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The Subprime Credit Crisis: Origins, Policy Responses, and Reforms

In a three-part interview, Morris Goldstein analyzes the origins of the subprime credit crisis, the policy responses so far, and suggests his own top ten regulatory reforms needed to respond to the subprime credit crisis.

Sherman Katz: Welcome to Peterson Perspectives. We are delighted today to have with us Morris Goldstein, the Dennis Weatherstone Senior Fellow at the Peterson Institute. For more than 25 years, he worked at the International Monetary Fund where he became the Deputy Director of Research. He has written extensively on economic policy and international capital markets. His judgment is solid on financial crises and so we look forward to his perspectives.

We are going to cover the origins of the subprime credit crisis, what happened in the crisis, what the policy responses have been so far, and what Morris suggests for us going forward. Let's start with the origins of the crisis; how would you describe those, Morris?

Morris Goldstein: Like most financial crises, this credit crisis had multiple origins and by now we have had quite a few studies looking at the origins of the crisis, including those done at the International Monetary Fund (IMF), at the Bank for International Settlements (BIS), and various central banks. There is a book on the subprime market by Ned Gramlich and a forthcoming study by Martin Baily and his associates. So let me lay out what I think is a synthesis of those views and I am going to concentrate on what I call the six leading suspects.

Suspect number one is very low real interest rates, both short and long term, leading up to the crisis. Real short-term interest rates in the United States were negative from roughly the third quarter of 2002 through the first quarter of 2005. They were barely positive in the eurozone and Japan during that period. Mostly that reflects accommodative monetary policies. Real long-term interest rates were also very low, particularly over the period of 2002 to 2007 in both the United States and the eurozone. That reflected low investment demand and very high savings rates, particularly in the emerging markets outside China. Low interest rates also reflected what we call low-term premium; that is, people weren't asking for much of a premium to purchase longer-term securities because they weren't worried about volatility. We had very low volatility in equity and bond markets.

What's the upshot of those low interest rates? Well, we had low mortgage rates and of course that stoked the demand for housing. We also had a very pervasive "search for yield," so with very low interest rates on safe investments, people were looking for more return and they were prepared to take on more risk to get it. For example, if you had these complex mortgage-backed securities and people, even if they did not understand them, were told they would get 60 basis points more than they could get on a triple-A rated corporate bond, they were happy to buy them. So that's suspect number one: low real interest rates.

Suspect number two is unwarranted confidence about the continued rise and the low volatility of US housing prices. If we look at the period between 1996 and 2005, US housing prices nationwide went up about 90 percent. They went up 60 percent alone between just 2000 and 2005, and in the 30 year run-up to the crisis, rarely did housing prices fall. So it seemed like a terrific investment. It was just the time to buy a new house, to add to your house, to get a home equity loan, and you felt that if you did not do it, you were just missing out and you were watching your neighbor get rich.

Similarly, mortgage lenders did not worry as much about making loans to borrowers who did not have such a great credit history, because they felt, "Well, even if I make a loan and the borrower puts down a very low down payment, in a few years of rising housing prices, he will have some equity and he can refinance. And if he does not pay his mortgage, I'll just put the house back on the market. It's a rising market, and I will make money reselling it, so there really wasn't much risk." Of course, once housing-price increases slowed down and housing prices finally started to fall, then lots of borrowers and lenders got into trouble. So assumptions about housing prices and unwarranted optimism are the second suspects.

Suspect number three was a shift in mortgage lending toward the less creditworthy, marginal borrower. The subprime borrower is the borrower who doesn't qualify for a prime mortgage. This is an important factor, because without it, it is difficult to explain why the crisis broke out in the United States rather than somewhere else. After all, housing prices were rising at similar rates in many other industrial countries, and indeed some estimates are that housing prices were more overvalued elsewhere than in the United States. But these countries didn't go as far in channeling funds to the marginal borrower as we did in the United States.

Between 2003 and 2006, the share of subprime mortgages in total mortgage originations more than tripled. Prior to this development of the subprime mortgage market, if you were a low-income family, you generally rented; you did not buy a house. This was also in part because there were state usury laws on the maximum interest rates that lenders could charge. So if lenders thought you were a higher credit risk because you did not have a very good credit history, they couldn't charge an interest rate that reflected that. All that ended in 1980 when we had the Depositary Institutions Deregulation and Monetary Control Act, which wiped away those ceilings. You also had the development of credit scoring techniques that were used for autos and credit cards, and lenders felt they could use a similar kind of technique to figure out what the credit risk was on lending to borrowers who did not qualify for prime mortgages. Also, in the subprime market, more than half of the loans were made by independent mortgage brokers who are not supervised at the federal level, like banks and thrifts were, and this was also a period in which there were guidelines about increasing home ownership for low- and moderate-income families. Everyone from the government-sponsored enterprises, that is Fannie and Freddie, to private lenders had goals for those who wanted to push more finance to those kinds of borrowers. Also, the real estate appraisers were captives of the mortgage companies, so they did not provide any independent check on creditworthiness. So, again, shifting the composition of lending toward the marginal borrower is the third suspect.

Let's move to suspect number four: incentive problems in the securitization model, or what some call the "originate and distribute model." In the old days, if you got a mortgage, you probably got it from a savings and loan that checked your eligibility to borrow, gave you the loan, held the loan until maturity or until you paid it off, and took all the credit risk. Nowadays your mortgage is likely to be sold to a third party who will package it with other mortgages and then issue some kind of mortgage-backed security. These could be simple mortgage-backed securities (so-called plain vanilla ones) or they could be very complex ones where those mortgage securities are also pooled with other kinds of asset-backed securities, and the payments are split into various tranches, and various ratings are given to these tranches. The idea was that securitization was a good thing because it would increase the supply of mortgage finance and it would also in the process funnel the risk to those institutions that could best bear that risk so it would enhance financial stability.

As we now know, that did not happen in the subprime case. If you look at the originator, he might get a flat fee for each mortgage contract that he completed, he might get an extra payment if he steered you toward a particularly high-interest variety or one of the more exotic types of subprime mortgages, and he might not be liable if you were delinquent on that mortgage unless you couldn't pay in the first month or two. After that, he would have already gotten rid of it, someone else had it, and he wasn't really responsible. So the originator didn't have much "skin in the game." But then you might say, "Well, that's okay. If he didn't have much skin in the game, and he didn't check very carefully, surely the individual institution that purchased those securities would check and they would provide the discipline." Well, again, not so in this case. Some of the purchasers of these securities didn't understand what they were buying, the documentation was not very good, and these securities are very difficult to price because they have a complicated pay-off structure. The buyer was probably told, "Well, look, if this sounds kind of complicated, you shouldn't worry because you don't need to understand all the details of how this security is put together; the credit-rating agencies are doing that job for you. These are rated, and the tier that I am going to sell you is triple-A rated, just like triple-A corporate bonds. If you are still worried that perhaps the borrower won't be able to pay, you needn't worry too much because we can enhance the creditworthiness of this, we will get insurance—credit insurance from the Monoline insurers, or we can buy insurance against default in the default swap market."

Sherman Katz: What are Monoline insurers?

Morris Goldstein: These are insurance companies who used to provide insurance for state municipal bonds in case the state wasn't able to pay. When they saw that structured finance and complex mortgage-backed securities were growing rapidly, they decided to get into that business as well, and they provided insurance against default in this market. The problem was, though, that once delinquency started to rise in the subprime market, these enhancements didn't hold up because the insurers didn't have enough capital to handle defaults of this magnitude, and the credit premium that you had to pay in the credit-default swap market went way up and trading stopped. Indices that give the prices of these kinds of securities fell dramatically. So, in short, the promise of securitization and of the so-called originate and distribute model didn't work as advertised.

On the distribution side, a lot of these securities were put in off-balance sheet in special vehicles called special investment vehicles, SIVs or conduits, and there were attractions for those as well. If the lenders put these in off-balance sheet entities, they would face a lower capital charge than if they kept them on balance sheet. Also, some of those vehicles borrowed very short term; they invested in medium-term securities (with a seven-year maturity or whatever), and they financed it with very short-run paper. But when the delinquencies happened, people started to look more carefully into the makeup of these securities and they lost confidence. The SIVs and conduits couldn't fund themselves anymore, and the parents who created these off-balance sheet entities couldn't let them fail either because they had reputational risks to consider: They were worried that failure would reflect badly on the parent bank or investment bank, and therefore they would take these assets back on their balance sheets. So it wasn't just the originate side of it, it was also the distributive side of it that was flawed, and it didn't really produce what was promised.

Suspect number five: the poor performance of the credit rating agencies. As I just indicated, they rated these mortgage backed securities as triple-A, the securities that have the lowest default probabilities, and in the end it turned out that they had much higher default probabilities than suggested by a triple-A rating. What went wrong? Again there were incentive problems: It turned out that the credit rating agencies were heavily into the consulting business when it came to these structured products, so that a firm like Moody's made much of its revenues in 2005 and 2006 from consulting on structured products.

Sherman Katz: Consulting with the very entities that would later ask them to rate their securities?

Morris Goldstein: That's right. In fact, one part of the firm would provide the consulting on how to design these structured products in a way that would get them a high rating. Then another part of the rating firm would come and look at those products and give them the rating that the consulting part had suggested that they would get if they designed them in this way. So we didn't really have an independent credit assessment from the credit rating agencies. Also, there was a lot of criticism about the fact that in trying to model what the default probabilities were, the rating agencies looked at a period when interest rates were low and housing prices were rising and extrapolated forward, that is, they didn't really do enough stress testing to see how robust the default possibilities were. There are also criticisms that credit rating agencies are subject to rating shopping: The issuers pay for ratings, and if they don't like the rating at one of the major agencies or if there is some analyst at one of these agencies who doesn't give them the rating they like or the review that they would like, they should shop around until they get someone else who can give them a better rating or review.

Last but not least, suspect number six: Financial regulation was weaker than it should or could have been in a number of respects. There was no rigorous enforcement of disclosure and transparency rules in the mortgage origination market, so people didn't always know what they were buying. We don't have any federal regulator that covers all of that business. More could have been done through the Truth in Lending Act but it wasn't. The Federal Reserve also is the regulator of bank holding companies, which cover most of the large US commercial banks. But again, the Fed apparently wasn't very activist in monitoring concentration risk—how much of the portfolio was put into housing and mortgage related loans. Part of that may reflect the fact that the Fed chairman of the time, Chairman Greenspan, publicly stated his view that regulators don't have a better knowledge of what is a good loan or a bad loan than loan officers at the banks and therefore shouldn't be second guessing. So the latter were not very activist.

Then there is a more general and far reaching argument that the regulatory community didn't use the period since LTCM in 1998 to improve the regulatory infrastructure. A few examples: They didn't design or enact prompt corrective action or orderly closure rules for investment banks, so there wasn't an insolvency framework when Bear Stearns got into trouble in mid March; They didn't enact tough enough liquidity requirements for commercial banks or investment banks; There is no quantitative liquidity requirements for US banks; they didn't make the bank capital regime countercyclical, they didn't make bank capital requirements high enough, and they didn't scrutinize the internal models of these banks carefully enough.

Sherman Katz: Let me interrupt you for an example of a countercyclical requirement.

Morris Goldstein: If bank capital requirements are the same in the upswing and downswing of the cycle, then you can get something that's procyclical, because in the downward part of the cycle, firms' credit ratings go down, and credit ratings are one of the things used as risk weights for regulating bank capital. To make it countercyclical, what you'd want is the capital requirements to be higher in the upswing of the cycle and then lower in the downswing. One way to do that is to make the capital requirement a function not only of the level of bank assets but also of the change in bank assets. That way, when bank assets are changing positively, in the upswing you would have to have more capital, and when they are declining, in the downswing you would need less capital.

Going further, the regulators didn't enact systemic safeguards in the huge over-the-counter derivatives market. They didn't make Wall Street pay schemes part of risk management and reward firms that had deferred compensation plans. And finally, it is argued that US regulators didn't do enough to discourage home foreclosures.

At least that's the story and the six suspects. It's my synthesis of views on how we got into the crisis.

Sherman Katz: And then in the event itself, which blew up in our faces in a matter of a few days it seemed, what actually happened on the ground?

Morris Goldstein: The credit crisis broke out in the summer of 2007. Originally, the expectation was that this could be contained at moderate cost. After all, subprime mortgages even then only represented 14 percent of the stock of total US mortgages. Fed Chairman Bernanke, for example, in July 2007 offered the estimate that credit losses in the subprime market would probably wind up being $50 billion to $100 billion. As we now know, the crisis turned out to be wider, deeper, and more damaging than originally thought. Let me just mention some of the indicators.

We are now up to over $100 billion worldwide in realized losses by financial institutions on just their subprime exposure. If we go to total projected losses on subprime exposure, the figure jumps to $200 to $400 billion. If we look at all US mortgages, prime and subprime, then we are up to $500 billion to $600 billion. If we then add in commercial real estate, credit cards, autos, student loans, corporate loans, and if we also include losses by hedge funds, insurance and finance companies, and mutual and pension funds, then we are going to get up to a figure from $600 billion to over a trillion dollars. The IMF recently made an estimate of total projected losses; it was about $950 billion.

Write downs by financial institutions worldwide are now in the neighborhood of $300 billion to $360 billion, so somewhere between a third to a half of what some analysts think will be the ultimate loss has been written off so far. We have also seen financial institutions that are under pressure have to raise about $200 billion in capital, roughly $40 billion to $50 billion of which has come from sovereign wealth funds.

Some analysts have gone further and tried to translate these estimated credit losses in financial institutions into estimated declines in their lending and in turn into declines in US economic growth. One widely sighted study estimates that if you were to have $200 billion of credit losses at US leveraged financial institutions, US economic growth would fall by about 125 basis points.

You may have heard claims that this credit crisis is the worst US crisis in the postwar period or even since the Great Depression, but if you look at what has happened to real economic activity in the United States, at least so far, I think you would be hard pressed to prove that claim.

Sherman Katz: When you talk about real economic activity, you are distinguishing the financial sector from the rest of the economy.

Morris Goldstein: That's right, Sherman. Since World War II, we have had 10 recessions in the United States. They have had an average duration of ten months and average real GDP decline of 1.8 percent and a peak monthly unemployment rate of 7.6 percent. We are not close to any of those benchmarks as of yet.

A second characteristic of the crisis is the unusual behavior of liquidity and credit spreads. It doesn't matter whether you look at the differences in yields between those on US treasuries and those on Libor, you look at the spread on jumbo mortgages relative to conventional ones, or spreads on municipal bonds vis-à-vis treasuries, or yields on asset-backed securities, or credit default spreads. What you have observed over the last eight to ten months is that these indicators of liquidity and credit risk have been very volatile, and at times the level of those spreads has been higher than anything we have seen over the past decade. In the United States, those spreads went way up in August and September of 2007; they then declined before widening sharply in November and December of 2007; then they declined again before surging in March; then they went down again and in the last few weeks they have moved up again. The spreads are still not down to precrisis levels. We have also seen a mass of flight … quality, with the yields on three months US treasuries at one point going lower than we have seen in the last 50 years.

One of the notable aspects of the behavior of spreads is that the widening has occurred across a wide spectrum of assets and so people ask, "Well how could that happen from something that seemed so localized at the beginning?" I would say there are three explanations for that. One is that a very wide spectrum of investors purchased these subprime securities:

banks, insurance companies, hedge funds, etc. European banks, in particular, bought just about as many as US banks, and so these widespread purchases led to contagion around the globe.

Sherman Katz: Is it usual or unusual for European banks to participate in the market for US securities to the same extent as a US bank?

Morris Goldstein: It is unusual; again, I think it is a reflection of how widespread the search for yield was during this period, and people got caught up in what seemed like very attractive securities. A second reason for contagion is that subprime securities served as the instrument for what I have called in another context a “wake-up call”: When difficulties surfaced in the subprime market, many investors took this a signal to reassess risk more widely. As I mentioned earlier, we had a compression of spreads that lasted for many years and we had a real orgy of risk taking. Subprime was the wake up call and then people reassessed risk on a whole spectrum of securities and so those yields went up across the board and that also contributed to contagion. Third, there are many layers of interdependencies in financial markets, so that if one sector has trouble, then you get contagion going from that sector to other sectors that are connected with it. Those three things together tell a story about how the US subprime crisis was transformed into a more global crisis. One place where the contagion has not so far been revealed is in the emerging market bonds and equities; the spread on emerging market bonds is up roughly 100 basis points from precrisis levels, but that’s much less than we have seen in earlier crises. Similarly, emerging market equities have done pretty well.

Sherman Katz: Tell us what the response by policymakers has been and give us your comments and critique about whether it has been adequate and what else needs to be done.

Morris Goldstein: Okay, let’s talk a little bit about what the crisis management strategy has been. I think it has five elements and four of those were nicely outlined in a recent speech by New York Fed president Tim Geithner. First, we have had a macroeconomic stimulus: 325 basis points of federal funds reduction, along with a $160 billion fiscal expansion package which has been passed by the Congress. The aim was to cushion the real economy and keep it from feeding back negatively on the financial sector. This is sensible.

The second element has been large scale liquidity injections by central banks in the United States, in the eurozone, in the United Kingdom, and in some other countries. The aim is to minimize panic selling and contagion and to keep illiquidity problems from exacerbating insolvency problems; again, a sensible thing to do.

Element number three is repairing the financial system by attracting capital injections into weak institutions and by increasing transparency and disclosure. The aim here is to prevent a contraction of balance sheets and lending in financial institutions and to reduce uncertainties about who is and who is not creditworthy, a warranted thing to do.

Fourth, targeted assistance to the housing sector, the aim of which is to reduce the size and scope of the foreclosure problem and, in so doing, reduce downward pressure on housing prices. This is more controversial, but given the fact that US home foreclosures are scheduled to hit about 2 million units this year, way up from the 650,000 annual rate of only a few years ago, I think something needed to be done to cushion that problem.

Fifth element, and the most recent: the beginning of regulatory forbearance, particularly reducing capital requirements for Fannie and Freddie. The aim is to provide support to the weak mortgage market. I can see why that was done by the US authorities, but I am somewhat more nervous about this one simply because Fannie and Freddie have suffered large losses recently on their lending and because they had serious accounting problems a few years ago. That's why higher capital requirements were put in place and so we are going to need much firmer regulation of Fannie and Freddie if we are going to increase the scale of their operations.

Now some people argue, "Well, the federal authorities are running out of bullets. They have done a number of things and there isn't much more that they can do." I disagree with that. If one believes US Treasury Secretary Paulson when he says that he will do whatever it takes to maintain financial stability, then there are a lot of things they could still do: They could reduce the federal funds rate and the discount rate further. They could persuade the US Congress to enact the second fiscal stimulus package. After all, some are arguing that world oil prices are up so much that it has really blunted the impact of the first fiscal stimulus package.

Sherman Katz: Are you saying on these first two that they should happen?

Morris Goldstein: One has to play it according to the data that are coming in. For example, on further reductions in the Fed's funds rate, there is also an inflation risk, as some members of the Fed have recently been signaling. So I think they are going to have to "walk a line" to see where the balance of risk lies—be it the weak economy or the inflation risk. They could also expand further the size, duration, collateral, and the list of counterparties for Fed liquidity assistance. They could arrange more shotgun weddings to strengthen weak financial institutions. They could encourage distressed institutions to reduce dividends and to raise more capital from abroad, including from sovereign wealth funds. They could reduce regulatory capital ratios for banks and securities houses. They could temporarily suspend fair value accounting. They could make wholesale purchases of mortgage-backed securities. They could provide much larger federal assistance to troubled homeowners and they could even nationalize a few weak institutions (like the United Kingdom did with Northern Rock) if they had to. I think they don't want to do most of those things. I think these things won't happen unless things get worse. But there are bullets left.

On what could be done on reform, in the last few months we have seen the reports from the various regulators, including from the President's Working Group on Financial Markets, the Financial Stability Forum, the report from the senior bank supervisors, and the US Treasury's 220 page blueprint. I think some of the recommendations in those reports are useful; most of them at least go in the right direction. But if I look at them as a group, they are disappointing. I think they are too timid. I think they pay too little attention to some key vulnerabilities revealed during the crisis. I think they lean too much on principles and not enough on rules and specific benchmarks.

Sherman Katz: What vulnerabilities in particular?

Morris Goldstein: Well, I am going to talk in a minute about investment banks and some of the risks associated with them. I am also going to talk about liquidity and about Wall Street compensation. There are some other things too that were revealed by the events that are not treated adequately in these reports. I think the official reports rely too much on self-regulation. We also need firmer regulation from the authorities. Since it takes a program to beat a program, let me offer my ten recommendations. The first couple I will go through in some detail and then the others—for reasons of time—I will just mention.

Reform number one: We need prompt corrective action and an orderly closure rule for large, systemically important investment banks, along the lines of what we have for commercial banks in the 1991 Federal Deposit Insurance Corporation Improvement Act, the FDICIA. The principle that guides bank regulation in the United States is that the failure of a bank would be much more damaging for the economy as a whole than the failure of a nonbank. Well, as time has gone by, it has become harder and harder to defend that principle. Nonbanks now provide a larger share of financial intermediation in the United States than banks. Nonbanks are very larger players in the derivative markets. In short, some large nonbanks have become "special" even if they don't have deposit insurance. Regulators have shown that they are not prepared to place a systemically important investment bank or hedge fund into Chapter 11 bankruptcy. If you don't have a framework of what to do when one of these gets into trouble, then you have two very unpleasant options as we saw in the Bear Stearns case. One option is to place it in Chapter 11 bankruptcy, but then you have creditor stays and a lot of other things that potentially could be destructive for those markets.

Option B is that you can provide large scale public assistance in an effort to rescue the institution, but the terms may not be favorable to US taxpayers. So what you want to have is another option that allows you to close the bank and transfer it to an official. We now can do that (under FDICIA) with commercial banks. We transfer it to the FDIC and the

FDIC has quite a lot of options on how to resolve the situation (so long as it does it at the least cost to the deposit insurance fund). One advantage of that procedure is that creditors have no legal standing once it goes into this official receivership; they are not represented in the administration process, and they don't approve anything.

Also, you have the option of setting up a temporary national bridge bank. The temporary national bridge bank maintains all the functions of the old bank. The management is changed, the shareholders are docked, but you can carry out all the functions of the old bank so you don't get chaos. Also, you can pay off the creditors not at par value but at the estimated recovery value of those assets. That's very important for avoiding moral hazard. That's the kind of framework we ought to have for large investment banks. We don't have it and in view of the Bear Stearns case, we ought to try to get it.

Reform number two: We need an international agreement on liquidity standards for banks and large investment banks. Much of this crisis has been about liquidity. If you look at what's been happening over the past several decades, you see that banks now hold fewer liquid assets. It used to be the case in some G7 countries that a third of the assets of banks were held in US treasuries, but now they are a much smaller proportion of total bank assets. Broker dealers get almost all their liquidity on their liability side by short-term, collateralized borrowing. All that works fine most of the time, but if you get into a crisis and creditors won't lend you money even if secured by collateral, then you cannot do anything, and you don't have your own liquid assets to fall back on. What we have seen in this crisis is three failings of existing liquidity arrangements: First of all, even collateralized borrowing against investment-grade securities may not be available; Second, banks can hoard liquidity because they don't know how much they will need themselves and they don't know which of their counterparties are creditworthy; and third, you can get central banks to compensate for all this by offering market participants access to their own liquidity facilities, but the more they do it and the longer they do it, the more you undermine the incentives for these institutions to hold enough of their own liquidity.

I recently did an op-ed in the *Financial Times* where I put forward my own liquidity crisis management proposal. What I suggested in my op-ed is that we need a quantitative minimum for regulatory liquidity. It should give a large weight to treasuries, which, after all, proved to be the most liquid asset in the crisis. We should also penalize short-term borrowing relative to longer-term financing. We can come up with a formula to do that. Second, we need to have a pool that the large players can put liquidity in. They can take out what they put in, immediately and without challenge. Other members of the pool will have a precommitment—as a condition to membership—to lend them their excess liquidity against investment-grade collateral. So we won't run into the Bear Stearns problem where you can't borrow even on investment-grade collateral. Third, we should keep all the liquidity facilities that have been established by the Fed and other central banks in this crisis, but these should be the third line of defense not the first. We want these institutions to use their own liquidity, then we want them to borrow from other members of the private sector (for example, using these pools), and then if that doesn't work, they can go to the Fed.

Sherman Katz: Because of time, why don't you tick off the eight other areas on your list?

Morris Goldstein: Okay. Reform number three: We are going to have to rework thoroughly the bank capital regime, which is called Basel II. We are going to have to rework it so that we have higher capital requirements for banks, so that the regime becomes countercyclical instead of procyclical, and so that we don't rely on banks' internal models.

Reform number four: We are going to have to reform the credit rating agencies; in particular, we are going to have to eliminate conflicts of interest. I think the best way to do that is to separate the rating business from the consulting business, much as we did with the accounting industry after Enron.

Reform number five: We need improved coordination between the monetary authorities and the regulatory authorities. Both of them cannot say simultaneously that it's not their business to identify and prick asset price bubbles. If the monetary authorities don't want to lean against the wind when housing prices are going over and/or equity prices are going up in a way that's hard to explain that problem with fundamentals, well then the regulatory authorities are going to have to tackle that.

Reform number six: We need to change Wall Street compensation. This is not about how much people on Wall Street are paid but rather how they are paid. What we need are deferred compensation plans, so that if you make a big bonus in year one but then it turns out that the bet you made was very risky and you wound up with big losses in years two and three, you don't get a big bonus in one and zero bonuses the next years. You have a "claw back" element that makes the incentives for risk-taking more symmetrical. Also, the firms that defer compensation plans should get a benefit in terms of a lower capital charge in the bank capital regime. Otherwise they won't do it because they will lose employees to other firms.

Reform number seven: We need to change the over-the-counter derivative markets function to make them safer. The way to do that is to establish clearing houses that have deeper pockets than counterparties so that if some participant fails, it is not a disaster. We also need better mark-to-market accounting and better margin requirements. We should either establish clearing houses in the OTC market or we should have incentives for making more of the trading go to the organized exchanges.

Reform number eight: We need to improve incentives in the originate and distribute model by requiring originators and packagers to have "skin in the game." They can do this either by taking a slice of whatever assets they're marketing, or we can increase the legal liability so that if they are not up front about what the risks are, they face an increased liability.

Reform number nine: We need to rationalize the US regulatory structure along the lines of the recent US Treasury report. We don't need five regulators for US banks and thrifts; we can get down to three: a market-stability regulator, a prudential regulator, and a business-conduct regulator. However, investment banks and securities houses should be under the prudential regulator and not under the business-conduct regulator as the US Treasury originally suggested.

Reform number ten: Last but not least, we need to do something to reduce the prospective number of home foreclosures in the United States. There is a combination of things we could do here. We need a better disclosure template for home mortgages. We should have a federal regulator for home mortgage originations since it's such an important investment for most families. We need a code of conduct for real estate appraisers along the lines of what Attorney General Cuomo has been doing in New York State. We need passage of the Dodd–Frank legislation on federal guarantees for mortgages, and some type of recovery lease program that allows people who are having difficulty to stay in their homes. So that's my reform package.

Sherman Katz: Often we hear that it takes a crisis to get major changes like these accomplished. What's your prognosis, briefly, of the outlook? Do you think that probably not this year, as it is an election year, but maybe between 2009 and 2010 we can get some significant parts of this program accomplished?

Morris Goldstein: I certainly hope so. We are starting to get the beginnings of regulatory reform. But frankly I am worried that if we have a quick recovery from the crisis, which of course would be good on other grounds, the fear will dissipate, and we will go back to the same old procedures. So I hope people are at least frightened enough by this crisis to enact some meaningful regulatory reform, and I hope that we will see that, at the very latest, next year.

Sherman Katz: Morris Goldstein, thank you very much for reviewing this complex area in less than an hour.