



The Global Financial Crisis of 2008 – 2009: The Role of Greed, Fear and Oligarchs

Cate Reavis

*Free enterprise is always the right answer. The problem with it is that it ignores the human element. It does not take into account the complexities of human behavior.*¹

—Andrew Lo, Professor of Finance, MIT Sloan School of Management

*The problem in the financial sector today is not that a given firm might have enough market share to influence prices; it is that one firm or a small set of interconnected firms, by failing, can bring down the economy.*²

—Simon Johnson, Professor of Entrepreneurship, MIT Sloan School of Management, Former Chief Economist, IMF

On October 9, 2007 the Dow Jones Industrial Average set a record by closing at 14,047. One year later, the Dow was just above 8,000, after dropping 21% in the first nine days of October 2008. Major stock markets in other countries had plunged alongside the Dow. Credit markets were nearing paralysis. Companies began to lay off workers in droves and were forced to put off capital investments. Individual consumers were being denied loans for mortgages and college tuitions. After the nine day U.S. stock market plunge, the head of the International Monetary Fund had some sobering words: “Intensifying solvency concerns about a number of the largest U.S.-based and European financial institutions have pushed the global financial system to the brink of systemic meltdown.”³

¹ Interview with the case writer, April 10, 2009.

² Simon Johnson, “The Quiet Coup,” *The Atlantic*, May 2009.

³ “IMF in Global ‘Meltdown’ Warning,” *BBC News*, October 12, 2008.

This case was prepared by Cate Reavis under the supervision of Deputy Dean JoAnne Yates.

Copyright © 2009, Massachusetts Institute of Technology. This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 Unported License. To view a copy of this license visit <http://creativecommons.org/licenses/by-nc-nd/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

By early 2009 the markets had stabilized to the point where the U.S. stock market was no longer down 700 points one day and up 500 the next. In May the results of the stress tests conducted on the 19 largest banks in the United States to test their capacity to withstand a further economic downturn were less negative than feared, with 10 out of the 19 subjected to the test ordered to raise \$75 billion in new capital. Stocks of a number of the banks that were told to raise additional capital rose sharply on the day the results were released, with Wells Fargo up 24% and Bank of America 19%.⁴

Despite the seemingly improved situation, academics, practitioners and politicians alike were debating how we got to where we were and what to do in the short and long term to bring more lasting order to the chaos and prevent the same level of turmoil the next time a financial crisis hit.

That there would be a next time was indisputable in the eyes of Andrew Lo, a professor of finance at the MIT Sloan School of Management and the director of MIT's Laboratory of Financial Engineering. In fact, since 1974, 18 bank crises had occurred around the world and each shared something in common: a period of great financial liberalization and prosperity that preceded the crisis. As Lo remarked in his November 2008 testimony before the House Oversight Committee Hearing on Hedge Funds, "Financial crises may be an unavoidable aspect of modern capitalism, a consequence of the interactions between hardwired human behavior and the unfettered ability to innovate, compete and evolve."⁵

Simon Johnson, a professor of entrepreneurship at the MIT Sloan School of Management and formerly the chief economist at the IMF from 2007-2008, believed that the current crisis was caused by powerful elites, what he called a banking "oligarchy" who overreached in good times and took too many risks. As he wrote in an article for the Atlantic, "Elite business interests played a central role in creating the crisis, making ever-larger gambles, with the implicit backing of the government, until the inevitable collapse."⁶

Understanding what happened, how, and why was a critical part of the process of stabilizing the financial system in the short term and helping soften the blow the next time a financial crisis came along. Johnson and Lo were actively involved in helping to find those solutions. Whether they were advocating the right solutions and whether such solutions could or would be implemented remained unknown. What also remained unknown was whether their solutions aptly addressed what David Beim, a finance professor at Columbia Business School, believed was really at the heart of the problem:

⁴ Damian Paletta and Deborah Solomon, "More Banks Will Need Capital," *The Wall Street Journal*, May 5, 2009.

⁵ Andrew Lo, "Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009," *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 1.

⁶ Simon Johnson, "The Quiet Coup," *The Atlantic*, May 2009.

The problem is not the banks, greedy though they may be, overpaid though they may be. The problem is us. We have been living very high on the hog. Our standard of living has been rising dramatically over the last 25 years, and we have been borrowing to make much of that prosperity happen. We have over-borrowed, and we have done that over many, many decades. And now it's reached just an unbearable peak where people on average cannot repay the debts they've got.⁷

What Happened⁸

From a macro-economic perspective, the collapse of the U.S. housing market was what triggered the financial crisis that began in 2008. As Johnson explained, the erosion of the housing market led to an erosion of wealth:

What is on everyone's minds is this big loss of wealth. We had stocks that are now worth 50% less than what they were worth. We owned houses that have fallen substantially in value. The point is that people were banking on these assets having a certain value. And that has implications for how much they were willing to consume and if they were firms how much they were willing to invest.⁹

Few ordinary investors believed that the U.S. housing market would ever crash. For many years, real estate was considered one of the safest and most profitable investments. From the late 1990s and into the mid-2000s housing prices around the country rose at a compound annual growth rate of 8%. By 2006 the average home cost nearly four times what the average family made. (Historically it had been between two to three times.¹⁰) Demand was outstripping supply. Even though household incomes remained flat during this time (**Figure 1**), more and more people were able to afford houses due to an easing of lending requirements that began in the Clinton administration and continued into the Bush administration.

High risk loans, including subprime mortgages given to people with troubled credit, fueled the growth. In fact the housing boom from the late 1990s into the mid-2000s drove much of the U.S. economy, adding jobs in construction, remodeling, and real estate services. Consumers feasted on the equity in their homes, taking out a total of \$2 trillion via loans, refinancings, and sales.¹¹ The ratio that measures household debt to GDP doubled from 50% in the 1980s to 100% of GDP by the mid-2000s. The last time the level of debt was 100% of GDP was 1929, the beginning of the Great Depression.¹²

⁷ Ira Glass, Adam Davidson, and Alex Blumberg, "Bad Bank," *NPR: This American Life*, February 27, 2009.

⁸ For a more in-depth explanation of the financial crisis see the blog [http:// baselinescenario.com](http://baselinescenario.com).

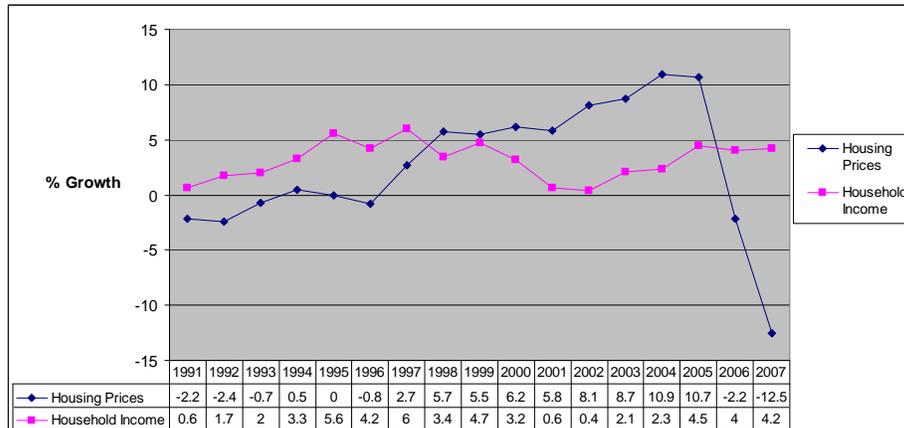
⁹ Terry Gross, "Simon Johnson On Bank Bailout Plan," *NPR: Fresh Air*, March 3, 2009.

¹⁰ Ben Steverman and David Bogoslaw, "The Financial Crisis Blame Game," *BusinessWeek*, October 20, 2008.

¹¹ Shawn Tully, "Welcome to the Dead Zone," *Fortune*, May 5, 2006.

¹² Ira Glass, Adam Davidson, and Alex Blumberg, "Bad Bank," *NPR: This American Life*, February 27, 2009.

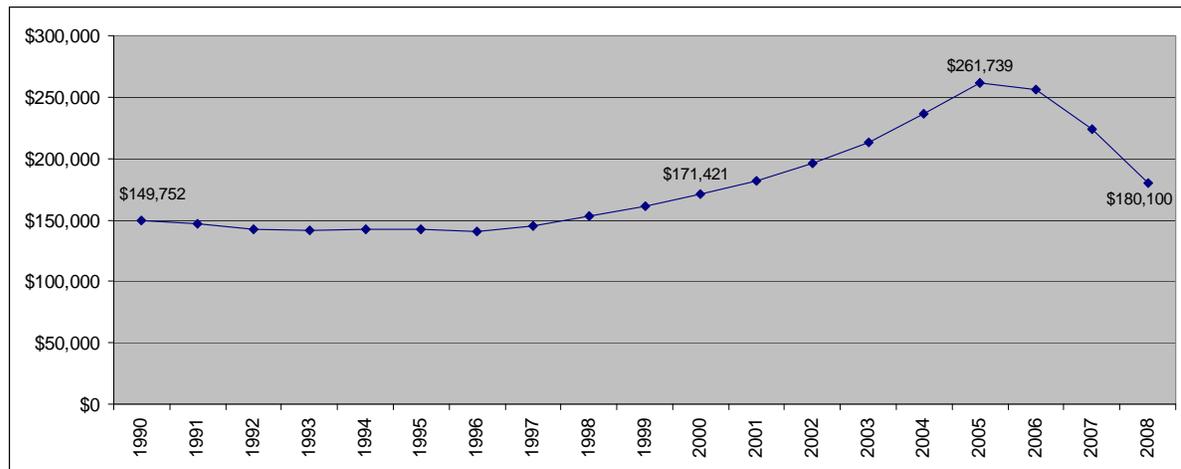
Figure 1 Growth of U.S. Housing Prices versus Household Income



Source: S&P/Case-Shiller National Home Price Index; U.S. Census Bureau

By 2006 it was becoming evident that the housing bubble was starting to burst. People began defaulting on their mortgages, sending a ripple effect through the financial system. As more people defaulted and went into foreclosure, more houses came on the market pushing housing prices down precipitously (Figure 2).

Figure 2 U.S. Housing Prices, 1990-2008 (adjusted for inflation)



Source: S&P/Case-Shiller National Home Price Index

As prices began to fall and the loan default rate began to rise, big Wall Street firms stopped gobbling up the more risky mortgages, which at one time had been extremely lucrative. Smaller banks and mortgage companies were left saddled with loans that they couldn't sell and that they borrowed

money to buy in the first place. Suddenly banks started defaulting on their loans as well, triggering the downward spiral that by late 2008 gripped the entire world economy. Many banks were facing insolvency: their assets were too small to cover their liabilities, which was to say they owed more money than they had. Credit markets started to freeze up and individuals and businesses alike could not get loans.¹³ This was more or less the simplistic macro-economic explanation.

But Andrew Lo believed the crisis was about more than economic forces. In his mind there was a human element at play, most notably the emotions of greed and fear of the unknown. As Lo stated in his House Oversight Committee testimony:

During extended periods of prosperity, market participants become complacent about the risk of loss – either through a systematic underestimation of those risks because of recent history, or a decline in their risk aversion due to increasing wealth, or both. In fact, there is mounting evidence from cognitive neuroscientists that financial gain affects the same ‘pleasure centers’ of the brain that are activated by certain narcotics. This suggests that prolonged periods of economic growth and prosperity can induce a collective sense of euphoria and complacency among investors that is not unlike the drug-induced stupor of a cocaine addict. The seeds of this crisis were created during a lengthy period of prosperity. During this period we became much more risk tolerant.¹⁴

In other words, “we” became greedy, and, as Lo put it, this greed was spurred on by “the profit motive, the intoxicating and anesthetic effects of success.”¹⁵ And then our greed turned to fear as everything began to collapse. What we feared, Lo argued, was the unknown, in this case, who owed who what, what assets were worth, and how bad things really were. As one journalist wrote, “Concern about who is still holding dud paper has gummed up credit markets, with banks refusing to lend to one another for fear that the borrowers may default or may have themselves lent to other banks that could default.”¹⁶ Banks were not willing to mark-to-market which meant they did not want to enter the actual market price of their assets on their books, for by doing so many would be declaring bankruptcy. Instead, many banks chose to hold on to them, thinking either that they were worth more than the market thought they were or that they would come back.¹⁷

Fear froze the markets, leading to liquidity runs on financial institutions, even those who were not facing insolvency. Johnson explained:

¹³ Ira Glass, Adam Davidson, and Alex Blumberg, “Bad Bank,” *NPR: This American Life*, February 27, 2009.

¹⁴ Andrew Lo, “Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009,” *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 12.

¹⁵ *Ibid.*, p. 14.

¹⁶ Peter Gumbel, “The Meltdown Goes Global,” *Time*, October 20, 2008.

¹⁷ Ira Glass, Adam Davidson, and Alex Blumberg, “Bad Bank,” *NPR: This American Life*, February 27, 2009.

The fundamental problem is that all players in the financial system have realized that a bank that is solvent can still be subject to a bank run. Once that happens, Bank A doesn't want to lend money to Bank B for two reasons: first Bank A wants to hold onto its cash in case it becomes the target of a bank run; and second, Bank A is afraid that Bank B could be the target of a bank run, and hence is afraid that if it lends to Bank B it won't get its money back. Like all such panics, this becomes self fulfilling: because banks don't want to lend, banks can't get short-term credit, which makes them vulnerable.¹⁸

To help arrest and fend off future bank runs, starting in the Fall of 2008 the U.S. government stepped in with financial assistance.

How Did We Get Here?

There were several reasons why the U.S. financial industry got to the point where the government was propping up some of the country's largest banks with hundreds of billions of dollars in financial assistance. Among the most talked about were banking deregulation, increasingly close relations between Washington and Wall Street, and an influx of "new money" looking for investment.

Deregulation and Derivatives

As Andrew Lo emphasized in his 2008 testimony, there was a direct correlation between the loosening of regulations on banks during the late 1990s and early 2000s and the most recent financial crisis:

The overall impact of relaxed constraints [created] an over-extended financial system—part of which was invisible to regulators and outside their direct control—that could not be sustained indefinitely. The financial system became so 'crowded' in terms of the extraordinary amounts of capital deployed in every corner of every investable market that the overall liquidity of those markets declined significantly. The implication of this crowdedness is simple: the first sign of trouble in one part of the financial system will cause nervous investors to rush for the exits but it is impossible for everyone to get out at once, and this panic can quickly spread to other parts of the financial system.¹⁹

Many considered the repeal of the Glass Steagall Act in 1999 to be one of the more critical regulatory changes that played a role in the financial crisis. Passed in 1933, the act (also known as the Banking Act) helped control abuse and the level of risk to investors by prohibiting any one institution from acting as both an investment bank and a commercial bank, or as both a bank and an insurer. Its repeal opened up competition among banks, securities companies, and insurance companies. Commercial

¹⁸ James Kwak, "Financial Crisis for Beginners," <http://baselinescenario.com/financial-crisis-for-beginners/>, accessed May 19, 2009.

¹⁹ Andrew Lo, "Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009," *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 9.

lenders like Citigroup, which in 1999 was the largest U.S. bank by assets, were now allowed to underwrite and trade instruments such as mortgage-backed securities.

Another act of deregulation that many believed hastened the financial crisis was the Commodity Futures Modernization Act. Signed into law in 2000, the act left much of the multi-trillion dollar derivatives market unregulated. Derivatives were contracts whose value depended on the underlying value of something specific such as a stock, bond, currency or commodity. (The value of the instrument “derives” from some underlying item.) Derivatives allowed money to flow more freely from those who had it to those who needed it. In addition to offering protection against the risk of financial loss, they offered “fair” returns to high-dollar investors willing to take calculated risks.²⁰ For banks that loaned out tens of billions of dollars, derivatives, theoretically, helped mitigate risk by protecting them in case loans defaulted.

Mortgage-backed securities and credit default swaps (CDS) were two types of derivatives that became quite popular during the housing boom. A mortgage-backed security was essentially a pool of mortgages that were bundled together and sold as tranches up the investment chain: from mortgage broker, to private mortgage bank and then to a Wall Street investment house. Mortgage-backed securities became a popular investment tool because they were initially considered to be low risk—since housing prices kept going up—with high returns: an average mortgage would typically provide returns of 5% to 9% in interest per year.

CDS were insurance-like contracts typically for municipal bonds, corporate debt and mortgage securities that promised to cover losses on certain securities in the event of a default. The buyer of the credit default insurance would pay a premium over a period of time in return for being covered if losses occurred. CDS were sold by banks, insurance agencies, hedge funds, pension funds, and other investment outlets as a way for banks to get credit risk off their books.²¹

CDS exploded in popularity with the growth of mortgage-backed securities in the early 2000s as a way to protect against potential default. As an industry insider noted, speculative investors, hedge funds, and others bought and sold CDS instruments without having any direct relationship with the underlying investment: “They’re betting on whether the investments will succeed or fail.”²² Because the CDS market was not regulated, contracts could be traded from investor to investor without any oversight to determine both their value and ensure that the buyer had resources to cover losses in case of default. As Johnson explained, “CDS are one of the things that create uncertainty in the banking

²⁰ Steve Jordan, “Chancy Derivatives Also Have Good Side,” *Omaha World-Herald*, October 26, 2008.

²¹ Janet Morrissey, “Credit Default Swaps: The Next Crisis?” *Time*, March 17, 2008.

²² *Ibid.*

sector; a bank may look healthy, but it may be counting on CDS payouts from banks that you can't see, so you can't be sure it's healthy, so you won't lend to it."²³

As a result of this more loosely regulated environment, banks which, according to Johnson, had become "proprietary trading rooms," buying and selling securities for profit,²⁴ became "too big to fail." AIG and Bear Stearns both nearly imploded as a result of the investments they had made in CDS. As one journalist wrote, "Banks have become so big and so leveraged that their balance sheets can exceed the gross domestic product of the country in which they are based."²⁵ Iceland was a case in point. Several domestic banks had combined "toxic" assets that were larger than the country's entire economy.²⁶

Deregulation and the "exotic" investment products that flourished as a result brought the industry enormous wealth. According to Johnson, between 1973 and 1985, the financial sector never earned more than 16% of domestic corporate profits. By the 2000s this figure reached 41%. Compensation shot up from 99% to 108% of the average for domestic private industries between 1948 and 1982 and to 181% in 2007.²⁷

And with this wealth came political influence.

Close Ties

Another ingredient that helped create the mix that nearly brought the U.S. financial industry to its knees was the cozy relationship that had built up over the years between Wall Street and Washington. As Johnson noted, "Oversize institutions disproportionately influence public policy; the major banks we have today draw much of their power from being too big to fail. [Wall Street] benefited from the fact that Washington insiders already believed that large financial institutions and free-flowing capital markets were crucial to America's position in the world."²⁸ By the time of the crisis, 90% of all the money deposited in the United States was in 20 banks.²⁹

It was no secret that Wall Street firms were big political contributors. The securities and investment industry, which included Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman, and Bear Stearns, gave \$97.7 million to federal political candidates during the 2004 election and \$70.5 million for the 2006 congressional election.³⁰ In addition to their financial contributions, there was a fair amount of

²³ James Kwak, "Financial Crisis for Beginners," <http://baselinescenario.com/financial-crisis-for-beginners/>, accessed May 19, 2009.

²⁴ Ibid.

²⁵ Peter Gumbel, "The Meltdown Goes Global," *Time*, October 20, 2008.

²⁶ Ibid.

²⁷ Simon Johnson, "The Quiet Coup," *The Atlantic*, May 2009

²⁸ Ibid.

²⁹ Ira Glass, Adam Davidson, and Alex Blumberg, "Bad Bank," *NPR: This American Life*, February 27, 2009.

³⁰ Ben Steverman and David Bogoslaw, "The Financial Crisis Blame Game," *BusinessWeek*, October 20, 2008.

“interweaving of career tracks”³¹ between the two sectors. Goldman Sachs had been given the moniker “Government Sachs” for the disproportionate number of executives who were taking public sector jobs, including Henry Paulson, who had been CEO of Goldman from 1998 to 2006 and who was named Treasury secretary under President George W. Bush; Robert Rubin, who was co-Chairman when he was tapped to serve as Treasury secretary under President Bill Clinton; and Jon Corzine, governor of New Jersey, who served as CEO during the majority of the 1990s. As one industry observer remarked, “It is a widely held view within the bank that no matter how much money you pile up, you are not a true Goldman star until you make your mark in the political sphere.”³² As a spokesman for Goldman noted, “We’re proud of our alumni, but frankly, when they work in the public sector, their presence is more of a negative than a positive for us in terms of winning business. There is no mileage for them in giving Goldman Sachs the corporate equivalent of most-favored-nation status.”³³

New Money Looking for Investment

At the same time that U.S. banking regulations were easing, the middle class in emerging markets in countries like China and India was growing at a phenomenal rate. As a result of this economic growth, the “global pool of money” doubled from \$36 trillion in 2000 to \$70 trillion in 2008. As one economist observed, “The world was not ready for all this money. There’s twice as much money looking for investments, but there are not twice as many good investments.”³⁴ What was once considered a safe and profitable investment, U.S. treasury bonds, was no longer appealing as the federal fund rate that was 6.5% for much of 2000 dropped below 2% in 2003.³⁵ Enter mortgage-backed securities.

As one executive director at Morgan Stanley recalled, it didn’t take long for mortgage-backed securities, which offered returns ranging from 5% to 9%, to become the financial industry’s new favorite investment tool:

It was unbelievable. We almost couldn’t produce enough to keep the appetite of the investors happy. More people wanted bonds than we could actually produce. They would call and ask, ‘Do you have any more fixed rate? What have you got? What’s coming?’ From our standpoint, it’s like, there’s a guy out there with a lot of money. We gotta find a way to be his sole provider of bonds to fill his appetite. And his appetite’s massive.³⁶

³¹ Simon Johnson, “The Quiet Coup,” *The Atlantic*, May 2009.

³² Julie Creswell and Ben White, “The Guys from ‘Government Sachs,’” *The New York Times*, October 19, 2008.

³³ *Ibid.*

³⁴ Ira Glass, Adam Davidson, and Alex Blumberg, “The Giant Pool of Money,” *NPR: This American Life*, May 9, 2008.

³⁵ Ben Steverman and David Bogoslaw, “The Financial Crisis Blame Game,” *BusinessWeek*, October 20, 2008.

³⁶ Ira Glass, Adam Davidson, and Alex Blumberg, “The Giant Pool of Money,” *NPR: This American Life*, May 9, 2008.

By 2003 the demand for mortgage-backed securities began outstripping supply and the mortgage industry needed to ramp up production. It was at this point that the guidelines for getting a mortgage loosened considerably. Mortgages for \$400,000 were being given to people who did not have to provide proof of income or assets. As one person in the industry quipped, “You [didn’t] have to state anything. [You] just [had] to have a credit score and a pulse.”³⁷ Equity lines of credit were also being sold at an alarming rate, allowing people to take out another loan from the bank against the value of their house which for many was worth more than what they paid for it. The banks did not care how risky these loans were because they would own them for a few weeks then sell them up the chain to Wall Street and Wall Street would in turn sell them on to the “global pool of money.” But up until 2005, the risk was considered minimal because the value of homes in the United States kept going up. If someone defaulted on their loan, the bank would then own the home that was worth more than it was when the loan was first made.³⁸

But the housing bubble burst, prices took a downward turn and with it the economy followed. As one journalist put it, “With all the brainpower on Wall Street few made the connection between the trillions of dollars in real estate assets held by financial firms and what would happen if the value of those assets suddenly dropped.”³⁹

Who’s to Blame?

Finger pointing over who was to blame had run amok and by early 2009 had become a “national pastime”⁴⁰ of sorts. Commercial and investment banks, mortgage lenders, credit rating agencies, insurance companies, regulators, politicians, government-sponsored entities, investors, and homeowners all played a role.

Many people believed those in senior management positions in banks and investment firms were largely to blame for not understanding the highly complex models devised by their quantitative analysts or “quants,” and for their inability to properly manage how and the degree to which those models became highly sought after products in the market.⁴¹ Some blamed the quants for creating financial instruments that were simply too complicated for those in senior management to understand.

Still others blamed the regulators. In 2004, the SEC had loosened leverage (debt) rules for investment banks and by 2008 many were plagued by leverage ratios that were 30 to 40 times their core holdings, as opposed to 10 to 15 times core holdings.⁴² Others pointed to the lack of relevant expertise that existed within the halls of the SEC. As Lo explained, the SEC was staffed with lawyers who “don’t

³⁷ Ira Glass, Adam Davidson, and Alex Blumberg, “The Giant Pool of Money,” *NPR: This American Life*, May 9, 2008.

³⁸ *Ibid.*

³⁹ Ben Steverman and David Bogoslaw, “The Financial Crisis Blame Game,” *BusinessWeek*, October 20, 2008.

⁴⁰ *Ibid.*

⁴¹ Ira Flatow, “Does Wall Street Need More Physicists?” *NPR: Talk of the Nation/Science Friday*, March 13, 2009.

⁴² Ben Steverman and David Bogoslaw, “The Financial Crisis Blame Game,” *BusinessWeek*, October 20, 2008.

have the kind of training that's necessary to be able to deal with some of these more complex kinds of strategies."⁴³

Many blamed politicians for repealing Glass Steagall. As Lo testified, the repeal of Glass Steagall fueled growth in shadow banking⁴⁴ institutions like hedge funds. Hedge funds, he explained, were among the most secretive of financial institutions because:

Their franchise value was almost entirely based on the performance of their investment strategies, and this type of intellectual property was perhaps the most difficult to patent. Therefore, hedge funds have an affirmative obligation to their investors to protect the confidentiality of their investment products and processes. It is impossible, therefore, to determine their contribution to systemic risk.⁴⁵

While most analysts did not believe that hedge funds caused the current crisis—after all, hedge funds did do good things including raising tens of billions of dollars since the mid-2000s for infrastructure investments in India, Africa and the Middle East— they were heavy investors in risky mortgage-backed securities.⁴⁶

Government-sponsored enterprises Fannie Mae and Freddie Mac also shared the blame. These institutions, which had a charter from Congress with a mission of supporting the housing market, were responsible for purchasing and securitizing mortgages in order to ensure that funds were consistently available to the institutions that lent money to home buyers. As private companies with close ties to the government, Fannie and Freddie could borrow money at relatively low interest rates.⁴⁷ Pressured by Congress to increase lending to lower-income borrowers back in the mid-1990s, Fannie and Freddie began lowering credit standards and purchased or guaranteed “dubious” home loans.

What Now?

As the full force of the financial crisis hit in October 2008, one month before the U.S. presidential election, there was heated debate in Congress over what to do. There was a call for doing nothing and letting the markets “work themselves out.” After all, that was how capitalism was supposed to work and having the government step in and help was a form of socialism. Federal Reserve Chairman Ben Bernanke believed that doing nothing would be catastrophic, and told Congress, “If we let the

⁴³ Ira Flatow, “Does Wall Street Need More Physicists?” *NPR: Talk of the Nation/Science Friday*, March 13, 2009.

⁴⁴ Shadow banking system: consists of investment banks, hedge funds, mutual funds, insurance companies, pension funds, endowments and foundations, and various broker/dealers, that provide many of the same services as banks but are outside the banking system and, therefore, are not controlled by regulatory bodies. The shadow banking system grew rapidly after the repeal of the Glass-Steagall Act of 1999.

⁴⁵ Andrew Lo, “Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009,” *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 8.

⁴⁶ Ellen Nakashima, “The Year Hedge Funds Got Hit,” *The Washington Post*, January 3, 2009.

⁴⁷ James R. Hagerty, “The Financial Crisis: Bailout Politics,” *The Wall Street Journal*, October 16, 2008.

banking system fail, no one will talk about the Great Depression anymore, because this will be so much worse.”⁴⁸

Towards the end of President George W. Bush’s second term in office and continuing with incoming President Barack Obama, the U.S. government was doing several things to stop the bleeding and put the country on a path to recovery. First, in October 2008, the government gave certain banks and other financial institutions considerable amounts of money from its Troubled Asset Relief Program (TARP). Citigroup, for example, received \$45 billion, Bank of America, \$25 billion, and AIG, \$180 billion. These loans came with certain restrictions, particularly pertaining to executive compensation, that were expanded under the new Obama administration. (See **Exhibit 1.**) The hope was that this money would help stabilize balance sheets to the point where banks would start to lend money again and the credit markets would begin to loosen up. However, months after the money had been given many banks still were not scaling up their lending as originally anticipated. Instead, they were holding onto the money they received in order to build up their capital and make their balance sheets healthy again. As a number of economists pointed out, unhealthy banks should loan less not more. After all, excessive lending was how the U.S. banking industry got to where it was in the first place.⁴⁹

Second, in early 2009, Treasury Secretary Timothy Geithner introduced the Public Private Investment Program which was established to purchase real-estate-related loans from banks and the broader market. Financing in the amount of \$500 billion had been set aside to subsidize private investors interested in buying pools of the “toxic” loans. The value of the loans and securities purchased under the program was to be determined by the private-sector purchasers.

Finally, around the same time the Public Private Investment Program was introduced, Geithner announced that 19 of the nation’s largest banks (those with \$100 billion in assets or more) would be subjected to a stress test, also known as a capital assessment. The purpose of the test was to determine if the country’s largest banks had sufficient capital buffers to withstand a further economic downturn. Each participating financial institution was asked to analyze potential firm-wide losses, including in its loan securities portfolios, as well as from any off-balance sheet commitments and contingent liabilities and exposures, under two different economic scenarios—scenarios that many felt were “overly rosy”⁵⁰—over a two year period. (See **Figure 3** for economic scenarios.) Participating financial institutions were also instructed to forecast internal resources available to absorb losses, including pre-provision net revenue and the allowance for loan losses. Supervisors (as named by the U.S. Federal bank) would meet with senior management at each participating institution to review and discuss loss and revenue forecasts.⁵¹

⁴⁸ Ira Glass, Adam Davidson, and Alex Blumberg, “Bad Bank,” NPR: *This American Life*, February 27, 2009.

⁴⁹ Ibid.

⁵⁰ Deborah Solomon, David Enrich and Damian Paletta, “Banks Need at Least \$65 Billion in Capital,” *The Wall Street Journal*, May 7, 2009.

⁵¹ <http://www.FDIC.gov/news/news/press/2009/pr09025a.pdf>

Figure 3 Economic Scenarios for Bank Stress Test

	2009	2010
Real GDP		
Average Baseline	-2	2.1
Alternative More Adverse	-3.3	0.5
Civilian Unemployment Rate		
Average Baseline	8.4	8.8
Alternative More Adverse	8.9	10.3
House Prices		
Average Baseline	-14	-4
Alternative More Adverse	-22	-7

Source: <http://www.FDIC.gov/news/news/press/2009/pr09025a.pdf>

The initial reaction of many to the tests was one of great suspicion that nationalization of the banks would be the next step. However, the results which were announced in May indicated that the banks were healthier than anticipated. There was widespread belief that most if not all of the banks would be able to boost their capital without needing additional government funds by raising money privately, selling shares to the public, selling parts of their business, or converting preferred shares into common shares, a move that would increase tangible common equity without providing banks any new cash. One bank analyst called such a measure “window dressing” in that it would not add one extra dollar to a bank’s capital buffer against losses: “It’s just moving capital from one place to another.”⁵² If such a measure were taken, the government (and therefore taxpayers) would go from being lenders to part owners.

The government’s multi-prong approach had its share of critics, Simon Johnson among them. In his mind, there was a seeming unwillingness to upset the financial sector:

The ‘stress’ scenario used by the government turns out to be a mild and short-lived downturn, so the tests were effectively designed to allow everyone to pass. Actual official outcomes for each bank are the result of complicated closed door negotiations, and at the bank level all we have learned is who has more or less political power.⁵³

⁵² Edmund L. Andrews, “Banks Told They Need \$75 Billion in Extra Capital,” *The New York Times*, May 8, 2009.

⁵³ “Grading the Banks’ Stress Test,” *The New York Times*, May 6, 2009.

Consumers and businesses are still dependent on banks that lack the balance sheets and the incentives to make the loans the economy needs, and the government has no real control over who runs the banks, or over what they do.⁵⁴ The government is dictating how GM needs to start behaving but it is not doing it with the banks. There is asymmetry in how the financial sector is being treated and how manufacturing is being treated. The government is not afraid of manufacturing going into bankruptcy but they are afraid of finance going into bankruptcy.⁵⁵

Johnson believed the administration's current deal-by-deal strategy, whereby what was done for one bank was different than what was done for another, would not work: "You don't know what the rules are. It's complete chaos and confusion."⁵⁶ Johnson proposed that "you do it once and for all. You do it systematically. You have very clear rules that are pre-announced."⁵⁷ Reflecting back to his years as chief economist at the IMF, Johnson asked rhetorically,

What would the U.S. tell the IMF to do if this were any country other than the U.S.? If you covered up the name of the country, and just showed me the numbers, just show me the problems, talk to me a little about the politics in a generic way. With the financial system, you have a boom, and then a crash.... I know what the advice would be, and that would be, taking over the banking system. Clean it up, reprivatize it as soon as you can.⁵⁸

Johnson feared that by not responding to the crisis in a more consistent, systematic way, the United States could go in the direction of the Japanese banking system during the 1990s. The IMF's advice that the Japanese government take over the banks, break them up into healthy, functioning smaller operations and re-privatize them fell on deaf ears. What arose instead was what was known as the "zombie banks," banks that were allowed to keep operating even though they had massive debts.⁵⁹ The 1990s were considered Japan's lost decade, when economic growth was stagnant.

Recognizing that the word "nationalization" was a red flag, Johnson was calling for a "government-managed bankruptcy program" or "government-run receivership" in which the toxic assets of banks were put into a separate entity and then the healthy parts were broken down and sold off in smaller chunks to the private sector. Johnson made the point repeatedly that these were the exact actions the IMF had taken many times with emerging markets—including Korea, Indonesia, Russia, and Argentina after their respective financial meltdowns in the late 1990s and early 2000s. Breaking the banks down into local or regional entities would also break up the banking "oligarchy" that Johnson believed played a central role in creating the crisis: "By selling off the banks into smaller, more

⁵⁴ Simon Johnson, "The Quiet Coup," *The Atlantic*, May 2009.

⁵⁵ Interview with the case writer, April 7, 2009.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

⁵⁸ Ira Glass, Adam Davidson, and Alex Blumberg, "Bad Bank," *NPR: This American Life*, February 27, 2009.

⁵⁹ Terry Gross, "Simon Johnson On Bank Bailout Plan," *NPR: Fresh Air*, March 3, 2009.

concentrated ownership stakes, you will get more powerful owners who will hold management accountable.”⁶⁰

Keeping the banks under government control long term was not something that Johnson advocated:

How much do you enjoy going to get your driver’s license renewed, going to the DMV or, even worse, moving to a new state and having to get a new driver’s license? The government does [not do] a very good job of managing things as simple as a driver’s license, and certainly something as complicated as a bank would almost certainly not go well at all.⁶¹

Of course some people will complain about the ‘efficiency costs’ of a more fragmented banking system, and these costs are real. But so are the costs when a bank that is too big to fail—a financial weapon of mass self-destruction—explodes. Anything that is too big to fail is too big to exist.⁶²

A loud contingent of economists, politicians and business leaders believed nationalizing banks was a “crime against the capitalist system.” Johnson thought otherwise: “My view is the offense against American capitalism was committed by the big banks who brought us to this point: Their mismanagement, their compensation schemes, their attitude towards the public.”⁶³ The government’s priority, he believed, should be to protect the payment system: “You want to protect deposits and anything that is like a deposit. If you force people to take losses on the payments part of the system, then all hell is going to break loose.”⁶⁴

There were several hurdles that needed to be cleared if the government was to take the route advocated by Johnson. First, there was a manpower issue. One expert predicted that it would take thousands of people for each bank takeover. A second problem had to do with timing. As Columbia’s Beim noted,

Nationalizations are kind of like potato chips. It’s hard just to have one. You’d have to come out with a plan for all of the banks and you’d have to do the whole thing in one day, at one time. Because if you just start taking over one bank, people with money at other banks will start worrying that their bank will be nationalized next, and that will cause investors to panic and they’ll pull all their money out of that bank.⁶⁵

⁶⁰ Interview with the case writer, April 7, 2009.

⁶¹ Terry Gross, “Simon Johnson On Bank Bailout Plan,” *NPR: Fresh Air*, March 3, 2009.

⁶² Simon Johnson, “The Quiet Coup,” *The Atlantic*, May 2009.

⁶³ Terry Gross, “Simon Johnson On Bank Bailout Plan,” *NPR: Fresh Air*, March 3, 2009.

⁶⁴ Andrew Leonard, “Simon Johnson Says: Break Up the Banks,” *Salon.com*, April 28, 2009.

⁶⁵ Ira Glass, Adam Davidson, and Alex Blumberg, “Bad Bank,” *NPR: This American Life*, February 27, 2009.

When it came time to reprivatize the question was whether there was enough well-capitalized demand for all the potential supply. As one economist pointed out, “Finding enough private equity to buy one bank would not be a problem. Finding enough money to buy all the banks was another story.”⁶⁶

In addition to the logistical hurdles, Johnson noted, there would inevitably be a lot of political resistance:

The politics are awkward. Cleaning up a banking system, in my view, technically, is not that difficult. But when you clean up a banking system, and you do it properly, some powerful people lose. They lose their bonuses, they lose their banks, they lose their access, so who is going to lose? Who is going to decide who is in and who is out? I don’t think the people at the top are yet ready to have that conversation.⁶⁷

Long-term

In his November 2008 testimony to the House Oversight Committee Hearing on Hedge Funds, Andrew Lo made a number of recommendations for regulatory reforms and other changes to prevent and/or soften the landing the next time a bank crisis hit.

Effective Regulation

Unlike many economists, Lo believed that financial markets didn’t need more regulation, but rather more effective regulation that provided greater transparency:

As a general principle, the more transparency is provided to the market, the more efficient are the prices it produces, and the more effective will the market allocate capital and other limited resources. When the market is denied critical information, its participants will infer what they can from existing information, in which case rumors, fears, and wishful thinking will play a much bigger role in how the market determines prices and quantities.⁶⁸

The current financial crisis is a mystery and concepts like subprime mortgages, CDOs, CDSs, and the ‘seizing up’ of credit markets only creates more confusion and fear. A critical part of any crisis management protocol is to establish clear and regular lines of communication with the public, and a dedicated inter-agency team of public relations professionals should be formed for this express purpose.⁶⁹

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Andrew Lo, “Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009,” *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 21.

⁶⁹ Andrew Lo, “Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009,” *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 2.

Lo believed more information was needed on the shadow banking system, particularly hedge funds. As he explained in his testimony, “Without access to primary sources of data—data from hedge funds, their brokers and counterparties—it is simply not possible to derive truly actionable measures of systemic risk.”⁷⁰ Lo recommended that hedge funds with more than \$1 billion in gross notional exposures provide regulatory authorities with confidential information on a regular basis on the following: assets under management, leverage, portfolio holdings, list of credit counterparties, and list of investors. Lo believed that the confidentiality aspect of the information was critical: “If hedge funds are forced to reveal their strategies, the most intellectually innovative one will simply cease to exist....This would be a major loss to U.S. capital markets and the U.S. economy, hence it is imperative that regulators tread lightly with respect to this issue.”⁷¹

One change Lo proposed was to provide the public with information on financial institutions that had failed: “It is unrealistic to expect that market crashes, manias, panics, collapses, and fraud will ever be completely eliminated from our capital markets, but we should avoid compounding our mistakes by failing to learn from them.”⁷² In his testimony, Lo called for the creation of a Capital Markets Safety Board (CMSB), an independent investigatory review board similar to that of the National Transportation and Safety Board, an independent government agency that investigated accidents. “The financial industry can take a lesson from other technology-based professions,” Lo argued. “In the medical, chemical engineering, and semiconductor industries, for example, failures are routinely documented, catalogued, analyzed, internalized, and used to develop new and improved processes and controls. Each failure is viewed as a valuable lesson to be studied and reviewed until all the wisdom has been gleaned from it...”⁷³ Each completed investigation would produce a publicly available report documenting the details of each failure and recommendations for avoiding similar future outcomes.

In addition to investigating financial “blow ups,” a Capital Markets Safety Board which would be responsible for obtaining and maintaining information on the shadow banking system, including hedge funds, and private partnerships, and integrating this information with other regulatory agencies. The CMSB would act as a single agency responsible for managing data relating to systemic risk.

New Accounting Methods

Lo also believed that accounting methods needed to take risk into account. Current accounting methods (e.g., GAAP) were *backward looking*, focused on value resulting from revenue and costs that had already occurred, and not risk: “Accountants tell us what has happened, leaving the future to corporate strategists and fortunetellers.”⁷⁴ In Lo’s view, accounting methods needed to be

⁷⁰ Ibid, p. 7.

⁷¹ Ibid, p. 8.

⁷² Ibid, p. 21.

⁷³ Ibid, p. 18.

⁷⁴ Andrew Lo, “Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009,” *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 24.

counterbalanced with something he referred to as a “risk balance sheet”: the risk decomposition of a firm’s mark-to-market balance sheet where both assets and liabilities were considered to be random variables. “Since assets must always equal liabilities,” he explained, “the variance of assets must always equal the variance of liabilities, hence the risk balance sheet is just the variance decomposition of both sides....Risk accounting standards must address both the proper methods for estimating the variances and covariances of assets and liabilities, and the potential instabilities in these estimates across different economic environments.”⁷⁵

Corporate Governance

According to Lo, the single most important implication of the financial crisis was corporate governance:

Many corporations did a terrible job in assessing and managing their risk exposures, with some of the most sophisticated companies reporting tens of billions of dollars in losses in a single quarter. How do you lose \$40 billion in a quarter and then argue that you’ve properly assessed your risk exposure? I don’t think it’s credible to say it was just bad luck. If troubled companies want to explain away 2008 as a ‘black swan,’ then someone should take responsibility for creating the oil slick that seems to have tarred the entire flock. The current crisis is a major wake-up call that we need to change corporate governance to be more risk sensitive.⁷⁶

As a way to increase risk sensitivity, Lo believed quants were needed in management positions and at the Board of Director level where they would be a part of the decision-making process. As Lo explained, the absence of quants from top management was due to the fact that their specialty did not exist when those in top management began their careers. In other words, there was a generational gap that needed to be filled. In his mind, the lack of quants in the decision-making process made no sense: “Can you imagine a board of directors of a hospital not having a few doctors or a technology firm not having a few technology experts? It doesn’t make sense and it’s got to change.”⁷⁷

Lo also believed that the role of risk officers and how they were compensated needed to change. He argued that the direct reporting relationship between risk officers and CEOs created conflicts of interest and that those heading up risk management efforts should report directly to the Board of Directors. How risk managers were compensated also needed to change: “Why is a risk manager paid the same way as a CEO? They should be compensated based on their ability to keep the company stable, not on how much money the company makes.”⁷⁸

⁷⁵ Ibid, p. 24.

⁷⁶ Andrew W. Lo, “Understanding Our Blind Spots,” *The Wall Street Journal*, March 23, 2009.

⁷⁷ Interview with the case writer, April 10, 2009.

⁷⁸ Interview with the case writer, April 10, 2009.

In Lo's mind, reforms at the corporate governance level included distancing Wall Street from Washington. "Politicians rely on corporate America for their campaign contributions," he noted. "No one wants to deal with it but it must be dealt with. Corporations should not be allowed to make contributions to political campaigns. Period. We'll never get past this conflict of interest unless we make this across-the-board change."⁷⁹

Education

Lo argued that finance education clearly needed to be addressed, particularly the knowledge gap that existed between quants and those in senior management positions:

We often take it for granted that large financial institutions capable of hiring dozens of 'quants' each year must have the technical expertise to advise senior management, and senior management has the necessary business and markets expertise to guide the quantitative research process. However, in fast-growing businesses the realities of day-to-day market pressures make this idealized relationship between senior management and research a fantasy. Senior management typically has little time to review the research, much less guide it, and in recent years, many quants have been hired from technically sophisticated disciplines such as mathematics, physics, and computer science but without any formal training in finance or economics.⁸⁰

Lo believed that Wall Street needed more scientists: "The problem is not that there are too many physicists on Wall Street, but that there are not enough."⁸¹ He recalled one investment banker telling him that Wall Street was not looking for Ph.D.s, but rather P.S.D.s, poor, smart and a deep desire to get rich.⁸² In his testimony, Lo called for government funding to expand the number of Ph.D. programs in financial technology.

Conclusion

By spring 2009, the collateral damage from the financial crisis was still unknown. It would take time before anyone knew the real value of the "toxic assets" that were plaguing the banking system. Furthermore, personal credit card debt had yet to hit. When it did, many economists believed the downward spiral could re-ignite, sending unemployment into the double digits and the stock market well below 6000.

It was also unknown whether the government's plan to rescue the financial system would work. Simon Johnson and Andrew Lo were advocating measures that they believed would solve the current

⁷⁹ Ibid.

⁸⁰ Andrew Lo, "Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2009," *written testimony for the House Oversight Committee Hearing on Hedge Funds*, November 13, 2008, p. 27.

⁸¹ Interview with the case writer, April 10, 2009.

⁸² Dennis Overbye, "They Tried to Outsmart Wall Street," *The New York Times*, March 10, 2009.

crisis and make the next one less severe. Whether and how the government would implement their recommendations was uncertain.

Besides the fact that financial crises—whether in the United States or elsewhere—would happen again, one thing that did appear to be certain, Lo noted, was that the financial industry was in a state of flux, and for young people studying finance, the industry held a lot of promise:

I look at this as an incredible opportunity for those who want to get into finance. Periods of crisis breed opportunity. There will be many opportunities in the next 5 to 10 years to create new financial technologies to help us prevent this level of crisis. The industry will not be what it was. Compensation will not be the same. There has to be a paradigm shift in how we think about financial markets, both from a financial technology point of view and the human side.⁸³

⁸³ Interview with the case writer, April 10, 2009.

Exhibit 1 Highlights of Expanded Restrictions for TARP Recipients

Bonuses Retention and Incentive Compensation. TARP recipients are prohibited from paying bonuses, retention awards and incentive compensation until the financial institutions satisfy its TARP obligations. Executives subject to compensation restrictions depend upon the amount of TARP assistance received:

Amount of TARP Assistance	Covered Executives
Less than \$25 million	Most highly-paid employee
\$25 million < \$250 million	Five most highly-paid employees
\$250 < \$500 million	Senior Executive Officers (SEOs)* and next 10 most highly-paid employees
\$500 million or more	SEOs and next 20 most highly-paid employees

- SEOs include the top five most highly-paid officers

Long-term Restricted Stock. TARP recipients may provide long-term restricted stock as long as:

- The covered executives does not fully vest in the restricted stock during the TARP period;
- The value of the restricted stock does not exceed one-third of the covered executive’s “total amount of annual compensation;” and,
- The restricted stock complies with such other restrictions the Treasury Department may impose.

Pre-existing Employment Contracts. The restrictions on payment of bonuses and incentive compensation do not apply to amounts paid pursuant to a written employment contract entered into on or before February 11, 2009.

Incentive Compensation for Risk Taking and Earnings Manipulation. TARP recipients are prohibited from paying incentive compensation for “unnecessary and excessive risks” and earnings manipulations.

Golden Parachutes (benefits promised to an employee upon termination of employment). TARP recipients are prohibited from paying golden parachute payments to the SEOs and any of the next five most highly-paid employees. There is no exception for pre-existing employment contracts.

Clawbacks. TARP recipients must clawback bonus, retention and incentive compensation for the SEOs and the next 20 most highly-paid employees if payments were made on inaccurate performance criteria.

Luxury Expenditures. The board of directors of each TARP recipient must establish a policy on luxury or excessive expenditures, including entertainment or events, office and facility renovations, company-owned aircraft and other transportation and similar activities or events.

“Say on Pay.” TARP recipients must provide shareholders with a non-binding advisory “say on pay” vote on executive pay.

IRC Section 162(m) Deduction Limit. TARP recipients are prohibited from deducting more than \$500,000 in annual compensation from the CEO, the CFO, and the three next most highly-paid officers under Internal Revenue Code Section 162(m).

Compensation Committee Governance. The board of directors of each TARP recipient must establish a compensation committee to review compensation plans. The compensation committee must consist entirely of independent directors. This restriction does not apply to private companies that receive less than \$25 million in TARP assistance.

CEO and CFO Certification. The CEO and CFO must certify compliance with the requirements noted above. For public companies, certification must be made to the SEC. For private companies, certification must be made to the Treasury Department.

Treasury Department Review of Bonus Payments. The Treasury Department is directed to review bonuses to the CEOs and the next 20 most highly-paid employees paid before February 18, 2009. If the Treasury Department finds the bonuses were not justified, it will negotiate with the TARP recipient and/or executive to obtain reimbursement of the bonus.

TARP Fund Repayment. TARP recipients may repay TARP funds without replacing the repaid amount with other funds and without a waiting period. If the amounts are repaid, the restrictions on executive compensation would cease to apply.

Source: Marjorie M. Glover, Rachel M. Kurth, “2009 American Recovery and Reinvestment Act,” Chadborne & Parke LLP, February 20, 2009.

European financial institutions have pushed the global financial system to the brink of systemic meltdown. By early 2009, the markets had stabilized to the point where the U.S. stock market was no longer down 700 points one day and up 500 the next. In May, the results of the stress tests conducted on the 19 largest banks in the United States to test their capacity to withstand a further economic downturn were less negative than feared, with 10 out of the 19 subjected to the test ordered to raise \$75 billion in new capital. A number of the banks that were told to raise additional capital saw

The Financial Crisis of 2008 was a global financial crisis that is the worst the world has seen since 1933 with the Great Depression. Drastic measures to confront seemingly insurmountable financial calamity resulted in the creation of TARP (Troubled Assets Relief Program), \$700 billion safety net appropriated by the U.S. Congress. The National Bureau of Economic Research has identified the peak of the last boom cycle in December 2007; the U.S. economy has been in decline ever since. Facts about the 2008 financial crisis: a summary of what caused the crash, where and when it started, what happened, what was the role of Lehman Brothers, and what were the consequences. How does it compare to the Wall Street Crash of 1929? Plus definitions of macroeconomics and quantitative easing.

The 2008 crash was the greatest jolt to the global financial system in almost a century – it pushed the world’s banking system towards the edge of collapse. Within a few weeks in September 2008, Lehman Brothers, one of the world’s biggest financial institutions, went bankrupt; \$90bn was wiped off the value of Britain’s biggest companies in a single day; and there was even talk of cash machines running empty.