Financial Crisis Inquiry Commission
October 20, 2009

Roundtable 1 (10:30-12:30)

Martin Baily
Senior Fellow in Economic Studies, The Brookings Institution

Simon Johnson
Ronald A. Kurtz Professor of Entrepreneurship, Sloan School of Management, Massachusetts Institute of Technology

Hal S. Scott
Nomura Professor and Director of the Program on International Financial Systems, Harvard Law School

Roundtable 2 (1:30-3:30)

Joseph Stiglitz
Professor, Columbia Business School, Graduate School of Arts & and Sciences (Department of Economics) and the School of International and Public Affairs.

John B. Taylor
Mary and Robert Raymond Professor of Economics and the Bowen H. and Janice Arthur McCoy Senior Fellow at the Hoover Institution, Stanford University

Luigi Zingales
Robert C. McCormack Professor of Entrepreneurship and Finance and the David G. Booth Faculty Fellow, University of Chicago Booth School of Business

Table of Contents

Martin Baily
Biography…………………………………………………………………………………………..3
"Origins of the Financial Crisis" (SUMMARY)……………………………………....................4-6

Simon Johnson
Biography……………………………………………………………………………………...7
"The Quiet Coup"………………………………………………………………………………..8-21
"Finance: Before the Meltdown"…………………………………………………………...22-23

Hal S. Scott
Biography……………………………………………………………………………………...24
"The Global Financial Crisis: A Plan for Regulatory Reform" (Compressed Version)…………....25-29

Joseph Stiglitz
Biography……………………………………………………………………………………...30-31
"The Anatomy of a Murder: Who Killed America's Economy?"…………………………………..32-39
"Interpreting the Causes of the Great Recession"…………………………………………………...40-57

John B. Taylor
Biography………………………………………………………………………………………58
"The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong"….59-70
"Why Toxic Assets Are So Hard to Clean Up"……………………………………………………...71-73

Luigi Zingales
Biography…………………………………………………………………………………………..74
"Lehman and the Financial Crisis"……………………………………………………………....75-76
"Oral Testimony: Causes and the Effects of the Lehman Brothers Bankruptcy"……………………..77-78

Martin Baily

Senior Fellow in Economic Studies, The Brookings Institution

<u>Biography</u>

Martin Baily re-joined Brookings in September 2007 to develop a program of research on business and the economy. He is studying the financial crisis as well as productivity and technology.

Dr. Baily is also a Senior Advisor to McKinsey & Company, assisting the McKinsey Global Institute on projects on globalization and productivity. He is an economic adviser to the Congressional Budget Office and a Director of The Phoenix Companies of Hartford CT. He currently serves as the co-chair of the Pew Task Force on Financial Sector Reform and is a member of the Squam Lake Group of academics working on financial reform issues.

In August 1999 Dr. Baily was appointed as Chairman of the Council of Economic Advisers. As Chairman, Dr. Baily served as economic adviser to the President, was a member of the President's Cabinet and directed the staff of this White House agency. He completed his term as Chairman on January 19, 2001. Dr. Baily previously served as one of the three members of the President's Council of Economic Advisers from October 1994 until August 1996. Dr. Baily was a Principal at McKinsey & Company at the Global Institute in Washington, D. C. from September 1996 to July 1999 and from 2001 to 2007 he was a Senior Fellow at the Peterson Institute where he published books on the European economy and on pension reform.
Dr. Baily earned his Ph.D. in economics in 1972 at the Massachusetts Institute of Technology. After teaching at MIT and Yale, he became a Senior Fellow at the Brookings Institution in 1979 and a Professor of Economics at the University of Maryland in 1989. He is the author of many professional articles, and books.

After teaching at MIT and Yale, he became a Senior Fellow at the Brookings Institution in 1979 and a Professor of Economics at the University of Maryland in 1989. He is the author of many professional articles, and books.

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“The Origins of the Financial Crisis”

By Martin Neil Baily, Robert E. Litan, and Matthew S. Johnson
The Brookings Institution, November 2008

(A full version of this report was previously distributed by the Chairman)

SUMMARY

The financial crisis that has been wreaking havoc in markets in the U.S. and across the world since August 2007 had its origins in an asset price bubble that interacted with new kinds of financial innovations that masked risk; with companies that failed to follow their own risk management procedures; and with regulators and supervisors that failed to restrain excessive risk taking.

A bubble formed in the housing markets as home prices across the country increased each year from the mid 1990s to 2006, moving out of line with fundamentals like household income. Like traditional asset price bubbles, expectations of future price increases developed and were a significant factor in inflating house prices. As individuals witnessed rising prices in their neighborhood and across the country, they began to expect those prices to continue to rise, even in the late years of the bubble when it had nearly peaked.

The rapid rise of lending to subprime borrowers helped inflate the housing price bubble. Before 2000, subprime lending was virtually non-existent, but thereafter it took off exponentially. The sustained rise in house prices, along with new financial innovations, suddenly made subprime borrowers — previously shut out of the mortgage markets — attractive customers for mortgage lenders. Lenders devised innovative Adjustable Rate Mortgages (ARMs) — with low "teaser rates," no down-payments, and some even allowing the borrower to postpone some of the interest due each month and add it to the principal of the loan — which were predicated on the expectation that home prices would continue to rise.

But innovation in mortgage design alone would not have enabled so many subprime borrowers to access credit without other innovations in the so-called process of "securitizing" mortgages — or the pooling of mortgages into packages and then selling securities backed by those packages to investors who receive pro rata payments of principal and interest by the borrowers. The two main government-sponsored enterprises devoted to mortgage lending, Fannie Mae and Freddie Mac, developed this financing technique in the 1970s, adding their guarantees to these "mortgage-backed securities" (MBS) to ensure their marketability. For roughly three decades, Fannie and Freddie confined their guarantees to "prime" borrowers who took out "conforming" loans, or loans with a principal below a certain dollar threshold and to borrowers with a credit score above a certain limit. Along the way, the private sector developed MBS backed by non-conforming loans that had other means of "credit enhancement," but this market stayed relatively small until the late 1990s. In this fashion, Wall Street investors effectively financed homebuyers on Main Street. Banks, thrifts, and a new industry of mortgage brokers originated the loans but did not keep them, which was the "old" way of financing home ownership.

Over the past decade, private sector commercial and investment banks developed new ways of securitizing subprime mortgages: by packaging them into "Collateralized Debt Obligations" (sometimes with other asset-backed securities), and then dividing the cash flows into different "tranches" to appeal to different classes of investors with different tolerances for risk. By ordering the rights to the cash flows, the developers of CDOs (and subsequently other securities built on this model), were able to convince the credit rating agencies to assign their highest ratings to the securities in the highest tranche, or risk class. In some cases, so-called "monoline" bond insurers (which had previously concentrated on insuring municipal bonds) sold protection insurance to CDO investors that would pay off in the event that loans went into default. In other cases, especially more recently, insurance companies, investment banks and other parties did the near equivalent by selling "credit default swaps" (CDS), which were similar to monocline insurance in principle but different in risk, as CDS sellers put up very little capital to back their transactions.

These new innovations enabled Wall Street to do for subprime mortgages what it had already done for conforming mortgages, and they facilitated the boom in subprime lending that occurred after 2000. By channeling funds of institutional investors to support the origination of subprime mortgages, many households previously unable to qualify for mortgage credit became eligible for loans. This new group of eligible borrowers increased housing demand and helped inflate home prices.

These new financial innovations thrived in an environment of easy monetary policy by the Federal Reserve and poor regulatory oversight. With interest rates so low and with regulators turning a blind eye, financial institutions borrowed more and more money (i.e. increased their leverage) to finance their purchases of mortgage-related securities. Banks created off-balance sheet affiliated entities such as Structured Investment Vehicles (SIVs) to purchase mortgage-related assets that were not subject to regulatory capital requirements Financial institutions also turned to short-term "collateralized borrowing" like repurchase agreements, so much so that by 2006 investment banks were on average rolling over a quarter of their balance sheet every night. During the years of rising asset prices, this short-term debt could be rolled over like clockwork. This tenuous situation shut down once panic hit in 2007, however, as sudden uncertainty over asset prices caused lenders to abruptly refuse to rollover their debts, and over-leveraged banks found themselves exposed to falling asset prices with very little capital.

While ex post we can certainly say that the system-wide increase in borrowed money was irresponsible and bound for catastrophe, it is not shocking that consumers, would-be homeowners, and profit-maximizing banks will borrow more money when asset prices are rising; indeed, it is quite intuitive. What is especially shocking, though, is how institutions along each link of the securitization chain failed so grossly to perform adequate risk assessment on the mortgage-related assets they held and traded. From the mortgage originator, to the loan servicer, to the mortgage-backed security issuer, to the CDO issuer, to the CDS protection seller, to the credit rating agencies, and to the holders of all those securities, at no point did any institution stop the party or question the little-understood computer risk models, or the blatantly unsustainable deterioration of the loan terms of the underlying mortgages.

A key point in understanding this system-wide failure of risk assessment is that each link of the securitization chain is plagued by asymmetric information – that is, one party has better information than the other. In such cases, one side is usually careful in doing business with the other and makes every effort to accurately assess the risk of the other side with the information it is given. However, this sort of due diligence that is to be expected from markets with asymmetric information was essentially absent in recent years of mortgage securitization. Computer models took the place of human judgment, as originators did not adequately assess the risk of borrowers, mortgage services did not adequately assess the risk of the terms of mortgage loans they serviced, MBS issuers did not adequately assess the risk of the securities they sold, and so on.

The lack of due diligence on all fronts was partly due to the incentives in the securitization model itself. With the ability to immediately pass off the risk of an asset to someone else, institutions had little financial incentive to worry about the actual risk of the assets in question. But what about the MBS, CDO, and CDS holders who did ultimately hold the risk? The buyers of these instruments had every incentive to understand the risk of the underlying assets. What explains their failure to do so?

One part of the reason is that these investors — like everyone else — were caught up in a bubble mentality that enveloped the entire system. Others saw the large profits from subprime-mortgage related assets and wanted to get in on the action. In addition, the sheer complexity and opacity of the securitized financial system meant that many people simply did not have the information or capacity to make their own judgment on the securities they held, instead relying on rating agencies and complex but flawed computer models. In other words, poor incentives, the bubble in home prices, and lack of transparency erased the frictions inherent in markets with asymmetric information (and since the crisis hit in 2007, the extreme opposite has been the case, with asymmetric information problems having effectively frozen credit markets).

Simon Johnson

Ronald A. Kurtz Professor of Entrepreneurship, Sloan School of Management, Massachusetts Institute of Technology

Biography

Simon Johnson is the Ronald A. Kurtz (1954) Professor of Entrepreneurship at MIT's Sloan School of Management. He is also a senior fellow at the Peterson Institute for International Economics in Washington, D.C., and a member of the Congressional Budget Office's Panel of Economic Advisers.

Professor Johnson is a co-founder of http://BaselineScenario.com, a widely cited website on the global economy. His weekly columns appear in the NYT.com's Economix and The Washington Post online, and he also regularly provides content for the Lehrer NewsHour's Online Business Desk, NPR's Planet Money podcast, and The New Republic.

Professor Johnson is an expert on financial and economic crises. As an academic, in policy roles, and with the private sector, over the past 20 years he has worked on severely stressed economic and financial situations around the world. His research and policy advice focus on how to limit the impact of negative shocks and manage the risks faced by countries.

From March 2007 through the end of August 2008, Professor Johnson was the International Monetary Fund's Economic Counselor (chief economist) and Director of its Research Department.

In 2000-2001 Professor Johnson was a member of the US Securities and Exchange Commission's Advisory Committee on Market Information. His assessment of the need for continuing strong market regulation is published as part of the final report from that committee.

He is co-founder and a current co-chair of the National Bureau of Economic Research's (NBER) project on Africa. He is also faculty director of MIT Sloan's new Moscow initiative, and works closely with Endeavor, an organization that promotes entrepreneurship in Latin America and around the world. He has been on the faculty at MIT Sloan since 1996.

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HAL S. SCOTT

Nomura Professor and Director of the Program on International Financial Systems, Harvard Law School

Biography

Hal S. Scott is the Nomura Professor and Director of the Program on International Financial Systems at Harvard Law School, where he has taught since 1975. He teaches courses on Capital Markets Regulation, International Finance, and Securities Regulation.

He has a B.A. from Princeton University (Woodrow Wilson School, 1965), an M.A. from Stanford University in Political Science (1967), and a J.D. from the University of Chicago Law School (1972). In 1974-1975, before joining Harvard, he clerked for Justice Byron White.

The Program on International Financial Systems, founded in 1986, engages in a variety of research projects. Its book, *Capital Adequacy Beyond Basel* (Oxford University Press 2004), examines capital adequacy rules for banks, insurance companies and securities firms. The Program also organizes the annual invitation-only U.S.- Japan, U.S.- Europe, and U.S.-China Symposia on Building the Financial System of the 21st Century, attended by financial system leaders in the concerned countries. In addition, the Program directs a concentration in International Finance for LLM students at Harvard Law School.

Professor Scott's books include the law school textbook *International Finance: Transactions, Policy and Regulation* (16th ed. Foundation Press 2009); and *International Finance: Policy and Regulation* (2nd ed. Sweet & Maxwell 2007).

Professor Scott is the Director of the Committee on Capital Markets Regulation, which in May 2009 released a comprehensive report entitled *The Global Financial Crisis: A Plan for Regulatory Reform*. He is an independent director of Lazard, Ltd., a past President of the International Academy of Consumer and Commercial Law and a past Governor of the American Stock Exchange (2002-2005).

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“The Global Financial Crisis: *A Plan for Regulatory Reform*”
Committee on Capital Markets Regulation
May 2009

(Compressed Version)

OVERVIEW

This Report offers a comprehensive and detailed plan for regulatory reform in light of the global financial crisis. Some attribute the present crisis to a dearth of regulation. But that is simplistic at best, entirely inaccurate at worst. The truth is that the financial crisis is the result of—not so much a lack of regulation as—the lack of *effective* regulation. Indeed, those portions of the financial system hit the hardest by the crisis—such as traditional banks and thrifts—have historically been the most heavily regulated. We think that while more regulation is certainly needed in some areas, our overriding goal must be to make the present regulatory regime far more effective than it has been. That means that reforms should be based on solid principles—chief among them being the reduction of systemic risk. A second theme of this Report is the need for investor protection through greater transparency in the financial system. More information enables the market to more accurately price assets, risk, and other relevant inputs. Much of the present crisis can be attributed to a lack of critical information (and perhaps, in some cases, misinformation). The necessity of building a U.S. financial regulatory structure able to achieve these goals is a third theme of this Report. Simply put, our regulatory structure must be entirely reorganized in order to become more integrated and efficient. A final theme is that a global crisis demands a global solution. The U.S. financial system is best viewed as an integral part of the overall global financial system. No longer can the United States regulate in a vacuum. Coordination with other national regulators and cooperation with regional and international authorities is required.

Principles-Based Regulation Focused on Effectiveness

We believe as much attention should be paid to regulatory effectiveness as to regulatory coverage. Equally vital, we think meaningful reform must be based on fundamental principles rather than political expediency. The most important of these principles—particularly in light of the present crisis—is that regulation must reduce systemic risk. When a systemically important institution is in danger of failure, and its failure could trigger a chain reaction of other failures—the so-called interconnectedness problem—there may be no alternative other than to inject some public money into the institution. But the requisite amount of these injections has been significantly increased by several weaknesses in the current regulatory system. The Federal Reserve (Fed) financed the acquisition of Bear Stearns through a $29 billion loan, and the Fed and the Treasury have financed the survival of AIG with assistance amounting to more than $180 billion, largely because of the fear of what would have happened if such institutions had gone into bankruptcy. Similar fears may lie behind some of the TARP injections. The Committee believes there is ample room for improvement in the containment of systemic risk.

Revision of Capital Requirements

Capital regulation performed poorly during the crisis. The failure of capital regulation was not just a product of the "100 year flood" or of events that could not be anticipated. Rather, it was a direct result of both the design and substance of the regulatory capital framework. The elaborate and detailed structure currently in place to regulate bank capital, the international Basel Accord, proved unable to live up to its basic job of preventing large and systemically important financial institutions from failing. Indeed, the crude leverage ratio—that was the object of scorn of many regulators—turned out to be a more reliable constraint on excessive risk taking than the complex Basel rules, and arguably saved us from worse problems in the banking sector than those we already have. The investment banking sector, which did not have a leverage ratio, was not as fortunate. The disparity demonstrates that more detailed regulation does not necessarily make for more effective regulation. Capital requirements are our principal bulwark against bank failure, a key trigger of systemic risk. Better conceived regulation, combined with more intense prudential supervision and market discipline, is the answer. Our Report accordingly sets out a series of specific recommendations to improve bank capital regulation.

Resolution Procedures

Second, we need a better process than bankruptcy for resolving the insolvency of financial institutions. In short, our framework for banks needs to be extended to other financial institutions and their holding companies. This process, unlike bankruptcy, puts the resolution of institutions in the hands of regulators rather than bankruptcy judges, and permits more flexible approaches to keeping systemically important institutions afloat. It also ensures a more sensible approach to handling the treatment of counterparty exposures to derivatives through the use of safe harbors. At the same time, it permits, like bankruptcy, the restructuring of an insolvent institution through the elimination of equity and the restructuring of debt, to prepare the institution for sale to new investors.

Regulation of Non-Bank Financial Institutions

Third, we must recognize that the current substantive framework also suffers from important gaps in the scope and coverage of regulation—gaps that can increase the risk of shocks to the financial system. Hedge funds and private equity firms have not been supervised or regulated. Government-sponsored enterprises (GSEs) like Fannie Mae and Freddie Mac were too lightly regulated; until the Housing and Economic Recovery Act of 2008, they were not subject to either meaningful capital or securities regulation. Investment bank regulation by the SEC proved entirely ineffective—major investment banks have failed, been acquired, or become bank holding companies. We need a comprehensive approach to regulating risk in the financial sector, if we are to avoid similar threats to the financial system in the future. Casting a broader net does not mean that different activities should be regulated in the same way, but it does mean that the same activities conducted by different institutions should be regulated in the same way.

Our Report focuses specifically on regulatory coverage with respect to hedge funds and private equity. In general, we believe hedge funds (and banks that engage in hedge fund activity) should keep regulators informed on an ongoing basis of their activities and leverage. Private equity, however, poses no more risk to the financial system than do other investors. But these

firms, if large enough, should be subject to some regulatory oversight and periodically share information with regulators to confirm they are engaged only in the private equity business. Indeed, private equity is a part of the solution to the problem of inadequate private capital in the banking system. We recommend that ill-conceived restrictions on the ability of private equity firms to acquire banks should be removed, not just relaxed. This is an instance where regulation is preventing a solution, not offering one.

In addition to hedge funds and private equity, our Report also addresses the need to improve the regulation of money market mutual funds (MMMFs), which comprise approximately $3.8 trillion of the more than $9 trillion mutual fund industry. The MMMF plays an important role in our financial system, serving as both an investment vehicle and a cash management device. Triggered by the "breaking of the buck" of the Reserve Primary Fund, which was largely attributable to the impact of the Lehman bankruptcy on MMMF holdings of that company's commercial paper, a run ensued on MMMFs. This run had to be halted by the Fed's injection of liquidity into the funds, e.g., by financing the purchase of MMMF sales of asset-backed commercial paper to fund redemptions, and federal guarantees of existing investments. We endorse further restrictions on the type of investments such funds can make and the adoption of new procedures for halting redemptions and providing an orderly liquidation in the event of runs in the future. If federal guarantees to certain shareholder accounts are likely to persist, either explicitly or implicitly, a method needs to be devised for the government to charge for such guarantees or for the MMMFs to protect themselves against such losses.

Clearinghouses and Exchanges for Derivatives

Finally, we need to reduce the interconnectedness problem of credit default swap (CDS) contracts by the use of clearinghouses and exchanges. If clearinghouses were to clear CDS contracts and other standardized derivatives, like foreign exchange and interest rate swaps, systemic risk could be substantially reduced by more netting, centralized information on the exposures of counterparties, and the collectivization of losses. To the extent certain CDSs could be traded on exchanges, price discovery and liquidity would be enhanced. Increased liquidity would not only be valuable to traders; it would better enable clearinghouses to control their own risks through more informed margining and easier close-outs of defaulted positions.

Greater Transparency to Protect Investors

Many of the measures to reduce systemic risk advanced by this Report necessarily have the added benefit of protecting investors. However, we also believe greater transparency in various sectors of the financial system is necessary, if only to provide increased protection for investors. This Report focuses in particular on the securitization process and accounting standards.

Reform of the Securitization Process

Securitization has played an important and constructive role in the evolution of our financial system. It has brought new sources of finance to the consumer market, not only for mortgages, but also for auto loans and credit card purchases. It has permitted banks to diversify their risks.

Imagine how much more devastating the impact of the fall in home prices would have been on the banking system if all mortgages had been held by banks rather than being mostly securitized (even taking into account the exposure some banks had from investments in the securitized debt itself). There is a great need to rebuild this market from the ground up now that the financial crisis has exposed critical flaws in its operation.

Originators, whether banks or brokers, need stronger incentives to originate loans that are in conformity with what they have promised. While we support efforts to improve the alignment of economic interests between originators and investors, we think a mandatory minimum retention of risk in respect of securitized assets must address a number of important issues in order to be practical and beneficial. Among other things, a minimum risk retention requirement would increase the risk of the banking sector and be difficult to enforce given the possibility of hedging. Furthermore, such a requirement would compel the originator to bear general economic risk, e.g., risk from interest rate changes, not just the risk of non-conforming assets. We believe the incentive problem should be fixed by strengthening representations, warranties, and repurchase obligations, and also by requiring increased disclosure of originators' interests in securitized offerings. Certain high-risk practices, such as "no doc" loans, should be prohibited outright. Moreover, we believe the current disclosure regime and underwriting practices can be improved. Specifically, we would increase loan-level disclosures, and encourage regulators to study ways of improving the standardized public disclosure package.

Finally, we believe an array of reforms relating to credit rating agencies (CRAs) is vital to reinvigorating the securitized debt markets. Until the crisis, CRAs had grossly underestimated the risk of loss associated with several types of structured finance securities. In order to restore confidence in the integrity of credit ratings and improve how the global fixed-income markets function in the future, we propose developing globally consistent standards, ensuring unitary systems of enforcement, avoiding governmental interference in the rating determination process, reviewing references to credit ratings in regulatory frameworks, and increasing disclosure pertaining to ratings of structured finance and other securities.

Improvements in Accounting for Fair Value and Consolidation

Two accounting issues have risen to the fore in this crisis: the use of fair value and requirements for consolidating off-balance sheet exposures. We believe the current fair value methodology, as a whole, needs serious review by FASB and IASB on a joint basis. The problem has not been solved by FASB's April 2009 guidance (to which IASB did not subscribe). We have recommended substantial improvements in disclosures, which we believe will greatly benefit investors. The Committee believes reporting institutions should separately value Level 2 and Level 3 assets—where there is no liquid market in the assets being valued—by using market prices and fundamental credit analysis, with complete disclosure of how each of these values was determined. For market prices, this would require disclosing what market prices were relied on; for credit values it would require disclosure of all the parameters used in the credit model, including the discount rate. We also believe there should be separation of regulatory and financial reporting accounting, subject to a check on regulators not using accounting rules to avoid the recognition of clear losses, i.e., forbearance. Finally, we believe

FASB is on the right track on revising its consolidation standards in Interpretation No. 46R, and endorse that approach.

Regulatory Structure

The U.S. financial regulatory framework can be summed up in four words: highly fragmented and ineffective. The fragmentation of regulators is not the product of careful design—it has evolved by layers of accretion since the Civil War. It has survived largely unchanged, despite repeated unsuccessful efforts at reform, not because it has been functional or effective but because it has served the interests of industry, regulators, and politicians—even though it has not served the interests of the overall economy or the American public. The current crisis has demonstrated that this dysfunctional system comes with a very high cost. The Committee's statement of January 14, 2009 entitled, "Recommendations for Reorganizing the U.S. Regulatory Structure," proposes a new consolidated structure, comprising the Fed, a newly created U.S. Financial Services Authority, the Treasury Department and possibly a consumer and investor protection agency. We believe this structure can substantially reduce the risk of future financial crises. We again call for regulatory structure reform in this Report.

International Coordination

The Committee believes that in all areas of reform dealt with in this Report, it is essential to have a coordinated international approach. A global financial system demands globally coordinated rules. We already have international capital rules requiring significant modification. Institutions like hedge funds and private equity operate internationally. Failures of international coordination can lead to the duplication of requirements and set the stage for regulatory arbitrage. The framework for handling failed financial institutions needs to take into account their multinational structure and clearinghouses and exchanges for derivatives need to handle internationally traded derivatives, which may be subject to different requirements in different countries. Securitized debt markets are global and thus standards for origination and disclosure, as well as the regulation of CRAs, require global coordination. Additionally, there obviously needs to be coordination and convergence between U.S. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) as we contemplate a single standard. While the world is not yet ready for a global regulator, the time has come to ensure greater global coordination.

Click here for the Full Report

Joseph E. Stiglitz

Professor, Columbia Business School, Graduate School of Arts and Sciences (Department of Economics) and the School of International and Public Affairs

Biography

Joseph E. Stiglitz was born in Gary, Indiana in 1943. A graduate of Amherst College, he received his PHD from MIT in 1967, became a full professor at Yale in 1970, and in 1979 was awarded the John Bates Clark Award, given biennially by the American Economic Association to the economist under 40 who has made the most significant contribution to the field. He has taught at Princeton, Stanford, MIT, and was the Drummond Professor and a fellow of All Souls College, Oxford. He is now University Professor at Columbia University in New York and Chair of Columbia University's Committee on Global Thought. He is also the co-founder and Executive Director of the Initiative for Policy Dialogue at Columbia. In 2001, he was awarded the Nobel Prize in economics for his analyses of markets with asymmetric information, and he was a lead author of the 1995 Report of the Intergovernmental Panel on Climate Change, which shared the 2007 Nobel Peace Prize.

Dr. Stiglitz was a member of the Council of Economic Advisers from 1993-95, during the Clinton administration, and served as CEA chairman from 1995-97. He then became Chief Economist and Senior Vice-President of the World Bank from 1997-2000. In 2008, he was appointed by French President Nicolas Sarkozy to chair a Commission on the Measurement of Economic Performance and Economic Progress. He is also chair of the Commission of Experts of the President of the UN General Assembly on Reforms of the International Monetary and Financial System.

Dr. Stiglitz holds a part-time appointment at the University of Manchester as Chair of the Management Board and Director of Graduate Summer Programs at the Brooks World Poverty Institute. He serves on numerous other boards, including Amherst College's Board of Trustees and Resources for the Future.

Dr. Stiglitz helped create a new branch of economics, "The Economics of Information," exploring the consequences of information asymmetries and pioneering such pivotal concepts as adverse selection and moral hazard, which have now become standard tools not only of theorists, but of policy analysts. He has made major contributions to macro-economics and monetary theory, to development economics and trade theory, to public and corporate finance, to the

theories of industrial organization and rural organization, and to the theories of welfare economics and of income and wealth distribution. In the 1980s, he helped revive interest in the economics of R&D.

His work has helped explain the circumstances in which markets do not work well, and how selective government intervention can improve their performance.

Recognized around the world as a leading economic educator, he has written textbooks that have been translated into more than a dozen languages. He founded one of the leading economics journals, *The Journal of Economic Perspectives*. His book *Globalization and Its Discontents* (W.W. Norton June 2001) has been translated into 35 languages, besides at least two pirated editions, and in the non-pirated editions has sold more than one million copies worldwide. Other recent books include *The Roaring Nineties* (W.W. Norton), *Towards a New Paradigm in Monetary Economics* (Cambridge University Press) with Bruce Greenwald, *Fair Trade for All* (Oxford University Press), with Andrew Charlton, and *Making Globalization Work*, (WW Norton and Penguin/ Allen Lane, September 2006). His most recent book, *The Three Trillion Dollar War: The True Cost of the Iraq Conflict*, with Linda Bilmes of Harvard University, was published in March 2008 by WW Norton and Penguin/ Allen Lane. He is currently working on a book entitled, *Freefall: America, Free Markets, and the Sinking of the World Economy*, to be published January 2010 by WW Norton and Penguin/ Allen Lane.

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John B. Taylor

Mary and Robert Raymond Professor of Economics and the Bowen H. and Janice Arthur McCoy Senior Fellow at the Hoover Institution, Stanford University

Biography

John B. Taylor is the Mary and Robert Raymond Professor of Economics at Stanford University. He formerly served as the Director of the Stanford Institute for Economic Policy Research where he is currently a Senior Fellow. He is also the Bowen H. and Janice Arthur McCoy Senior Fellow at the Hoover Institution. Taylor's fields of expertise are monetary policy, fiscal policy, and international economics.

Taylor has an active interest in public policy. He served as senior economist on President Ford's and President Carter's Council of Economic Advisers, as a member of President George H.W. Bush's Council of Economic Advisers, and as economic adviser to the Bob Dole, George W. Bush, and John S. McCain presidential campaigns. For four years from 2001 to 2005, Taylor served as Under Secretary of Treasury for International Affairs where he was responsible for U.S. policies in international finance, including currency markets, trade in financial services, foreign investment, international debt and development, and oversight of the International Monetary Fund and the World Bank.

His 2007 book *Global Financial Warriors: The Untold Story of International Finance in the Post 9/11 World* is his personal story of applying economic theory in practice. His new book *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis*, is an empirical analysis of the recent financial crisis. He also recently coedited the book *The Road Ahead for the Fed* in which twelve leading experts, including him, examine and debate proposals for financial reform and exit strategies from the financial crisis.

He served as a Member of the Board of the Overseas Private Investment Corporation and is currently on the Board of Dodge and Cox Funds.

Before joining the Stanford faculty in 1984, he held positions as professor of economics at Princeton University and Columbia University. Taylor received a B.A. in economics *summa cum laude* from Princeton University in 1968 and a Ph.D. in economics from Stanford University in 1973.

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Author(s): John B. Taylor

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Author(s): Kenneth E. Scott and John B. Taylor

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Luigi Zingales

Robert C. McCormack Professor of Entrepreneurship and Finance and David G. Booth Faculty Fellow, University of Chicago Booth School of Business

Biography

Luigi Zingales studies the theory of the firm, the relation between organization and financing, and the going-public decision. In addition to holding his position at Chicago Booth, Dr. Zingales is currently a faculty research fellow for the National Bureau of Economic Research, a research fellow for the Center for Economic Policy Research, and a fellow of the European Governance Institute. He is also the director of the American Finance Associations and an editorialist for *Il Sole 24 Ore*, the Italian correspondent of the *Financial Times*. Dr. Zingales also serves on the Committee on Capital Markets Regulation, which has been examining the legislative, regulatory, and legal issues affecting how public companies function.

His research has earned him the 2003 Bernacer Prize for the best European young financial economist, the 2002 Nasdaq award for best paper in capital formation, and a National Science Foundation Grant in economics. His work has been published in the *Journal of Financial Economics*, the *Journal of Finance* and the *American Economic Review*.

His book, *Saving Capitalism from Capitalists*, coauthored with Raghuram G. Rajan, has been acclaimed as "one of the most powerful defenses of the free market ever written" by Bruce Bartlett of *National Review Online*. Martin Wolf of the *Financial Times* called it "an important book."

Born in Italy, a country with high inflation and unemployment that has inspired his professional interests as an economist, Dr. Zingales carries with him a political passion and the belief that economists should not just interpret the world, they should change it for the better. Commenting on his method of teaching on a few very important lessons rather than a myriad of details, Zingales says, "Twenty years from now they might have forgotten all the details of my course, but hopefully they will not have forgotten the way of thinking.

Dr. Zingales received a bachelor's degree in economics *summa cum laude* from Universita Bocconi in Italy in 1987 and a PhD in economics from the Massachusetts Institute of Technology in 1992. He joined the Chicago Booth faculty in 1992.

In addition to teaching and researching, Zingales enjoys cooking and spending time with his children.

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Author(s): Luigi Zingales and John H. Cochrane

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Oral Testimony of Luigi Zingales
"Causes and Effects of the Lehman Brothers Bankruptcy"
Before the Committee on Oversight and Government Reform
United States House of Representatives
October 6, 2008

Chairman Waxman, ranking minority Davis, members of the Committee,
thank you for inviting me.

The demise of Lehman Brothers is the result of its very aggressive leverage policy in the context of a major financial crisis. The roots of this crisis have to be found in bad regulation, lack of transparency, and market complacency brought about by several years of positive returns.

A prolonged period of real estate price increases and the boom of securitization relaxed lending standards. The quality of these mortgages should have been checked by the capital market that bought them, but
several problems made this monitoring less than perfect.

First, these mortgages were priced based on historical records, which did not factor in the probability of a significant drop in real estate prices at the *national* level nor did they factor the effect of the changes in the lending standards on the probability of default.

Second, the massive amount of issuance by a limited number of players (of which Lehman was one) changed the fundamental nature of the relationship between credit rating agencies and the investment banks issuing these securities. As a result, instead of submitting an issue to the rating agency's judgment, investment banks shopped around for the best ratings and even received handbooks on how to produce the riskiest security that qualified for a AAA rating.

The market was not completely fooled by this process. AAA-rated asset backed securities had a higher yield than corporate AAA, a clear indication of the higher risk. Unfortunately, regulatory constraints created inflated demand for these products. Fannie Mae and Freddie Mac were allowed, even induced, to invest their funds on these securities, creating an easy arbitrage: they issued AAA rated debt and invested in higher-yield AAA debt. Another source of captive demand were money market funds. Being required to hold *only* highly rated securities, money market funds loved these instruments that satisfied the regulatory requirements and boosted their yields. Most managers of these funds were aware of the gamble they were taking, but could not resist taking it, under an intense competition for yield-hungry customers. These managers were also hoping that if a shock occurred, all their competitors would face the same problem, thereby reducing the reputational costs and possibly triggering a Government support. The September 19 decision to insure all money market funds validated this gamble, forever destroying money market managers' incentives to be careful in regard to the risks they take.

The pooling of mortgages, while beneficial for diversification purposes, became a curse as the downturn worsened. The lack of transparency in the issuing process made it difficult to determine who owned what. Furthermore, the complexity of these repackaged mortgages is such that small differences in the assumed rate of default can cause the value of some tranches to fluctuate from 50 cents on the dollar to zero. Lacking information on the quality and hence the value of banks' assets, the market grew reluctant to lend to them, for fear of losing out in case of default.

In the case of Lehman (and other investment banks), this problem was aggravated by two factors: the extremely high level of leverage (asset-to equity ratio) and the strong reliance on short-term debt financing. While commercial banks cannot leverage their equity more than 15 to 1, Lehman had a leverage of more than 30 to 1. With this leverage, a mere 3.3% drop in the value of assets wipes out the entire value of equity and makes the company insolvent.

In turn, the instability created by the leverage problem was exacerbated by Lehman's large use of short-term debt. Reliance on short term increases the risk of "runs" similar to the ones bank face when they are
rumored to be insolvent.

The Lehman CEO will likely tell you that his company was solvent and that it was brought down by a run. This is a distinct possibility. The problem is that nobody knows for sure. When Lehman went down, it had 26 billion in book equity, but the doubts about the value of its assets combined with its high degree of leverage created a huge uncertainty about the true value of this equity: it could have been worth 40 billion or negative 20. It is important to note that Lehman did not find itself in that situation by accident; it was the unlucky draw of a consciously-made gamble.

Lehman's bankruptcy forced the market to reassess risk. As after a major flood people start to buy flood insurance, after the demise of Lehman the market started to worry about several risks previously overlooked. This risk-reassessment is crucial to support a market discipline. The downside is that it can degenerate into a panic.