f. Agreeing on a set of procedures to stem systemic crises as and when they arise based on clear short-term policy measures (such as loan guarantees and recapitalizations that are fairly priced and impose low costs on taxpayers), and long-term policy measures (such as the shutting-down of insolvent institutions, providing fiscal stimulus, and addressing the root cause of financial crises – e.g., mortgages in this case).
3. Next, central banks should present their joint proposal with specific recommendations to their respective national authorities, seek political consensus for an international forum such as the Financial Stability Forum or a committee of the BIS to coordinate discussion and implementation of these principles, and monitor their acceptance and application.

A commitment to such a process will generate a willingness to take the outcome seriously and hopefully pave the way for international coordination on well-rounded policies that balance growth with financial stability as efforts get under way to repair national financial architectures.

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