



Ten Years Later

Keynote Address¹

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It has been ten years since the financial crisis dealt the biggest blow to the world economy since the Great Depression. While growth has returned, and the job market has by now tightened—especially in the United States, where the crisis originated—the reverberations of the crisis continue to affect us in ways both large and small, both obvious and indirectly connected.

The devastating damage to our economy calls for profound reflection and change, in economics, politics, the financial sector, among policymakers, and in our behavior. With the United States now done staving off total disaster with emergency measures, it is time for the country to root out the causes of the crisis and make deep adjustments to protect against another such painful and utterly wasteful episode.

A sober accounting of what has actually been done to respond to the crisis shows that, while its lessons have not been totally ignored, a relatively small number of them have actually been acted upon. The glass is probably three-fourths empty and a quarter full: we have identified the problems that gave rise to the financial crisis, but our solutions to those problems have been highly incomplete—and are yet at risk of being undone.²

The experience of the crisis should have led us to change our economic models, our economic priorities, and our regulations of the financial sector. This chapter traces how mistakes in each of these areas made the financial crisis all but inevitable. It then takes stock of which of the necessary reforms have actually been undertaken since the crisis, and which have not. Finally, it offers some perspective on how the United States' response to the crisis has influenced our political system, and what this bodes for our future.

² After this speech delivered, Congress took a major step in undoing key provisions of Dodd-Frank.

BAD MODELS FACILITATED THE CRISIS

It can be easy to forget, a decade later, just how blindsided many economists and bankers were by the financial crisis. In light of what has become common knowledge about the financial sector's excesses and mismanagement, it seems in retrospect obvious that the sector and the economy were headed for serious problems. And a few of us did warn, with increasing alarm in the middle of the century's first decade, that something was terribly wrong. For others, however, the crisis was truly unexpected. The reason for this widespread surprise was fairly straightforward. The models on which economists were relying—in the central banks, such as the Federal Reserve, and even in the IMF—not only didn't predict the crisis, they almost said it couldn't happen.

Not long before the crisis, people like Ben Bernanke were talking about how well the economy was doing. Even after the housing bubble broke, Bernanke would say not to worry—that the problems had been contained. The reason he could get away with saying something so absurd was that the models he was relying on actually indicated that the problems *were* (or should have been) contained. Those models were based on the notion that risk was diversified, and that the subprime mortgage market was a small fraction of the wealth of the global economy. If risk were well-diversified and there was a perturbation in a small part of the world's wealth, the economy could well absorb it. As the crisis made obvious, these models were totally inadequate to deal with what actually did happen. In fact, they actually made the crisis more likely.

On the basis of these standard models, the IMF and U.S. Treasury promoted diversification, claiming that it would spread the risk widely, and that that would make the system more stable. What actually happened was not that risk was distributed and spread, but that it was propagated and amplified. There was not a

diminution of risk through diversification, but rather an amplification, through contagion.³ Diversification simply turned what could have been contained cases of financial failure into a global pandemic.

Using a public health analogy highlights just how misguided this emphasis on diversification was: Say a hundred people arrive in New York City with Ebola. If one followed the pre-crisis IMF recommendation, one would try to soften the risk to public health by sending the Ebola victims to every state—voila, the risk is diversified! The correct way to deal with such a situation is, of course, quarantine.

The mathematics one uses to analyze contagion are totally different from those used in the models in which diversification helped manage risk. With economists and policymakers clinging to the flawed models, the crisis we experienced was almost inevitable. Policymakers encouraged more diversification, and this greater diversification itself led to greater instability. What remains mysterious is why these models were never questioned. There was a cognitive dissonance: at times (before the crisis) discussions focused on the benefits of linkages (diversification); at others (after the crisis) on the costs (contagion). Yet no one in these institutions

³ The mathematics of this has been set forth in a series of papers with Stefano Battiston and other co-authors. See Tarik Roukny, Stefano Battiston, and Joseph E. Stiglitz, “Interconnectedness as a Source of Uncertainty in Systemic Risk,” *Journal of Financial Stability* 35 (2018): 93–106; Battiston, Guido Caldarelli, Robert M. May, Roukny, and Stiglitz, “The Price of Complexity in Financial Networks,” *Proceedings of the National Academy of Sciences of the United States of America* 113, no. 36 (2016): 10031–36; and Battiston, Domenico Delli Gatti, Mauro Gallegati, Bruce Greenwald, and Stiglitz, “Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk,” *Journal of Economic Dynamics and Control*, 36 (2012): 1121–41. Anyone who has taken an elementary course in mathematics knows what matters is the convexity of the relevant functions. The models used by the Federal Reserve and by the IMF always assumed diminishing returns, with no non-convexities, and so they always concluded that diversification was good. But bankruptcy costs or learning or large fixed costs of production changes this.

thought to formulate (or even look for) a model integrating both kinds of effects, within which one could ascertain, perhaps, an optimal degree of diversification.

Even more remarkably, the flaws in the models and their implications were known well before the crisis. Bruce Greenwald and I devoted a chapter to the subject in our 2003 book *Towards a New Paradigm in Monetary Economics* (written and given as lectures years earlier);⁴ Franklin Allen and David Gale in Pennsylvania wrote about the consequences of financial interlinkages in 2000.⁵ But the IMF and the Federal Reserve weren't interested, and ignored the findings. The willful ignorance was, fortunately, not universal. At least one central bank was interested, the Bank of England, under its research director Andy Haldane; and it was actually engaged in serious work before the crisis. For others, perhaps, these insights were simply too inconvenient to acknowledge in the years before the bubble burst; it might have meant that the regulators would have had to think harder about regulation.

There were many other ways in which the standard models that were being used by economists and by central banks—dynamic stochastic general equilibrium models, or DSGE models—were very badly flawed. For one, they assumed that the source of the shock was an exogenous shock. The models couldn't conceive of a shock from within—a credit bubble created by the market itself—which was exactly what happened. They couldn't conceive of markets lending beyond people's ability to repay, which was also exactly what happened. Underlying these misconceptions were standard beliefs about how our economy worked—beliefs in rationality, rational expectations, and incentive alignment between social and private returns. The standard models and their backers argued that we had developed sound incentive structures for the participants in our marketplace.

⁴ Cambridge: Cambridge University Press.

⁵ Allen and Gale, "Financial Contagion," *Journal of Political Economy*, 108, no. 1 (2000): 1-33.

After the crisis, defenders of these models claimed that they were never meant to work 100 percent of the time. The models had failed because we were hit by a once-in-a-century flood, they said, and a model that was meant for normal times is not going to work in a once-in-a-century flood. To the contrary, I believe that, in fact, reliance on the flawed models actually contributed to the crisis. The Fed was not an innocent victim of some outside force—a war or a plague. The Fed bears the responsibility for what happened, both in what it did and what it did not do. It chose to be influenced by certain models and ways of thinking even when it had access to information and research showing that the models they were using were deeply flawed; and it ignored other models and analyses that provided clear warning signs.

An especially odd aspect of the economic models that were used by central banks was that there are no banks; it was peculiar, since without banks, there would not have been central banks. Since these models completely ignored banks and ascribed no function to them, no one raised questions about the consequences of their interdependencies. No one seemed fully aware of the consequences of letting Lehman Brothers go down. They knew that there would be some consequences, of course, but they thought they would be limited. But when the firm collapsed, it sent shockwaves through the entire financial system, for simple reasons: other people had money that they weren't be able to access. The problems echoed throughout the financial system.

Deepening the mystery about why so many people clung to these broken models is that, as we know from data that came out after the crisis, it was clear in 2007 and 2008 that the financial system was freezing up. People knew there was a problem. Yet their mindset was so shaped by their flawed models that they didn't ask

whether Lehman's collapse would lead to the demise of other financial institutions, or a cascade of bankruptcies.

Even today, ten years later, blind fidelity to flawed models continues to contribute to disagreements about the causes of the crisis, the appropriate remedies, and what could or should be done to prevent another crisis.

DEREGULATION AND SECURITIZATION

Of the many bad policy decisions for which the flawed models paved the way, one of the most consequential was the deregulation of the financial sector. This deregulation, which had actually begun more than twenty-five years earlier, allowed the other problems brewing in the financial sector to become supercharged. Among these were the housing bubble—a bubble that was allowed to inflate to massive proportions because it created the illusion of widespread wealth and wealth creation, at least for a short time.

Growth of GDP was chugging along in the middle of the decade, thanks in part to low interest rates that facilitated high levels of lending. Anybody looking closely at banks' balance sheets, however, should have been horrified by what was going on. Americans weren't just borrowing; the mortgages that they were borrowing were exceptionally dangerous. They were short-term mortgages, with variable interest rate mortgages, some with negative amortization, others with balloon payments, requiring the mortgage to be totally refinanced every few years. There were all kinds of mortgages that seemed to shift risk to the borrowers—though if the borrower defaulted, of course, the risk shifted back to the owners of the mortgages. But the borrowers were often poor, and not in an economic position to assess or bear that risk. So if interest rates increased or the bubble broke, they wouldn't be able to rollover the loans, and there would be a crisis.

To the attentive observer, it was evident (a) that there was a bubble, and (b) that when the bubble broke, there would be problems. People like Rob Schiller and I spoke about the very high probability that we were in a housing bubble. One can never be completely sure that a bubble exists until it breaks, but in this case, the possibility that we were not in a housing bubble was remote. And given the nature of the mortgage markets, with the growth of “risky mortgages,” it was very clear that when that bubble broke, the mortgage market would be put into extreme distress.

Proper regulations should have prevented such borrowing from being possible. Instead, for years the brakes had steadily come off, giving dangerous and deceptive lending practices free reign. Policymakers were in thrall to the mania for free markets; in their view, bad practices might emerge but would not survive because they would be unprofitable. Credit would dry up for unsustainable ideas (such as poorly designed mortgages) before they grew large enough to cause widespread problems.

As I have argued for decades, the logic behind such free market fundamentalism is seriously defective, and based on numerous false assumptions. The models largely ignored information imperfections and asymmetries, yet these are at the heart of financial markets. The models assumed that private and social returns were well aligned, and yet it should have been obvious that that was not the case with the prevailing incentive structures in the financial sector; and it was not the case for the too-big-too-fail (or too-interconnected or too-correlated-to-fail) financial institutions: they reaped the rewards from excess risk taking while society picked up the costs. There were massive externalities, long recognized: a failure of the financial system has large macroeconomic consequences—the reason that bailouts occur so frequently. Yet our regulators, including the heads of the Federal Reserve who

were steeped in market fundamentalism, paid no heed: they simply assumed that the banks knew how to manage risk better than the regulators.

Banks came up with “innovations”—new, high risk mortgages, which could be stuffed into large securitizations, and then “structured” so that the top tranches could be sold off as AAA securities— to make such lending appear less dangerous than it was. Securitization was supposed to insure against catastrophe, by diversifying risk, pooling the risks together and spreading them around, so that each investor would in fact bear little risk. Instead, securitization, as designed and practiced, ended up being just one more amplifier of the crisis.

It is true that by sharing risks, sometimes they become less “dangerous”—that was the argument for diversification noted earlier. But one can share risk through the ownership structure of banks. If one wants to have a diversified portfolio of mortgages, a diversified portfolio of bank ownership can help achieve this. We know how to create bank mutual funds; and they indeed can accomplish diversification. Whether there were any significant further benefits from securitization was ambiguous, even before the crisis; but there was surely a cost, associated with the perverse incentives to which it gave rise.

Securitization was done in such a way that the incentives of mortgage originators were not aligned with the people who were going to buy the mortgages. The originator of the mortgage got his fees upfront and he sold it on. He wanted to originate as many mortgages as he could, and he would pass them on up the chain to the investment bank, who would sell them to someone else. There was seemingly no pecuniary reason for the mortgage originator to care whether the borrower would ever be able to repay the loan. Securitization separated out origination from accountability, misaligning incentives, and creating a classic moral hazard problem.

A closer examination of the details of mortgage contracts, though, shows that some thought went into their design. They included provisions to mitigate this incentive problem. Many included so-called put-back provisions, which were supposed to ensure that if the mortgage was not as described by the originator, it would be considered a faulty, flawed mortgage, and it could be put back to the originator. The contracts even had provisions saying that banks would pay legal costs in the event of a legal dispute. In effect, the originators provided to the investment banks, and the investment banks to the mortgage insurers a money-back guarantee on the quality of their mortgages. (the mortgage insurers were the so-called monoline companies, which helped with “credit enhancement” so that the top tier of the structured financial products could achieve a AAA rating.) However, there were two factors that nobody had fully anticipated: the massive fraud that characterized the mortgage originators and the investment banks, and the massive breaches of contract that occurred in enforcement and compliance.⁶

A financial system that was rife with such fraud and deception was almost bound to fail. A framework that says economic activity is entirely based on rational expectations with no deceptive and fraudulent practices was bound to miss the huge amount of irrational activity and irregularities in the financial markets in the years before the crisis. It was willful neglect that the Federal Reserve and other

⁶ While the Federal government won a multi-billion dollar suit, and there have been some very large settlements, more than a decade after the crisis, multiple big banks are refusing to honor their contracts, and are fighting billion dollar suits over breach of contract and fraud. Closer inspection of the mortgage files showed that large proportions were “defective” (i.e. significantly different from what they were represented to be), often seemingly fraudulently so. It seemed that the banks were simply hoping that *somehow* something might happen that would enable them not to pay their due, either some judge ruling that the statute of limitations (limiting how long after a bad act is committed it can be sued) had passed or that some corporate friendly judge would somehow forgive them for what they had done. (I have served as an expert witness in several of these suits.)

regulators didn't keep a closer eye on what was going on in the years before the crisis—a neglect partially based on a misguided ideology and flawed models that ignored these possibilities: there had been cognitive capture of the regulators, who took seriously the financial sectors' claim that they knew best how to manage risk, totally ignoring the flawed incentive structures, the massive externalities, and the rampant moral turpitude (to which I will come shortly).

INEQUALITY

Rampant predatory and reckless lending papered over a growing underlying fact about the American economy: inequality was on the rise, and this was creating a shortfall in aggregate demand. The scale of the problem only became fully obvious after the crisis, but it was there beforehand, too, both in the United States and in many other countries. Inequality leads to economic weakness, because those at the top save a lot more than those at the bottom. At the top, savings rates are generally somewhere between 20 and 35 percent. The average household savings rate of the bottom 80 percent of Americans was some negative 10 percent. When you move money from the bottom of the economic pyramid to the top, aggregate savings goes up, and aggregate consumption goes down.

Thus, high inequality causes aggregate demand to be weaker than would otherwise be the case, unless the weakness is made up for in some other way. There are intelligent ways to do so—say, through increased government spending on badly needed infrastructure improvements. But before the crisis, American policymakers chose one of the worst possible ways to make up for weaker aggregate demand: making it easier and cheaper to lend to people who might not be able to pay it back. This gave a short-term boost to aggregate demand, but also made the economy frail—as noted above, most Americans had exceedingly low,

even negative, savings rates. That was not sustainable. A financial system based on that level of overextension of credit is headed toward crisis.

This lending was made possible not only because of deregulation, but also because the Fed had lowered interest rates. The doctrine at the time in those simplistic models held that lower interest rates would stimulate the economy, without addressing inequality. And they did, but at great cost, opening the door to a different set of problems. The crisis occurred during a period of financial deregulation; lowering interest rates in that deregulated environment made it easy to create a bubble.

A CULTURE OF BAD FINANCIAL BEHAVIOR

The poor performance of the mortgage market, the securitization process, credit rating agencies, and the system of risk sharing among banks, including through credit default swaps, were exposed as time went on. But it wasn't only that these systems were broken. Another large factor that contributed to the crisis was banks' bad behavior, which was so rampant that it can accurately be called a culture. This bad behavior extended into every corner of finance.

The extent of the bad behavior was only exposed after the crisis. The Wells Fargo scandal encapsulates this kind of bad behavior: opening up accounts without people's knowledge, charging them huge amounts, and forcing them to buy auto insurance. Throughout the financial system, there were tax and money laundering havens, where secrecy's main function was to hide a wide variety of nefarious activities, the kinds of abuses revealed in the Panama Papers and the Paradise Papers. Some people point to these phenomena and accuse banks of participating in a criminal enterprise. That may be an exaggeration, but it is clear that banks and others in the financial sector were very much engaged in tax avoidance—and in

many cases, tax evasion—and other actions that facilitated corruption. Money laundering was aided and abetted.

Over the decade since the crisis, we have become aware of countless such examples where bankers moved to the edge of legality, and many went over that edge, where even if there had been no laws proscribing what they did, the bankers should have known that what they were doing was wrong. Market manipulation in the foreign exchange market was one example of banks proving themselves untrustworthy. Wells Fargo and predatory lending showed the extent of the moral depravity on the part of our financial institutions. Many of these examples were not directly responsible for the crisis. But others—such as the pervasive fraud in the mortgage origination process—clearly were.

Banks thrive on secrecy, but that secrecy has far-reaching costs. My work was on the economics of information, problems of asymmetries of information, and the problems of trying to expose and reduce asymmetric information, guided by the basic belief that efficient markets require good information. Bank secrecy erodes this foundation of well-functioning markets. In fact, the secrecy went so far that it contributed to the erosion of trust in the financial sector, even between banks. (Goldman Sachs' creation of securities that were designed to fail has become the poster child for this erosion of trust.) Since each bank's practices were opaque, banks stopped lending to each other in times of need, since each possible lender assumed that the inner workings of the other banks were just as rotten as their own. This contributed in a very big way to the freezing up of the financial markets, and the freezing up of the financial markets was at the core of the financial crisis.

I do not think we have really changed the culture since the financial crisis. There is still a lack of transparency.

WHAT HAS CHANGED—AND MORE, WHAT HASN'T

Despite the scale of the financial crisis, there has never been a full reckoning within the economics profession with just how inadequate the models were—too many prominent economists have simply held that the problems were with the implementation of the models, and not with the models themselves. There are Ptolemaic efforts to make the models better, little tweaks here and there. But to my great disappointment, the fundamental flaws continue—the rational expectations equilibrium framework (the DSGE models) remains dominant, though the critiques have gradually become more accepted by younger economists, who have less of a vested interest in the old models.⁷

New efforts in economics provide a ray of hope

There are, however, several important new strands of work, breaking out of the models that helped shape the crisis. This new work rejects rational expectations, tries to explore financial interlinkages, and acknowledges the presence of pervasive macroeconomic externalities—that, for instance, when one large group in the economy borrows more abroad, it affects exchange rates, which has effects on others.

These ideas are very important. The most important theorem in economics has been Adam Smith's invisible hand—the idea that the pursuit of self-interest leads as if by an invisible hand to the well-being of society. It took 150 years of work to prove exactly the conditions under which that is true. Years ago, Bruce Greenwald

⁷ See in particular the special symposium on the subject in the *Oxford Review of Economic Policy* in 2017 including my paper, "Where Modern Macroeconomics Went Wrong." *Oxford Review of Economic Policy* 34 no. 1-2 (2017): 70–106. For a more establishment defense of the old models, see the 2018 symposium in the *Journal of Economic Perspectives*.

and I subsequently showed a very general result that whenever there are imperfect risk markets (which is always), whenever there is imperfect information, and particularly asymmetric information (which is always), then Adam Smith's "hand" is not just invisible but in fact absent. That is to say, in general, the market is not constrained Pareto efficient (taking into account the costs of obtaining information and creating new markets).

Ours was a very general theorem. But now, a whole group of economists—from Harvard, Columbia, Johns Hopkins, and Berkeley, to name a few universities in which this research is moving forward—have developed macroeconomic representations of these market failures. They have showed that there are systematic failures *at the macroeconomic level*. There could be too many interlinkages among banks (which was the problem with the CDS markets) or, as we noted earlier, too much foreign denominated borrowing.

Another strand of research that had begun well before the crisis but which the crisis brought to the fore focuses on corporate governance. Eighty years ago, Berle and Means pointed out that in modern capitalism, there is a separation of ownership and control, and argued that this had important consequences. My research and that of others in the 1970s and 1980s laid information theoretic foundations for this delegation of decision making (in what came to be called the principal agent problem) and explored the consequences, including for the design of incentive contracts to align managerial interests with those of the owners. Regrettably, the macroeconomic models popular before the crisis left the issue out. Even Alan Greenspan, when he testified to Congress, acknowledged that this oversight was a flaw in his model: he and others believed that banks would be able to self-regulate. Self-regulation is an oxymoron, but remarkably, he and other regulators argued not only that the banks were in the best position to assess risk, but also that they had the incentives to manage it well. What Greenspan forgot was

that the bankers' interests were not well aligned with the banks', and the banks' interests were not perfectly aligned with the rest of society's. Look at the design of the incentive systems at banks, and it should be obvious, even to someone not trained in economics, that they encouraged taking on too much risk. In fact, given those incentive structures, if the bankers had *not* engaged in excessive risk, it would have proven our economic theories were wrong.

Academics have convincingly shown the importance of these problems of incentives and corporate governance, but it has not been fixed in practice. There have been some attempts to do so, but unsurprisingly, there has been pushback, as there has been in almost every other aspect of the regulatory environment.

Another big advance is in models exploring effects of financial market integration. One of the most important questions now before us is, what a good financial structure should look like—a structure that absorbs risk, that doesn't explode when there's a big shock.

This is a research agenda that is just opening up, and one that I became interested in during the East Asia crisis, when I was chief economist at the World Bank, I had seen how the collapse of one bank led to the collapse of another bank, the failure of one firm led to the failure of another firm, to the point where in Indonesia, 70 percent of the firms were bankrupt. This made it obvious that interdependence was important, so one had to start thinking about financial interlinkages. I have been working with several people, including Agostino Capponi at Columbia and Stefano Battiston at the University of Zurich, on questions such as whether it is best to have dense networks (financial systems with many linkages) or sparse networks. Dense networks are good in that they do a better job of sharing risk, but because they share risk, one can have a systemic crisis when there is a big correlated shock. Unless the government engages in a very costly bailout, the macroeconomic

consequences of the resulting financial crisis are large. But either way, the costs to government and society are large.

An interesting idea that the IMF and a couple of European countries have tried and/or talked about or advocated for themselves or the IMF (Germany has been particularly vocal), is a bail-in. But can you get the banks to voluntarily contribute? The United States tried that in 1998 in the Long-Term Capital Management crisis, where one hedge fund went bankrupt and, with one and a half trillion dollars of debt, its disorderly collapse would have threatened general financial stability. LTCM needed large amounts of money to satisfy its creditors—the kind of money that the Central Bank would have naturally provided if LTCM had been a bank. But LTCM was not a bank, though many banks had lent LTCM money, and many bankers had too. That incident showed how interrelated and frail our financial system was. The New York Fed took the lead and got all the firms involved save two to cooperate in a bail-in. (There were some disquieting aspects of the bail-in: to get the cooperation of the managers of LTCM, its partners were given a 10 percent equity stake in the “resolved” enterprise, even though under normal bankruptcy, they could have gotten nothing; the heads of the banks used capital from the banks that they headed to save a hedge fund in which they had a personal stake—an obvious conflict of interest. The degree to which the contributions of those who joined in the bail-in were "voluntary" is still debated. There were implicit threats: one never wants to cross one’s regulator. The two that did were the same, Bear Stearns and Lehman Brothers, that were effectively allowed to go into bankruptcy in 2008, with shareholders being wiped out. (Some have suggested that this was their deserved pay-back for their earlier lack of cooperation.) But the question then comes: can you have a credible bail-in? To have a credible bail-in, it has to be credible to each of the banks asked to contribute that the government won’t bail out the financial system without its own cooperation. That is to say, for a bail-in to be credible, if the entities who are

supposed to participate know that the government nonetheless is going to bail them out anyway, then why would they contribute to the bail-in?

Our recent research on networks relates to this. It turns out that with sparser networks and less interdependence, there are lower probabilities of bankruptcy cascades (where one bankruptcy leads to another, the specter that seemed to follow from Lehman's collapse), and bail-ins are more credible. Because the cascades won't occur, it is less credible that the government will perform a bail-out. Taking account of the resulting lower expected bail-out costs to the government, sparser networks work out to be the more efficient financial structure. These conclusions reverse what had been the common wisdom on the design of good financial structures.

The next step in this vein of research is to look at endogenous network formation, how it is affected by the rules, how a variety of risks can be controlled within any given network, and how this links to preventing systemic risk.

In all these ways, the crisis has brought about some good. It has spurred some interesting research that had previously been proceeding at a very slow pace.

POLICY HAS NOT ADAPTED

While there are thus benefits from the crisis arising from the academic response to the crisis, policy has lagged far, far behind, in almost every area. Banks do have bigger buffers now, which is good. And there is more discussion of better macroeconomic regulation. But the changes in mortgage regulation have been far from adequate—for instance, the U.S. government is still the ultimate holder of a large percentage of American mortgages. The government is absorbing the risk just like it was before the crisis. For all of the United States' pride in being a private

market economy, the financial market for housing is run by the state. And at that, it is done in the worst kind of private-public partnership, in which the private sector walks off with the profits and the public bears the risk.

But when proposals were made that the banks should bear at least 10 percent of the risk, the banks told the government that it would be impossible to function as a lender if they had to bear such risk. This is, of course, illogical: if you separate out loan origination—or “skin in the game,” as it’s called—from holding loans, moral hazard will be rampant.

The fact of the matter is that we have not been able to fix the mortgage market, and it doesn’t seem likely that we will be able to do so, because of the unwillingness of banks to bear responsibility for the mortgages they originate. The real estate industry wants to continue doing real estate, and the financial sector doesn’t want to bear the risk associated with mortgage origination, and no one wants to square that circle. So the current system persists, of ersatz capitalism with the government bearing the risk.

There are other areas where the policy reaction since the crisis has been very disappointing. Capital requirements have been raised for banks, but the banks complain about the high costs this has imposed on them—costs which they say they have to pass on to borrowers (in spite of their record profits). The banks seem to not understand one of the basic ideas in modern finance, which is the Modigliani-Miller Theorem. That theorem says that when one gets more debt, it simply pushes risk onto the resulting smaller amount of equity; what one saves on one account one loses on the other. An increase in leverage does not magically reduce the true cost of capital. Banks have probably ignored this simple lesson because they want to push the risk onto the American taxpayer: they want to increase the bail-out premium that they get.

That banks continue to fight these logical regulations is worrisome, and the banks have already scored some victories, turning back the clock toward the pre-crisis world. Outside the world of bankers, there is a broad consensus that the U.S. government should not bear the risk of derivatives and CDS's. In response, the United States passed the so-called Lincoln Amendment to Dodd-Frank (the 2010 bill regulating the financial sector), to prevent government-insured institutions like banks from writing these derivatives. But the banks countered with their own amendment—which has come to be known as the Citibank Amendment because it was written by Citibank—and it effectively repealed the Lincoln Amendment. Thus, today, taxpayers still bear the residual risk of these risky financial products.

There are many ways of dealing with this risk consistent with the tenets of capitalism. Those who participate in derivatives markets could be made to be jointly liable so that they monitor what is going on. But banks clearly want the government to continue to pick up the risk.

Another important part of Dodd-Frank was an effort to monitor risk, by establishing a research agency for that purpose. But the Trump administration has said it wants to take away spending for that important effort.

Further, nothing has really been done to counter the risk posed by too-big-to-fail banks. In fact, the problem with too-big-to-fail is worse because of mergers that occurred during the crisis—and which the government encouraged. And it is not just too-big-to-fail that imposes systemic risk. There are problems of too-intertwined-to-fail (or too-connected-to-fail), and too-correlated-to-fail. None of these problems have been fixed. Some of the too-correlated-to-fail issues would have been addressed if the United States had reenacted Glass-Steagall, but that opportunity was missed.

One morsel of good news at the policy level is that in the aftermath of the crisis, the IMF changed its mind about a topic that has been a very big point of contention: cross-border regulation of short-term capital flows. Instability in these capital flows has, around the world, been a major source of financial and economic instability. The regulation of such flows was one of the most contentious aspects of my 2002 book, *Globalization and Its Discontents*. The IMF now says (in agreement with what I said there) there ought to be special regulations of these cross-border capital flows because they do represent a special kind of risk.

DEEPER ISSUES WITH OUR POLITICAL SYSTEM

The gap between the academic response to the crisis and what has happened in policy is not just about finance. This says a lot about how our political system works.

First, there has been no accountability for the bankers who undermined the trust in our system. The accountability that occurred after the Savings and Loan crisis, which was minute compared to the 2008 crisis, was orders of magnitude greater. The robo-signing scandal, in which people lost their homes sometimes even when they didn't owe any money, showed that our country didn't really adhere to the rule of law. Few of the people who engaged in practices like these that led to the crisis were held to account—even though there was much that could have been done. One example is that the government could have removed the board of directors at Wells Fargo for their actions; that could have happened at other banks as well.

There were many such measures that could have been taken, which were far short of putting people in prison but which would have sent a clearer signal that running a bank in certain ways will not be tolerated.

There are some other aspects of the financial system that may not have contributed to the crisis but have contributed to the lack of confidence in our economic system. One is the fact that, as people were losing their jobs and losing their homes, so many bankers walked off with bonuses—often euphemistically called “retention bonuses” to paper over the fact that people were being rewarded for failure. These types of things sent a message to the public that there was no justice or integrity in finance or in the parts of government that were charged with regulating it.

The fundamental reason that the big banks have so thoroughly avoided painful consequences for the problems they caused is their excessive market power, their abuse of that power, and their conversion of their economic power into political power. One of the big fights in Dodd-Frank was getting through the Durbin Amendment, which was to curtail the abuse of monopoly power associated with debit cards. In other countries, such as Australia, this power has been curtailed, proving that it’s possible to get rid of this monopoly power. These countries have outlawed the use of certain contract provisions which amplify and maintain banks’ market power in debit and credit cards, and monopoly profits have come way down as a result. The United States was only to impose some regulations on the abuse of market power for debit cards, not for credit cards. The government then made the mistake of delegating the issue of regulating the fees that the debit cards could charge merchants to the Federal Reserve, which is partially captured by the financial sector. The Fed’s technical experts recommended a rate that I thought was two to four times the rate that it should have been, but then the Federal Reserve itself doubled that rate.

Such clear abuses of market power contribute to Americans’ sense that the political system and the institutions it controls are rigged. Captured institutions

undermine faith in the political system, and a disregard for the rule of law does, as well. There was a proliferation of fraud in the credit rating agencies and investment banks before the crisis. Banks even refused to comply with contracts in which they had provided “money back guarantees” to investors and others who bore the risks of the mortgages that the mortgages were as described—that, for instance, they were for owner-occupied housing rather than rental properties (the default on the former is typically much lower than on the latter). And yet these contracts' provisions were seemingly well-designed to contain moral hazard. But if a legal system is broken, contracts aren't worth the paper they're written on. This type of trust is foundational to the functioning of our society.

And then there is a much broader issue. Almost all of the regulatory efforts have been directed at trying to *prevent* the banks and the financial sector from imposing harms on the rest of us: imposing harms from excessive risk taking, abusive credit card practices, market manipulation, predatory lending. Banks should be prevented from doing bad things, but they also need to be encouraged to do things that are beneficial to our society and our economy. There should have been far more discussion about what kind of a regulatory system would have created a financial system that actually worked. Better mortgages could be designed to help individuals manage the financial risk of home ownership—rather than the mortgages our private financial sector provided, which were designed to maximize the fees extracted from the financial unsophisticated. We have examples to inspire us: there is a Danish mortgage system that has worked for a long time; there are systems with income-indexed mortgages. There is a lot of financial innovation—and not of the kind that gave us the crisis, but of the kind that would make the American economy stronger in the long term and less susceptible to crises. However, our industry does not seem to be interested in such innovations. It is up to the regulators to do more, and so far they haven't. And if the private financial sector can't do what it should, the government should step in with a *public option*,

providing mortgages to reliable taxpayers at an interest rate just above that at which government itself can obtain funds.

We are already getting familiar with the fallout of our policy and political failures in response to the crisis. It is no abstraction: the lack of trust in our economic system and our financial system, the well-deserved belief that we have a rigged system, has provided the context for the rise of a demagogue.