The Future of Financial Regulation

John Morley and Roberta Romano, Editors

Abstract

This is an edited transcript of the proceedings of the Yale Law School Center for the Study of Corporate Law's Weil, Gotshal & Manges Roundtable on the Future of Financial Regulation, which was held on February 13, 2009. The roundtable was jointly sponsored with the *Yale Journal on Regulation,* and brought together academics from finance, economics and law to discuss causes and solutions for the ongoing financial crisis.

The roundtable consisted of four panel sessions. The first session examined "Crisis Origins and Historical Comparisons." Panelists were Charles Calomiris, Henry Kaufman Professor of Financial Institutions, Columbia University Graduate School of Business; John Geanakoplos, James Tobin Professor of Economics, Yale University; Anil Kashyap, Edward Eagle Brown Professor of Economics and Finance, University of Chicago Booth School of Business; Andrew Metrick, Theodore Nierenberg Professor of Corporate Governance and Professor of Finance, Yale School of Management; and Frank Partnoy, George E. Barrett Professor of Law and Finance, University of San Diego School of Law. Roberta Romano, Oscar M. Ruebhausen Professor of Law and Center Director, moderated.

The second session analyzed "Causes of the Crisis: Conflicts, Compensation and Reputation." Panelists were Sanjai Bhagat, Professor of Finance, University of Colorado at Boulder Leeds School of Business; Edward J. Kane, James F. Cleary Professor of Finance, Boston College; Jonathan R. Macey, Deputy Dean and Sam Harris Professor of Corporate Law, Corporate Finance and Securities Law, Yale Law School; and Steven L. Schwarcz, Stanley A. Star Professor of Law & Business, Duke University School of Law. The panel was moderated by Richard Brooks, Professor of Law, Yale Law School.

The third session considered "Reforming Financial Institution Regulation." Panelists were Lucian A. Bebchuk, William J. Friedman and Alicia Townsend Friedman Professor of Law, Economics and Finance, Harvard Law School; John C. Coates, John F. Cogan Jr. Professor of Law and Economics, Harvard Law School; Richard J. Herring, Jacob Safra Professor of International Banking, Professor of Finance and Co-Director, Wharton Financial Institutions Center, University of Pennsylvania Wharton School; and Geoffrey P. Miller, Stuyvesant P. Comfort Professor of Law and Director, Center for the Study of Central Banks and Financial Institutions, New York University Law School. Melanie L. Fein, Esq., moderated.

The fourth session focused on "Reforming Subprime Mortgages." Panelists were William N. Goetzmann, Edwin J. Beinecke Professor of Finance and Management Studies and Director of the International Center for Finance, Yale School of Management; Susan P. Koniak, Professor of Law, Boston University School of Law; Christopher Mayer, Senior Vice Dean and Paul Milstein Professor of Real Estate, Columbia University Graduate School of Business; and Susan M. Wachter, Richard B. Worley Professor of Financial Management and Professor of Real Estate, Finance and City and Regional Planning, University of Pennsylvania Wharton School. The moderator was Ian Ayres, William K. Townsend Professor of Law, Yale Law School.

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Editors' Note

This transcript of the proceedings of the Weil Gotshal & Manges Roundtable on the Future of Financial Regulation makes available to a wider audience the roundtable discussion on the causes of the evolving subprime mortgage crisis, following credit crunch and financial panic of 2007-08, the government reaction to the crisis and proposed solutions for regulating financial institutions and mortgage contracts. The transcript has been edited by the speakers and editors to clarify and correct occasional grammatical and transcription errors, in order to facilitate readers' following of the discussion. The video recording of the panel discussions, from which the transcription was derived, can be viewed on the Yale Law School Center for the Study of Corporate Law's webpage archiving the event at http://www.law.yale.edu/cbl/roundtables.htm#February_13_2009

The roundtable marked the occasion of the Corporate Law Center's tenth anniversary. The editors would like to thank the Center's founder and Advisory Board chairman, Robert Todd Lang, of Weil, Gotshal & Manges LLP, and a member of the Yale Law School class of 1947, without whose support and inspiration the roundtable would not have been possible.

Alphabetical List of Speakers and Moderators

Ian Ayres, Yale Law School (Session 4)
Lucian A. Bebchuk, Harvard Law School (Session 3)
Sanjai Bhagat, University of Colorado at Boulder Leeds School of Business (Session 2)
Richard Brooks, Yale Law School (Session 2)
Charles Calomiris, Columbia University Graduate School of Business (Session 1)
John C. Coates, Harvard Law School (Session 3)
Melanie Fein, Esq. (Session 3)
John Geanakoplos, Yale University (Session 1)
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Frank Partnoy, University of San Diego School of Law (Session 1)
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Steven L. Schwarcz, Duke University School of Law (Session 2)
Susan M. Wachter, University of Pennsylvania Wharton School (Session 4)

Session I: Crisis Origins and Historical Comparisons

ROMANO: I'd like to welcome everyone. Dean Harold Koh of the Law School regrettably is not here today. So, I'm going to do a brief welcome. I'm Roberta Romano, the Director of the Yale Law School Center for the Study of Corporate Law, which in conjunction with the Yale Journal on Regulation is hosting our Weil, Gotshal & Manges Roundtable on the Future of Financial Regulation. We do want to keep on schedule, so I'm not going to do an extended welcome as a Dean would do. But I do want to do one thing, which is to say that this is the tenth anniversary of the Center. I want to thank the two people who are here in our audience who are responsible for the Center's establishment, and they are Todd Lang and former Yale Law School Dean Anthony Kronman. Following conversations with then Dean Kronman, Todd decided to support the creation of the Center, which was the first of its kind in the United States.. Not only did Todd and Tony support this initiative, but Todd has continued to support the Center over the past ten years, and for that we are grateful.

Our structure for the day is going to be that panelists in each session are going to take about fifteen minutes for their remarks, and then we're going to have reactions among panelists and questions from the audience. Because the bios are in your materials in the folder, we're not going to go over them, and I'm just going to introduce our speakers by name.

The Yale Journal on Regulation is going to be publishing many of the papers in the sessions in its summer issue. We also are planning to put together an edited transcript of the proceedings. The sessions are also being videoed and will be posted on the Center's website.

With that introduction, then, I'm going to start our first session. Our title is "Crisis Origins and Historical Comparisons." I'm going to just run through the names of my panelists. Charlie Calomiris, the Henry Kaufman Professor of Financial Institutions at Columbia Business School will be our first speaker, followed by John Geanakoplos, the James Tobin Professor of

Economics at Yale. Then Anil Kashyap, the Edward Eagle Brown Professor of Economics and Finance at Chicago's Booth School of Business, followed by Andrew Metrick, Professor of Finance at Yale's School of Management. And then Frank Partnoy, Bartlett Professor at the University of San Diego's Law School. Charlie, take it away.

CALOMIRIS: Thank you. It's a great pleasure to be here. What I want to do in this discussion is to consider what we can learn from the current crisis by holding up an historical mirror to it and seeing its origins and the way it has progressed in that mirror. What about the crisis is old news, something that we recognize, and what about it is new? And then I want to talk very briefly about what the message of all that is for what we should do about the crisis.

So, let me start by pointing out that there actually is a lot that's old. Now, you have to begin with the right frame of comparison. The appropriate frame of comparison comes from looking back historically across the world at crises that have the following common elements: Large credit growth in the banking system, which is also associated with high appreciation of real estate values and ultimately a collapse in real estate values. Taxonomically, that's the genre of crises that we're talking about.

If you look back historically and say, "Do those sorts of crises have something in common," the answer is, "Yes." They have, in terms of their origins, two things in common. That's why I say this is largely old hat. Those are (2) loose monetary policy—you can think of it as very low real interest rates during the boom period—combined with (2) government policies that subsidize the leveraging that helps to promote the real estate boom. And those two elements, as I'll show, are also present in the current crisis. That's the sense in which in origins this is a very typical crisis.

How do we observe those two elements in our current crisis? Very low real fed funds rates from 2002 to 2005, which were unusually low by any standard in Fed history, and

secondly, very, very aggressive public policy actions that our government promoted for the expansion of so-called affordable housing. In case you haven't noticed it, the biggest contributors to the affordable-housing subsidization story, of course, were Fannie Mae and Freddy Mac, who currently hold, although they disguised it in their accounting shamelessly for a very long time, about 1.6 trillion of the 3 trillion outstanding subprime claims outside of the FHA. So, those two things make this a very, very typical crisis.

But there's a new element, because Fannie and Freddy weren't the only ones amassing very large exposures here. A large part of this new element is what I'm going to call a buy-side agency problem. I won't have a long time to talk about it, but I'll just refer you to my paper's discussion. I'll briefly discuss some evidence relating to it. People buying included both banks and other institutional investors. Within the banks, those who bought positions in subprime – remember the banks didn't just originate and then sell their positions – also guaranteed the conduits; they also maintained equity interest in the conduits; and they purchased quite a bit of the debt of their own conduits. The banks themselves had, I think, an internal buy-side agency problem. The people making those decisions were not acting in the interests of their own stockholders. Second, the insurance companies, pension funds, mutual funds, the regulated buy-side institutional investors, had a somewhat different, but related buy-side agency problem. And the point is, all of these people had a strong incentive to pretend that the risk was much lower than they knew it was. I'm arguing that an interesting part of the story that's quite interesting and new is that this was done on purpose, in a sense.

Where does regulation fit into this? This is discussed in my second paper, "Financial Innovation, Regulation and Reform." There is some truth to the view that if everything had been put onto the balance sheets of commercial banks, if that had happened, there would have been more capital to absorb loss because capital standards were stricter for on-balance sheet holdings

of commercial banks. And so a lot of people focus on this arbitrage story. They say, well, investment banks, because they were operating under the Basel 2 standards, rather than the minimum leverage/maximum leverage requirements of commercial banks, they were maintaining much too much debt and, furthermore, the off-balance-sheet conduits of the banks also entailed lower capital ratios. And that's true, but that's not the big story. If all of this had been put on commercial banks' balance sheets, it's true that the capital ratios would have been a little bit higher. But the real problem here was not that we needed that little bit more capital. The real problem was the massive mismeasurement of risk. Even if all the risk had been put on commercial banks' balance sheets, capital still would have been woefully inadequate. So the problem was mainly regulatory mismeasurement of risk, not regulatory arbitrage.

When we think about the propagation of the crisis, meaning how it has continued for so long, I want to emphasize there's a lot that's old hat here. We're used to seeing, once liquidity crises begin, we can get into a bad equilibrium of people scrambling for cash because of liquidity risk and concerns on a forward-looking basis about their exposures in a new kind of environment. Historically we're used to seeing that credit spreads don't just have physical default risks built into them, but they also have huge liquidity risk premiums that explain how the magnitude of spreads get so far beyond any kind of physically reasonable measure of default risk. And we're also used to the fact that while that happens in capital market instruments and bonds, what happens in money market instruments is different; in money markets we see a decline in quantity, not just an increase in spreads. And, again, that's something that we've observed historically. That's also old hat.

What's new, though, is how long this thing has gone on. If you look at historical crises, they're measured in weeks or months. This one is measured now, so far, in about a year-and-a-half and still ticking. So, I think that's a rather stunning development. And I have to say as a

historian of crises, this has been the part that's been so hard for me to have predicted and why I've been overly optimistic, until September, about the duration of the crisis; I was expecting that we would be able to put this behind us by now.

The problem giving rise to this long duration of crisis is that the complexity of these securities has created not just an asymmetric information problem, but also a sort of "which equilibrium are we going to be in" problem. And how exactly are the cash flows going to be distributed given this unprecedented complexity of securities and given our uncertainty about housing prices, which are of huge importance to the pricing of sub-prime instruments? Although we don't have time to talk about why this peculiar complexity exists, I think it is central to why it is taking so long to sort out where the losses are, which is why this crisis is going on for so long.

There are some other interesting novel features. On the good side, we've never had a crisis where we've seen the banking system respond during the crisis by being able to raise significant equity. That tells us that we did a lot of good things involving the deregulation of banks during the 1980's and '90s. Because of the increased diversification of activities, and of risks across regions, in spite of the problems, banks were able to go to the capital markets and raise almost $450 billion by the end of September '08, which is truly remarkable. And, of course, we've also seen something unprecedented, which is the aggressive government intervention in response to the crisis.

What I'm going to do now is show you a couple of graphs and then talk briefly about what this implies if you believe what I told you about what the challenges are for policymakers that will be discussed during the rest of the day. The first thing is, on monetary policy, notice that there are only two periods of protracted negative real interest rates for fed funds, 1975-78, right before the intervention to stop high inflation, and in 2002-2005. Very, very low, and

persistently low, real interest rates. Another way to look at this is – this is from the St. Louis Fed's research – if you had constructed a Taylor Rule for monetary policy in the U.S. to set the fed funds rate, you can see that starting 2002, relative to any Taylor Rule, for any targeted long-term rate of inflation, whether 0 percent, 2 percent, 4 percent – 2 percent is more reasonable – we were persistently and very largely below what that Taylor Rule would have implied for the fed funds rate for the period 2002-2005. Monetary policy was very loose.

What evidence do we have about the forecastability of the risk, the purposeful mismeasurement of risk? I call it the plausible deniability equilibrium – pretending that the risks were much lower than they were. I'm going to show you two slides on that point. First, notice here that CDO issuance is doubling in 2006. And we would be in a very different situation if we hadn't doubled CDO issuance in 2006. Notice, though, that as of December 2005, the five-year retrospective default probability on a Triple B debt issued by a CDO was 20 percent. The five-year default probability on a Triple B corporate as of December 2005 was 2 percent. In other words, people knew that the instruments that they were dealing with had a history of extremely high default, even just looking at it in terms of the facts that were already on the table in 2005.

A second interesting fact relates to the 2001-2002 foreclosure experience and the way it was used to (mis-) model subprime risk. Many of you are familiar with how bad foreclosures have gotten recently, but did you know about 2001 and 2002, when foreclosure rates on subprime were very high? And that's significant, because it was the only time we had a recession that housing prices didn't decline. That meant that we saw very, very low losses on subprime loans, even though we had very high foreclosure rates on subprime loans, which meant we could pretend, based on those data, that the risks were very low on a forward-looking basis. Was it reasonable to believe that housing prices would continue to climb forever, and that the typical recession in the future would have rising, rather than declining house prices, just because

of the 2001-2002 house price experience? Of course not. But that gave statistical plausible deniability to people who wanted to make that assumption, and I think that was a very important part of the story.

This next graph shows you what I meant by liquidity runs, here with respect to commercial paper. You can see it's confined in the middle of 2007 to asset-backed commercial paper. By the time we get over to September of 2008, it's much more general to the whole financial sector's commercial paper, and, of course, the repo problem is related to that period, too. So, in LIBOR spreads and LIBOR flows and repo markets and in commercial paper markets, the liquidity risk has played out in quantity adjustments.

Now, let me talk briefly about what this tells us about solutions. I want to divide that discussion into short-term and long-term questions. In terms of short-term solutions, we're in a very bad equilibrium that is self-reinforcing right now. And unfortunately, the Treasury has recently announced a plan, which, based on my knowledge from talking to sources about what they're planning to do, is not going to be adequate for getting us out of it. The real problem we have right now is a political problem. Doing what's necessary to solve this problem will require raising the asset values of banks and raising the stock prices of banks, and banks are very unpopular. And so what people want to do is talk about consensus, talk about protecting taxpayers, talk about transparency, because that is what the voters demand. And I'm telling you, this is the biggest problem we have right now, because we're not going to get out of this problem with the Treasury's approach, which is going to be to try to play it safe, and piggyback on private market agents. That won't get distressed asset prices bid up to their proper values.

The second question is what kind of long-term regulatory reforms do we need to contemplate? We need to stop talking about the banking regulatory system the way the G30, and Paul Volcker, have been talking about it. They've been saying that we just need to expand the

regulatory safety net to do what we've been doing for commercial banks. Wrong. Commercial bank regulation is broken. It doesn't measure risk properly. Second, agency problems within banks, and moral-hazard problems related to too-big-to-fail expectations, have to be addressed directly. On those topics, I refer you to my paper, "Financial Innovation, Regulation and Reform," that talks about how we can do that. Thank you for your attention.

GEANAKOPLOS: Okay. Rahm Emanuel once said, You never want a serious crisis to go to waste. I think it's true particularly for economic theory. The greatest economic theories have always come after crises. Either they're new theories or you dust off old ones that weren't being paid enough attention beforehand. So, for me, an important thing to do is to find some clear, simple lessons that can change economic theory and hopefully prevent future crises like these. So, the clearest lesson to me, I think, is that the Fed should be managing leverage, not just interest rates. Ever since Irving Fisher everyone talks about the interest rate, as if it was the most important variable in the economy, whether it's the nominal interest rate or the real interest rate. Whenever the economy is going slowly, the press clamors for the Fed to lower interest rates, and the Fed always does lower interest rates. They managed to lower interest rates in December to zero practically. Fortunately, they're not going to be able to lower interest rates any lower than that.

In times of crisis, what I want to argue not just in crises, but a lot of the time, in boom times as well as in crises it's the leverage or the collateral that's much more important than the interest rates. And the Feds should be paying attention to that. As I said, this is a time maybe to dust off old theories. Shakespeare knew this very well four hundred years ago in the Merchant of Venice. Let me remind you in case you need reminding, that the whole play, despite Harold Blooms interpretation, is really about economics and about a loan. Shylock is lending money to Bassanio through Antonio. And they spend a long time, pages and pages negotiating the interest rate and the collateral rate. Well, which did Shakespeare think was more important? How many

of you can remember what the interest rate was? Not even Harold Bloom could remember the interest rate. But everybody remembers the pound of flesh collateral. The interest rate was zero, by the way, which may be why it was so hard to remember. So, by collateral, I mean what you think. If you've got a hundred dollar house and you want to borrow money to buy the house, say you borrow 80, that means the margin is 20 percent. There's the hundred dollar house protecting a loan of 80, so the collateral rate is 125 percent, and for me, the big number is the leverage. With twenty dollars in cash, you can own a hundred dollar asset. So, that ratio of 5, the leverage rate, is more important, I believe, much of the time than the interest rate.

In the standard economic theory, supply and demand determines the interest rate. One equation, one variable. In my theory supply and demand determines leverage as well. Now, it's not that economists have never thought about leverage. They thought about it for a long time and they used the word leverage and people even talk about leverage. But, you know, its never really made its way into economic theory. And the basic reason is, how can one equation, supply and demand, determine two variables, an interest rate and leverage? So, typically, either you ignore default altogether in economic models or behind the scenes you kind of fix leverage and leave it fixed at some constant and then solve for the equilibrium interest rate. Well, the problem is that variation in leverage is, as I said, a critical variable and has a tremendous impact on asset prices. Now, that's also quite contrary to the conventional financial theory that's taught I don't know if Yale's still teaching it, but at almost every business school in the world for the last twenty years, its all no arbitrage, fundamental value, standard theory. Well, if you believe that, you have to think that the reason the stock market fell 40 or 45 percent was because everyone thinks dividends are going to be 45 percent lower in the next 20 years.

Now, another way of looking at the world is that there's a natural buyer theory of price. This is how an economist would look at non financial commodities. You know, people have

different tastes for tomatoes and oranges. As the tomato lovers get richer, the price of tomatoes will go up. Similarly for stocks, there are natural buyers who think the stock might be worth more so, if you think of a continuum with the people who most want to buy the asset at the top and the people who least want to buy it at the bottom, as the people at the top get richer, they're going to be able to buy more of the asset and so this dividing line between buyers and sellers can rise because a smaller group of people with access to more money can afford to buy all the stocks. So, the marginal buyer will have a higher opinion of the stock and the price will be higher. So, you can think of these natural buyers as people differing. In what dimensions do they differ? Well, some people are more risk tolerant than others. Some people are more knowledgeable and sophisticated. Maybe the natural buyers at the top they understand the assets better. They know how to hedge them; they're not as afraid of them because they understand them better. So, of course, they're willing to pay more for them. Maybe they can use them in production. Maybe they get higher utility from the houses and they just like living in them more. Maybe they're just more optimistic. There are many reasons why people might differ in what they're willing to pay for an asset. Its not that they just realize what the fundamental value is and everybody's willing to pay that. They differ. So, the upshot of that is there's no such thing as a right price. It depends on who's got the money.

So, when you've got more leverage, that means maybe you can borrow $90 on the house instead of just $80. That gives people who want to buy houses access to more money. The optimists are going to spend the money buying the assets and the asset prices are going to go up in value. Now, this whole theory turns on more leverage asymmetrically affecting the economy, affecting the price, because it's the people at the top who want to borrow the money. So, more leverage means that they can borrow more easily, so the price goes up. If it was possible to leverage on the downside, if pessimists could leverage, you wouldn't have this asymmetric effect

of leverage. But, it's much harder to sell short than it is in liquid financial instruments if you don't like the asset, basically, you sell it. If you like it, you can borrow tons of money and buy more and more and more of it. At least that was true until lately. So, the leverage cycle is very simple. In normal times or buoyant times there's too much leverage and therefore asset prices are too high. In bad times, there's too little leverage and therefore too low asset prices. And this is a recurring phenomenon. There was one in 1994. That was when Orange County went bankrupt. There was one that ended in 1998 that was when Long-Term Capital Management and emerging markets got crushed in 1998. And now we've got another one, ten years later in 2007-2008. After each of these I wrote a paper about the leverage cycle and no one paid attention the last two times! I'm hoping this time you finally get the message!

So, this last time has been the worst. And why has it been the worst? Charlie talked a little bit about this. Leverage was just dramatically higher this time. If you had a Triple-A mortgage asset, you could borrow 98.4 percent of the value. And that's what the banks did that were buying these assets. That means they were leveraged 100 to 1.6, or 60 to 1. The average leverage across all the 2.5 trillion of so-called toxic mortgage securities was 16 to 1. That means that $150 billion was all you had to put down. You could borrow, and they did borrow the other $2.35 trillion to buy the assets. One-hundred-and-fifty billion dollars isn't very much money. Gates and Buffet by themselves in 2006 could have bought every toxic mortgage security in the entire country by putting their personal cash down and borrowing the other 2.35 trillion. You don't need many wild-eyed optimists at the top to keep the price incredibly high if you can borrow so much money. So, similarly with homes, in 2006, you typically could put 5 percent down, sometimes 0 percent down. You could leverage yourself 20 to 1 or even 99, 100 to 1, buying many homes.

In 2007-08, leverage dramatically fell. In mortgage securities, it's now less than 2 to 1. In homes, if you have a government-guaranteed loan, you can put 20 percent down, it's down to 5 to 1 leverage. And if you can' get one of those government-guaranteed loans, you have to put down much more than that, 25, 40 percent down. If you want to do a co-op in New York, 50, 60 percent down.

Now, just to give you one example. My hedge fund, Ellington Capital Management, after 1998, started to keep track of the margin, the inverse of the leverage, on everything we borrowed. So, you can see that the margin went way up in the 98 crisis. It was 20 percent. It shot up immediately to 40 percent during the crisis; went down again to 20 percent for years; then it dropped to 10 percent for three years. That's leverage of 10 if we wanted to use it. But then margins shot up again dramatically until you can't even borrow on a lot of things. Leverage collapsed.

Asset prices followed suit, rising in the mid 200s, then plummeting as leverage collapsed. Now, these asset prices have real effects. This is an old idea of James Tobin's: if theres trillions of dollars of crummy secondary paper selling at very depressed prices, every investor is going to say to himself, why should I do something new? Why give a new guy a mortgage and take a risk? I can buy these old mortgages at 55 cents on the dollar. Why loan a new guy a hundred dollars, when I can load an old guy, who's probably just as good, $55. So, nothing new is going to happen. That's the principle of Tobin's Q.

Okay. So, this leverage cycle, I just remind you, its not that people are irrational. It's that they're completely rational. When the lenders are feeling safe and were willing to give high leverage, the borrower competition forces them to take on the leverage. If you're running a hedge fund and everyone down the road is getting 20 percent returns because they're leveraged, you can't tell your investors, well, they're just leveraged. You are going to have to leverage yourself to keep up. If you want to buy a big house and all your friends are buying big houses

because they're leveraged and you're going to tell your kids you cant live in a big house, you're going to end up leveraging yourself. So competitive pressures force even the unwilling to follow along. It's not a matter of irrationality. It's not going to be fixed by having people take courses in finance. It's got to be fixed by the Government intervening and managing the leverage cycle. Now, Shakespeare knew this, as I said if you remember the end of the Merchant of Venice. How does it end? It ends with the regulatory authority, the court intervening and not changing the interest rate, not changing the loan, but changing the collateral. It's a pound of flesh, but not a drop of blood. So, that's what we should be doing today.

So, to look at it a little bit more closely, what happens in every leverage cycle? Three things go wrong in the crisis stage: There's scary bad news. That's the uncertainty that's created and that's what's happening to housing. The margins get tightened and then the prices, because the optimistic buyers have to sell. The leverage to optimist buyers gets crushed as the prices fall and there's all these bankruptcies and a lot of the most important players go bankrupt and we have to figure out what were going to do to save them. Three things always happen. We have to deal with those three things.

So, the fourth cause this time, by the way, which was different than before is that the creation of CDS's have not allowed the pessimist to leverage. Right in the very height of the mortgage market, CDS's finally became tradable in big quantities in the mortgage market. And 2005 was the first time CDS's started to be tradable in standardized packages and mortgages. So right at the height of the crisis, all of a sudden the pessimists could leverage their views, so that had a big impact on the market. But I won't have time to talk about that. So, the cure is to undo all these things. Contain the uncertainty by dealing with housing and the foreclosure problem, bring down the margins, and as Charlie was saying, rescue the banks, inject more equity into the people who have gone bankrupt, the ones that you want to save, and be up front about what

you're doing.

So, I don't have time to talk about all of these. I'm only going to talk about the lending facility. Geithner had three things to talk about: what he was going to do about foreclosures they haven't figured it out. What they're going to do about the banks they haven't figured it out. What they're going to do about lending they sort of figured it out, but he couldn't bring himself to say it. So, what I believe that they're trying to do and Charlie alluded to this is they're going to try and lend at much more generous collateral levels to the private sector. On many of these securities, you can't borrow at all. My hedge fund, for example, you just can't borrow. Its not that we don't want to buy these things; we spent all the money we have buying them and we can't borrow any money. We shouldn't have 60 to 1 leverage, but we shouldn't have 1 to 1 leverage either. Something in the middle: two times leverage, three times leverage. The banks aren't willing to make those loans. And if you just give the banks money by giving them lower and lower interest rates, you present them with cash, they're not going to turn around and reduce collateral. Its the collateral that has to be changed. The bank lenders aren't doing it. The Feds can give the banks all the money it wants to. The banks aren't going to do that.

I believe the Fed is going to go directly to the investors and its going to say, You put up the collateral. We're going to let you leverage two or three times to one. Now, my advice to the Fed is if it does that, it had better make margin calls. You know, it can't just lend the money forever. If I buy a hundred dollar security, and the Fed lends me sixty, lets say, the Fed had better be able to say when the price falls to eighty, you've got to put up a little bit more money, the margins going down. If the Fed just lends me sixty forever, then the Fed's going to lose a lot of money. And I'm not even sure they thought that through yet. But anyway, the private sector is perfectly able to deal with lending on margin. And margin calls, they've done that all the time. It's just that nobody's lending now. There are many different ways you can do this lending

maybe Ill talk about it in the question period.

I just want to point out one thing that Charlie alluded to. We've wasted two years not doing anything. It's a shame. It's embarrassing for the academic profession and for the political sphere. I'm ashamed of our country. Look at what happened two years ago to the prices of subprime mortgages this is two years ago. We have the best warning system in the world because we have markets that are so good. Two years ago the prices collapsed on subprime mortgages. Why did they collapse? Because everyone in the market knew that the homeowners were going to be thrown out of their houses and we weren't going to get the money back for their houses. So, they knew then that there were going to be millions of people thrown out on the streets two years ago.

Now, I won't show you the evidence. Nothing had happened yet. These are total losses. At this point, even one-and-a-half years ago, no losses had happened. People weren't on the streets; they were still in their houses. Nothing had gone wrong yet. But the market had figured out this was going to happen. How did the market figure this out? Because if you look at these graphs, you look at different vintages this is their age and you look at different vintages and the losses, you see the oldest vintage, the losses don't happen until 17 months; then another vintage a half year later; they're happening faster; and the 07 vintages, the losses are already piling up. So, there were no losses. There were .2 percent of losses. But the market is so clever people are spending billions of dollars thinking about that. They already realized with almost nothing happening that there were going to be tremendous losses. So, we had this warning system in place and we did nothing for two years. And were still doing nothing. It's time to act.

KASHYAP: Thank you for inviting me, Roberta. This is going to be very different from the last two presentations. I'm going to talk about what happened in Japan. This should scare you. And I'm going to try to make three points. The first point is that for a long time – around, I

don't know, maybe May of 2008 – I had reporters calling me asking, "Aren't we going to look like Japan?" And I would say, "No, no, no." The U.S. has been more sensible and was dealing with things somewhat better. And then the Lehman event happened, and pretty much everything that's happened since Lehman has looked very much like what happened in Japan. In fact, I'd written a book about this, and there's a whole chapter written eight years ago, but it was so long ago I'd forgotten about it. I'd even forgotten that Ben Bernanke wrote the blurb on the back. So the next time I see him, I'm going to go tell him to read Chapter 8. Here's what one learns from Chapter 8.

Japan's acute phase of its crisis started with the failure of a bunch of large institutions. It was unexpected. The thing you might remember is that one of them had built the largest trading floor in the world in the '80s and then it later blew up. Right after that there was a spike in the interbank borrowing rate. The only thing on this slide that happened in Japan that we haven't done, which we have discussed, is fiddling with the accounting to cover up the problems that Japan did. It was unbelievable. They let the banks choose whether they wanted to hold some assets at book prices and other assets at market prices. I'm hoping we never get to that one. We then had a half-hearted recapitalization in Japan, where they basically gave everybody money on the same terms, just like we did. We had an election where the government fell. In Japan, they elected a guy named Obuchi – we elected Obama – and we are now at the second round of the crisis.

So, this is where we are now in the U.S., where we're passing the second round of legislation. In Japan, and this is coming soon, they nationalized some of the banks that they had given money only seven or eight months earlier. And then finally, they did a second round of recapitalization. This brought about my favorite quip in all of this by a guy at the Ministry of Finance. He said, "The crisis will be over in two weeks once this legislation is passed." At that

point, the interbank market kind of cleared itself up a bit, and the spike in interbank rates came down. But the crisis lingered for much, much longer. I just want to show you some numbers to try to give you a sense of the capital condition of the Japanese banks over this episode. All these numbers are in trillions of yen. As a benchmark suppose that they had been forced to have 3 percent capital against their assets, which is the law in the U.S. The last column that is highlighted in yellow shows the difference between the 3 percent amount that they should have had and the true capital that was on their balance sheet. You can see that starting in '97, there was a large positive number that stays all the way until 2005. So, the Japanese banks were pretty seriously undercapitalized for a long, long time, despite the fact that the injections kind of papered over the spike in the interbank market, the effects on the real economy were exacerbated because these capital deficits persisted.

So, one thing that's important to understand is that the reason Japan got better did not actually have that much to do with the first and second wave of capital injections. What really happened was eventually the economy turned itself around and growth resumed, starting in 2003, and continuing for five years. So, Japan had its longest post-war expansion from 2003 or mid-2002 onward. A huge amount of that was externally driven. The red part of the chart shows the contribution of growth coming from exports, and if you've been following the Japanese economy lately, Japan's economy is in a worse free-fall right now than it's ever been. It looks like Japan is going to float into the Pacific.

It's a complete obliteration of the Japanese economy, partly because exports have dried up as the rest of the world economy has slowed. So, if you go back and look at why the Japanese banks actually recovered, it was not so much because of the government capital injection. It really was two things: it was the improvement in the underlying economy, and, eventually, with several years of growth, profitability returned, and then there was a bet that the

Japanese banks had made on the stock market, where they had continued to own shares, and when the stock market started rallying, that contributed to their improvement as well. Retained earnings eventually restored half of the capital the banks needed, and then the gains on stocks restored most of the rest. So, that's how Japan got better.

Now, the key thing in the Japanese case that starts things getting better in 2003, even though they put in money much earlier, was an aggressive plan that I was hoping the Treasury was going to go for this week. There were elements of what Japan did that the Treasury has announced, but it hasn't gone all in. So, what did Japan do? When Mr. Koizumi was elected he brought in Mr. Takenaka, who was an economist and who immediately realized that the banks were largely insolvent and had to be cleaned up. The first thing he proposed was a multi-pronged strategy to try to get the banks to tell the truth about their condition. And then recapitalize the ones that were worth saving. So, he started out doing these inspections where they would get in and actually force the banks to talk about whether or not on a discounted cash flow basis you could expect to get the recovery on a loan.

At that point the interest rates were zero. Once interest rates get to zero, everybody could pay the interest on their loans. So, he couldn't just look at whether they were paying interest – that didn't really help. He began insisting on cross-bank classifications of loans. And I think that's perhaps a part of the stress test. It's very important. In fact, they even had a name for this. There was a particular bank examiner, and when he showed up it was bad news, because your provisions were going to go up because he would say the guy across the street has called this loan non-performing, therefore, he was going to force you to call it non-performing or to provision it as if it was. I think this idea of forcing Wells Fargo to use the valuations for Bank of America and J. P. Morgan Chase and Citi to figure out if the Wells Fargo marks are credible or

not and then doing the same thing for all the others, is exactly the right way to try to get on top of this.

Now they went even further than we'll ever go here. They actually got into public spats with the banks, announcing the fact that the banks were claiming that their conditions were better than what the evaluation said, and that was an important part of shutting down a couple of these things. Then they said we're going to spend the money if we need to, and we're basically going to force you to report these improved business plans, and then we're going to monitor your progress on these. This was the turning point in the Japanese case. It's too early to tell whether the Geithner Plan will achieve this level of transparency and realism. But I think until we go through this, the chances of recovery in the U.S. are zero.

Now, why should you be nervous about the U.S. case? Here are some numbers from September of last year. And these numbers come from the regulatory filings that the banks have to make where the banks are supposed to declare the condition of their assets based on a fair market basis. There are three different categories that can be chosen to describe the quality of an asset. A level one asset is one where there's liquid markets, regular trading – there's no dispute whatsoever about what the price of such an asset would be. Level two means that there's not complete liquidity. There's got to be some judgment used, some models used. Level three means that there's essentially no market price and you're just pricing off of a model. Now, the three parts that I've highlighted there in red are the trading books of J.P. Morgan, Bank of America, and Citi. Between the three of them, they have $2.5 trillion of assets where they admit that there's no liquid prices to be used. I think it's a matter of some judgment as to whether you say it's a Level 2 or a Level 3 asset. But the point is the magnitude is huge, and I think one of the reasons why the market kind of blew raspberries at Geithner the other day was you can't start talking about doing stress tests and saying we got enough money to have the problem contained

unless you can convince people that you've actually looked into the hole and have some reason that you can say you've credibly estimated its size and here's how much money it's going to take. Who knows what these assets are worth? I mean, are their marks off by 3 percent or 20 percent? We can't tell. But the point is there's a huge amount of risk right here.

Here's a different way to slice the data, which is just to allocate both the assets and the commitments to lend to different types of exposures. Real estate and credit cards are two important ones. If you look at the total amount of both assets and commitments to extend credit, it's roughly $16 trillion. Now, to be fair, a lot of loan commitments that are reported are the unused balances on your credit cards, and probably most of the people in this room are never going to go all the way up to the max. But, lots of the people losing their jobs will, and those credit cards will not perform. So I'm not sure whether the credit card part of this is completely right. Nonetheless, if you look at these numbers, about 20 percent of that exposure is related to credit cards; another 20 percent is related to real estate. Again, if you think the marks are off just slightly on these things, the hole that you would have to plug is going to be huge.

So, what do they need to do? Summers had timely, targeted and temporary. I have a thing that I wrote with Doug Diamond and Raghuram Rajan – we said we need four C's – and what are the C's? Comprehensive, clear, cost-effective and credible. What do I mean by that? Comprehensive means that you have to tackle the whole problem and you have to get the banks intermediating again. Clear means people have to understand what the plan is and be able to judge the effectiveness of it. Cost-effective means that you don't just pour money down rat holes and that the taxpayer does not get left holding the bag. I mean, after all we could fix this by just buying everything. We could end this problem. We all might be paying taxes that are four times as high as they would be otherwise for a long time. So cost-effective has to be part of

it. And credible has to mean there's some chance that what you propose could actually be enacted.

Now, how does the Geithner Plan look to me? Well, because of the stress tests, I think, that's the first chance. It's the first time since this whole thing started that there's any possible resolution of this that can be contemplated. Because we might actually be able to say after a month of this what the size of the problem is. I think it's logically inconsistent to say we're putting up $500 billion of this or a trillion of that when you admit you need to do the stress test. That's a problem. You can't say you know you have enough resources if you don't know the size of the problem. What's going to happen on the cost effectiveness front depends on two things: for institutions that will be found to be insolvent – there's certainly going to be some – whether or not the debt holders share any of the losses and whether or not in resolving these institutions you do it in a way that kind of gives the taxpayer any of the upside. And then finally, on the credibility point, I think until you come clean about the magnitude, it's hard to see how anybody can imagine that you're going to have a conversation of sticking to whatever it takes. Thank you.

METRICK: I'm just going to show a few pictures from a work-in-progress paper that I'm doing with my colleague at Yale, Gary Gorton, which as you can see from the title is "The Run on Repo and the Panic of 2007-2008." And I'm going to echo a lot of the things that have been said earlier today. I don't disagree with any of it. Perhaps it will be a slightly different angle that's saying a lot of the same things. I was a student of John Geanakoplos twenty years ago, as a young fresh-faced undergraduate. He was old even then! And so this was a lot of fun for me sitting here hearing him do what he would do in class, which is speak faster and faster as time runs out. But you'll see the quality of education that Yale students are getting is falling over time, because while John gave you a literary antecedent from Shakespeare, mine's going to

be from Frank Capra. And to give a little historical perspective, think about the standard type of bank run that we have in our heads, which comes mostly from "It's a Wonderful Life" where all of a sudden, there was a real shock. Uncle Billy left some money over at the other bank and it was gone. So this bank was possibly insolvent and there was a run. And everybody came in and Jimmie Stewart gave a speech saying, I can't give you your money back, your money is in Bob's house and in Joe's house. That was the collateral. So, the traditional bank run really worked that way, which is banks, to attract money, they got deposits from people, and then they went out and made loans and so in the days before FDIC insurance, your collateral was these loans. And when people got nervous that that collateral was insufficient, they went to the bank and they asked for their money back, but it wasn't possible to give everybody their money back all at once. And what I'm going to talk about today, I hope, is to give people a sense of just how linked we are to these historical crises, which worked along those ways with a real shock, and then a kind of contagion, a run, that often passed from bank to bank. But also talk a bit about the way in which this is different and harder to solve, really. I mean, we know how to solve those old ones. We did largely with FDIC insurance and with deposit insurance in other countries.

We don't really get bank runs on solvent institutions that then spread. We do still have the danger of insolvent institutions. And particularly, we have a danger of things moving out of the traditional banking system and into what you might call the wholesale banking system that we had in this country until everybody decided they were a bank fairly recently. And in the absence of being able to figure out how to fix this, we're in for a very prolonged and serious deleveraging, which is just like a credit crunch or a drop in the money supply, and that's very dangerous for the real economy.

Okay, so that's a big picture of what I'm going to try to do. And what I have here is a bunch of pictures. Here first over the last ten years you can see it happening. The way that a lot

of money gets intermediated in advanced economies these days is through securitization. Historically, it was this bank – the bank needed to attract deposits, and we handed over those deposits to the bank, and then the bank went out and made loans, and your mortgage was held by your bank. In these days, a lot of that doesn't get held by banks, but instead, gets held by John's hedge fund, or by other intermediaries, and often by investment banks, or what we used to call investment banks, or what I'll call broadly wholesale banking. Wholesale banks have the same problem as traditional banks – they have to attract money initially in order to be able to go out and do their business and they are largely attracting that money from institutions.

So everybody has the same problem: where do I park my cash? And if you were a large pension fund or some other institutional investor, you don't want to park your cash just in a checking account at Bank of America. Instead, what you're doing often is parking your cash, in the old days at Bear Stearns or Lehman Brothers or Merrill Lynch, or those types of operations at other banks. And the collateral, instead of being somebody's loan outstanding, was often some of these securities, some of the things that you heard about, some of these things like CDO's and ABS's and other various acronyms. You had specific collateral. This is a market called the repo market. It stands for repurchase agreement. And what would happen in the repo market is you would be a pension fund, you would hand me $100 million, and what you would get is actually a specific piece of collateral, which might be a pool of mortgages, and you would hold onto that. And as John says, there would be a haircut associated with this, so maybe I would have to give you $102 worth of collateral for every $100 of cash that you handed me. And this was my business. And sometimes that collateral didn't even belong to me. It belonged, just like as Jimmy Stewart said, in this person's house and that person's house – someone else had deposited that with me as part of their brokerage operation. They deposited this thing with me, and I "rehypothecated" it to you. I kind of handed it over to you as collateral for the deposits you had

given me. And this is where the money came from at a place like Bear Stearns or Lehman Brothers. They have hundreds and hundreds of billions of dollars of assets on relatively small bases of equity capital. And these pictures that are up here showing you just how much was going on in the mortgage related market, for example, which was almost completely securitized throughout the last ten years, this is a number that's bigger than corporate debt and the treasury market, which we think of as being the debt market.

This is not a tiny market. And another way to see this – this is a ratio of the total assets at broker dealers. We don't have them any more, but we used to. This was Merrill Lynch, Lehman Brothers, Bear Stearns, Goldman Sachs, Morgan Stanley and other smaller ones. As you can see, this is the ratio of their assets to banks' total assets. And it's really kind of growing over time until we hit up around 30 percent at the end of 2007. So a very big part of what we think of as the banking system was no longer this traditional banking system where you would have some kind of specific FDIC insurance, but rather a system that got its money from institutions – kind of a wholesale market – and was collateralizing that by handing over a lot of those securities that we saw in the previous picture, a lot of the mortgage-backed securities – those things were being used for collateral.

Now what's going to happen is we're going into 2007 – this is the world we live in – there's a lot of stuff that's not sitting on bank balance sheets, but is instead working through the securitization market. Much of it, as was said earlier by both John and Charles, much of it is still sitting on the balance sheets of the investment banks. They're intermediating this, but they're holding onto some of it. They're guaranteeing some of it. They have a variety of conduits that are perhaps not on their balance sheet, but should have been because there's an implicit guarantee there. This stuff coursing around has the potential to play a very large role in the wholesale banking system.

We start in 2007 to get a shock. This is the real shock. In historical crises, you might have an idea that suddenly pops into your head to go and take your money out of the bank – there's usually a good reason. Usually there's some macro-economic shock, or at least some local shock that causes us to believe that these banks are insolvent and this can spread. And that shock in this case – and the real shock that continues to exist – is in the housing market. This is a picture of the ABX index that John had talked about before. This is the first 2006 version of it. So, what's very important about the ABX index is it's the very first time people could peer inside and see what was happening in this subprime housing market. Because prior to January of 2006, no one really had any clue or no one had any market clue as to what was going on in the subprime market. You would learn some stuff after the fact. People knew what was going on in their own portfolios. This is actually a market measure. Just think of it as an index – how it's constructed isn't important. Think of it as an index for what's going on in subprime, and this is going up rather than down as in John's picture, because what I have here is spreads. This is basically a spread, how many extra percentage points you had to pay over Treasuries to be in this, rather than a price, which is what John was showing. So, they're inverses. And actually, this does start to creep up. In early 2007, this starts to creep up, so it's prior to when we even started getting a shock in any of the interbank markets, which happened in August of 2007. This starts to creep up a bit, these spreads, and in the middle of 2007, there's really a bit of a shock. There's July of 2007 when it starts going up. And this is a real economic problem. No doubt about it. Banks might have been insolvent, some of them might have been much closer to insolvency than we thought before because they had some of this stuff in their balance sheets.

But then there is a second piece, which is very important and which is making this a hard crisis to contain. This thing at the top, the LIOSS is a very important spread, and a good thing for people to be looking at if they want to know what's going on and whether the crisis is getting

contained. This is the Libor rate ("LI"), minus the spread that is basically what you're getting when you do a swap. It's something like the Treasury rate. So just think of this as like the Libor minus something that's risk free. So, we're just trying to get a spread that tells us how much risk is in the interbank market. So, when Citi Group loans to J.P. Morgan, how much risk do they think is in there? Traditionally, this spread is something very, very close to zero. So, if you see the picture right at the beginning, it just looks like it is zero. In the middle of 2007, in August of 2007, this thing shot up to 40 basis points, half of a percent, which was actually a shockingly high number for historical reasons. This meant that banks were kind of afraid to loan to each other. Now let's discuss why this is important. The other pictures here are what was going on in Triple-A-rated structured asset-backed securities markets, Triple-A-rated student loans, credit cards and auto loans. They move a lot with this spread. This is the stuff that people were using as their collateral. So I am Bear Stearns, I need to have collateral, I'm often handing this Triple-A stuff over. And John had a slide earlier saying I used to be able to borrow 98.5 cents for every 1.5 cents I put up for this. Well, two things start happening – if I ever want to sell this stuff, the price has fallen – that's what these spreads mean. The second is people started wanting more and more collateral from me. So, imagine that you are levered 40 times or 30 times, and what you've been doing mostly is attracting money from people. So I have $3 of equity, $97 worth of liabilities, and thus $100 worth of assets. What I've been doing is borrowing that $97 every single day and putting up $100 worth of assets, because I was allowed to borrow that much on it. Now, all of a sudden, everyone's very reasonable and they're saying, "Look, I'm a little worried that you might be going out of business. Instead of asking you to give me $100 worth of collateral for $97 that I'm loaning you, I want $103 worth of collateral." I don't have that. I only have $100 worth of collateral. If I go to sell the stuff, I can't sell it because the market for it has started to fall off. So, it is the run. We now see a run on this repo market, which is like the

deposit market that we used to see back in "It's a Wonderful Life." We have a collateral shortage. Everybody only wants to see Treasury collateral. They're afraid of all of these structured products. Nobody can borrow based on them. And if your entire business is based on that, just like the business for Jimmy Stewart was making loans for people's houses – if everyone comes in and says give me those houses, you try to sell all those houses at the same time, you're insolvent.

And so, we have two problems: We have a real economic insolvency problem. A lot of the stuff that's on the balance sheets of all these different places is worth less than they're saying it's worth, and it's possibly worth so little that some of these banks are insolvent. The second problem we have is these markets, which really enabled this whole part of the system to function, have just simply broken down, because everyone is nervous about insolvency. They don't know how much these things are actually worth, and the way these things used to be liquid before, which was the repo market, is gone. It's like all of a sudden I can't go to the bank and borrow up to 100 percent of the value of my house. I can't. I can only borrow up to 80 percent of the value of my house. So, a lot of the ways people used to grease the system are just gone.

To fix those two problems, there is a radical solution. As Anil says, something close to buying all of this stuff or shutting down all of these banks that are having problems would fix it. It might be very expensive. But, we could fix it. Tremendously expensive. We do have a political problem, as Charles says. I agree with that completely, which is ultimately this system needs to be recapitalized. Money has to go from my kids and my grandkids to the banks. And some of that money is going to be spent on million dollar commodes, because there's no way to prevent that. Right? I mean, they're going to do stuff with that money that the *New York Times* is going to write about. It's going to seem terrible. But ultimately, unless we recapitalize the system, broadly speaking, we're going to continue to have a problem.

There's one piece of the Geithner Plan, which I first thought was silly and would do nothing, and now I think is ingenious and perhaps may do something, and that is that they're going to try to have this public/private partnership buy stuff from the banks, but one aspect of that is they're going to be providing some kind of guarantee against the really bad outcomes in something bad that you buy from the banks. This basically serves as an implicit subsidy on transactions. This stuff will then be worth more to whoever buys it than it is to the banks. It's like the opposite of a tax. And just as taxes tend to depress trade, a subsidy tends to increase it. So, if you really want to get this stuff off the books of the banks, you kind of have to subsidize the transactions, and then all the private money that could possibly be out there will want to come for this. Why? Because the government, instead of resubsidizing banks, will be subsidizing hedge funds. But it will be invisible. And we will only observe the subsidy if these things actually end up needing the guarantee that the government has provided. So, I'm optimistic that properly put together, it might help a bit. On the other parts of the plan, we just need some detail. I hope that we don't get to the point where we actually have to spend $2 trillion to reconstitute the system. But it could very well get there.

PARTNOY: Thanks, Roberta, for inviting me. The challenge of being the last speaker on the panel about history is that everyone will already have covered everything in history. And so I chose two very obscure topics. And I've been sitting here for an hour hoping that no one would mention them. There were a couple mentions of credit ratings, which made me nervous, and no mention of Ivar Krueger at all, except Andrew turned to me and asked who Ivar Krueger was, at which point I became very confident that I had chosen wisely.

So, I'd like to just make two points about what I view as two of the keys to understanding the crisis, and both of them have strong historical parallels. And so hopefully you'll leave in the next fifteen minutes with at least some understanding of what the historical parallels are. And

these are stories about, first, financial innovation, and second, what I've been calling regulatory licenses. The financial innovation story matches to Ivar Krueger. And this is the dark side of financial innovation. And I was listening to John and agreeing very much with what he said and thinking about the how and the why, the granularity about how this happens and how the leverage increases over time and I'm going to try to tell the story about the dark side of financial innovation from the '20s, and try to persuade you that it matches up very strongly with today. And second, to tell you a story about regulatory licenses, which I've told in some other work starting in the 1970's, a regulatory license being a key that unlocks the financial markets. It's a legal rule that enables someone substantively to comply with law. And I'd like to go back in time, go back to what's old and talk about the 1930's, credit ratings then and regulatory licenses then.

I've been spending the last six years working on this obscure Ivar Krueger topic. I'm going to show you some stuff that's old, which I guess is appropriate for a history panel, right? So, that's old. That's a picture of Ivar Krueger. He has been in the top five financial scandals of all time. The *Financial Times* included him just behind John Law in the Mississippi Scheme and the South Sea Bubble, and yet no one's heard of him. This is a story that tends to skip generationally. I call him the Seabiscut of Financial Markets. And I've got a book coming out on him in April. It's called "*The Match King*." So part of this is just shameless self-promotion. His story basically is about financial innovation from 1922 to 1932 and the development of very complex products. His pitch when he came to the U.S. in 1922 was to raise money in the U.S. capital markets and lend to the starving governments of Europe in exchange for monopolies on the production and sale of matches, which at the time were a widely used staple. And in order to do that, he used progressively complicated structures, some of which I'm going to show you. Most of the people who are interested in Ivar Krueger's story – he was on the front page of the

New York Times and the *Wall Street Journal* everyday in 1932 through 1933, there's a movie done about him, there were a bunch of books in the 1950's – are interested in him as a person, his discovery of Greta Garbo and his playboy lifestyle. I wasn't interested in any of that. Okay, I was a little bit interested in that! But the thing I was even more interested in was the miles, actually miles of documents, including financial statements, cables to his bankers and accountants in the U.S. throughout the '20s and early 1930's that were virtually unexamined, that no one had looked at and tried to piece together. And so that's what I've been doing, and that's a picture there of where I've been. And unless you feel too sorry for me, where these documents are, he's originally from Sweden. And so, these are in a castle in … Sweden. And there are worse places than that.

I just want to show you two pictures. These are sort of then and now kinds of pictures, parallels with the era we're in. So, here's a complicated structure. You see a parent corporation at the top, transactions with a bunch of related entities. On the far right middle, you see a domestic subsidiary corporation linked through transactions to an offshore subsidiary. And you look at this complicated transaction and you say is this old or new – well, here's a new version. You have a financial holding company in the top middle. That might be AIG, Citi, or Lehman. It might even be Enron. You see subsidiaries and related entities, a domestic subsidiary, that might be the broker dealer that Andrew was just talking about in the U.S. And we think of this kind of complicated structure – when you see it, you think, oh, that's today, right? But here's the same picture. And Ivar Krueger invented many of these off-balance sheet transactions, offshore subsidiaries, and the use of special purpose vehicles. He did it through his holding companies and complicated transactions.

Now the second picture. Okay, here's an annual times series of return on equity. Very smooth. Look at how smooth this is, 9 percent, 10 percent, 10 percent – what would Harry

Markopolos say about this annual time series? Well, this is Ivar Krueger. This is Swedish Match's time series from 1923 to 1930. Not coincidentally, it matches Bernie Madoff's time series pretty clearly – just add 70 years. Many bad ideas are old, and have been around for a long time. Here's another picture – reported versus actual profit. Very smooth. This is the actual profit for Krueger. We'll probably see something like this for Madoff at some point; we haven't seen it yet. I did like this one quote from Bernie Madoff's website, which is that, "in an era of faceless organizations he harks back to an earlier era in the financial world." I do think the comparison that's been made to Charles Ponzi and the Ponzi Scheme is a little bit unfair. What now are known as Ponzi schemes were known as Krueger schemes in the 1930's. And Ponzi was really small time, $15 million in a few months. But Krueger's lasted for much longer. So, let's be fair to Bernie Madoff and call it a Krueger Scheme.

And then just one last picture. This could be Dick Fuld – the Wall Street executives swearing in before Congress – but this actually is the stock exchange hearings in 1932, and this is Don Durant, who was the senior person at Lee Higginson, who was the banker for Ivar Krueger. Lee Higginson failed, another historical parallel, same as Lehman, the one bank, a huge, major bulge bracket bank at the time to fail because of the Krueger scheme. And for people who think that the 1933 Act came from the crash, I hope to persuade you that the '33 Act did not come from the crash; it came from Ivar Krueger. The hearings, if you go back and look at them carefully, the stock exchange practices hearings are all about Krueger. They're chock full of testimony from Don Durant, accountants at Price Waterhouse, the accountant from Ernst & Ernst, who didn't see all of this coming. So, that's my pitch for the book.

Story Two is about regulatory licenses and the reputational capital story. This is what academics used to believe: that there was an array of informational intermediaries – on the far left there's a purely government rater, like the USDA, which says this meat is Triple A, and then

on the far right you would see a purely private rater like *Good Housekeeping* or *Financial Publishers*. And the purely private raters would thrive based on reputation. And if they got bad reputations, they would basically explode themselves. Academics believed that they would never engage in nefarious conduct, because they would lose their reputational capital. And many people put S&P and Moody's on that side, on the purely private side of this story, with Rabbis and restaurant guides and that kind of stuff. In fact, in the first article I wrote about credit rating agencies, I used Siskel and Ebert, the old movie raters, the two-thumbs up folks. Here are just a couple of quotes to show you how strongly ingrained this became. Not surprisingly, Moody's and S&P liked this idea. They said we're in the integrity business, to tell it like it is. Ratings are of value only so long as they are credible. And many academics bought this story, and so I'm going to put up one quote, and everybody gets nervous now. Who's this? "Indeed, the only reason the rating agencies are able to charge fees at all is because the public has enough confidence in the integrity of these ratings." Is this Greenspan who is using the "integrity" word. I don't want to get into name-calling or finger-pointing. I don't think that's fair. I'm doing historical work here, so I don't want to say who it is, but – there you go, Jon. Jon's nodding. Jon Macey, you've come a long way. Jon is now one of the leaders of the regulatory license view, which says that S&P and Moody's belong further to the left. Jon has been very eloquent on this topic, and his paper for this conference, which I hope we're going to hear about, will be along those lines.

The one thing I want to add just briefly today is to give you a sense that this is not necessarily that new, that if you go back to the 1920's and 1930's, that the reaction to the crash was this implementation of regulatory licenses. Gustav Osterhaus of the New York Fed decided after the Crash that we needed to have something along the lines of the "stress test" that we're thinking about now, except that then they relied exclusively on credit ratings, and I hope the

government doesn't do that today. But the Fed decided to do this back then by implementing desirability ratings, and they just caught on like fire. And examinations were based on ratings, and states ended up taking on this moniker, deciding which bonds could be held, what were legals and what were illegals based on credit ratings. And then the Fed and the SEC implemented prohibitions later in the 1930's and had capital charges depending on ratings. And I told this story before about it starting in the 1970's, but it really started in the 1930's, and I just want to show you one example of this Treasury comptroller adoption in 1936, because it actually is the first time that a regulation explicitly depends on recognized ratings manuals. And it says at the bottom, not less than two rating manuals, and you can guess which ones those are: that's S&P and Moody's. And I'll skip these – this is just the market. The market response to this at first was this is a terrible mistake and even the comptroller says I didn't mean this, I'm sorry. But it's off to the races at that point. And we have basically a shift in terms of what the function of ratings and ratings agencies was over the last three decades and I might amend Commissioner Paul Atkins' statement to be over the last eight decades that we've had this increase in regulatory reliance on ratings, and that that is increasingly problematic. And the reason for that is that Moody's and S&P can rate these complicated structures Triple A or Triple B and not worry about the reputational consequences if they're wrong. Moody's has a $6 billion market cap today, a third of Citi's market cap, notwithstanding the way it's frittered away all of its reputational capital over recent years. And one reason for that is all of the Federal Agency decisions that depend on NRSRO status.

In the paper I've got some explanation of how CDOs and SIVs and the structures they involved were really motivated by ratings, that you can tell a lot of the story about where this leverage came from by overdependence on ratings and generating false Triple A ratings – and many of you have heard that story before. And so rather than telling you that whole story I want

to close by echoing some of the previous comments that we've heard about where we go next. And I think where we have to go is to move away from dependence on ratings to dependence on market measures. You've seen a number of pictures showing the ABX indices, which are very helpful and showed the crisis beginning in 2006. But we also have credit default contracts based on many of the banks. So, I've got a time series, and eventually I'll put all this together in a paper, but I don't have it ready now. But I wanted to show you at least one picture, which shows Bear Stearns.

We have two regimes we could live in. Regime One is we have a pension fund that has to buy Single A. And so they're going to hold Bear Stearns and they're going to continuously own Bear Stearns. The dotted red line is a Single A rating. The rating agency is just oblivious to what's happening in the market with respect to Bear Stearns. Regime Two is we could have the pension fund investment policy generally depend on spreads, on some kind of a market measure. Well, if you're dependent on market measures, look at when this starts to go up. It's exactly the same as the ABX. People are worried about Bear Stearns immediately after they see the declines in ABX, notwithstanding the fact that Bear Stearns hasn't disclosed much about its off-balance sheet transactions. This is well known in the market. So, just imagine if we had regulation dependent on market prices or market measures. Now the pension fund would have to confront this. And this would have positive *ex-ante* effects as well, because when you make a decision about what to buy, you've got to think about what the actual measures of risk will be later. You've got to think about probability of default; you've got to think about correlation of assets.

Just imagine for a second: if I didn't allow you to ever say Triple A or Triple B again, would the financial market stop functioning? They wouldn't stop functioning. We would figure out other measures. We'd look at probability of default; we'd look at the markets and so I think we need a radically different set of regulations that depends on market measures. I'm not

particularly optimistic that we'll move in that direction, but that's my proposal. And even if you don't remember any of that, here's the cover of the book. The main thing I care about is not even that you read it, but that you buy it, and it will be in book stores pretty soon.

ROMANO: While we're waiting for people to get to the microphone for questions, we're going to give Charlie a little time, and if anyone else wants to say something they may do so as well. But we do want to get to some questions from the floor, too.

CALOMIRIS: What I want to say is not so much contrary to what was said, but really just an addition to some of the things that were said. It's true that historically we've had financial crises going back a long time. We can go back to the year 33 for the first global financial crisis. The Emperor Tiberius bailed out the Roman banks with a very low interest rate loan from the Roman Treasury. We could also talk about securitization interventions by the Mexican government in 1908 to repackage distressed loans so that they could provide liquidity to the banking system. So, believe it or not, these things are very old. But what isn't old is the high frequency and high loss rates associated with financial crises, which are related to the incentive problems that are baked into our regulatory system, and that is new in the U.S. and other countries in the last three decades. For example, in the 1920's it is true that bank asset risk went up substantially as banks increased their loan-to-asset ratios, in New York, for example. But bank equity-to-asset ratios doubled during that period. Leverage was counter-cyclical, not pro-cyclical (as it was recently). And that's a key point about what's different under the distorted incentive systems today.

I agreed very much with what Frank said, and I want to emphasize an implication of this. Changing who pays for ratings is probably irrelevant. Ratings are serving the buy-side very well. That's the problem. It's not that the problem is that the sell-side is paying for the ratings. The problem is the buy-side is getting what they want from the ratings, which is inflated ratings

that are useful precisely because the buy-side's holdings are regulated based on ratings. And finally, I just want to plug two pieces of research. My student, Krista Schwarz, who's on the job market this year, has a very nice paper measuring the contribution of liquidity risk to rising spreads and showing that it's really been dominating spreads' growth, rather than credit risk in the physical sense. And another thing, someone who is not my student, Miguel Segoviano at the IMF, relating to Frank's last point about market information, has shown using so-called cupola models of association of risk across banks CDS, that actually there's a lot of information in CDS spreads for cross-bank exposures, too, not just for average bank exposures. And that shows up only in these fairly fancy models. Correlation doesn't turn out to be very important, because correlation has to do with the second moment, the middle part of the distribution. But these other models that look at high tail events show a lot of association. And the market was getting that right.

ROMANO: We're going to take one question from each side.

MACEY: So, I was going to direct this question to Frank, but Charles alluded to the issue in his answer. So, whoever wants to answer this is fine.

ROMANO: Please identify yourself.

MACEY: Jonathan Macey. My picture was up there earlier. So, here's my question. I agree with everything you said. It seems there's a missing part of the theory, and I don't have an answer. I'm just very interested in whether you have thought about the regulatory model that you describe and the NRSRO designations that you've written about so ably. They explain why issuers need credit ratings despite the fact that the credit ratings may not be very accurate. But they don't explain that nothing is forcing a portfolio manager to buy a Triple B security that's really not very good. I agree with you from the regulatory perspective, but these regulations are necessary, but not sufficient, conditions for somebody to buy the stuff. So, I'm asking you what

you think is going on with respect to the buy-side. And Charles, you alluded to this, of course, when you said, well, this is sort of what the buy-side wants, and I guess if you could tell us a little bit more about that, that would be great.

PARTNOY: Yes, this is a very important question, I think. And there are two things going on. One of them is Charles' agency cost story among the buyers, which has to be part of it. There's a game being played to try to take advantage of the fact that you can get a highly risky Triple B or highly risky Triple A, and get a good bonus, out-perform by 10 basis points or 30 basis points or something like that. But I think there's a second and even more important story, and this is why I tried to go back to the historical piece back in the '30s. There's a behavioral element to this. And I don't know quite how to get my arms around it. But there's a path-dependency story that starts in the '30s when credit ratings become so ingrained in the psyche. They become part of intellectual history, and everyone uses them and depends on them. And there's information asymmetry once you get a burst of financial innovation.

You have to use something, and so people start using them, and even though the ratings are wrong, people can't quite figure out what else to use, what another alternative is. You're absolutely right. It's very alarming to see that even swap documents that are being negotiated today are still using ratings, and the government is still using ratings, even when they know that this stuff is wrong. So the only thing that I can come up with is that there's a behavioral or cultural story, along with the agency costs, that this has just become so deeply enmeshed that you need a kind of shock therapy to get investors out of it. The Council of Institutional Investors is looking at this and trying very hard to wean its clients, the large institutional investors, off of this dependence on ratings. But you're absolutely right that a lot of it is private. This shows just how dangerous a regulatory license is, by just demonstrating how dangerous it is to get the

government involved in this anointing process, because then you have second order path dependent effects. That's the best I can do.

CALOMIRIS: I would say that it's important to recognize that the mechanism for this agency problem is different, whether you're talking inside the banks on the buy-side or outside with the institutional investors. And, let me tell two very quick versions of it. Outside, the story is that as interest rates are falling, asset managers that want to be able to promise a fixed coupon return are susceptible to selling from someone promising to deliver a coupon that remains high (who achieves that by taking on more risk). Those managers use the ratings agency's opinion as a way to trick people into believing that risk is not as high as it is.

But inside the bank, I think, it's a different story. I think bank management at the top had a short-term view (based on their own compensation horizons) and knew that if they rewarded revenue and asset growth in the computation of middle-level managers' bonuses, that would encourage excessive risk taking, and they did this very intentionally at the expense of the stockholders. I think it's the result of the agency problem within banks. Why is the agency problem within banks so severe? Well, not only do we have the Williams Act, not only do we have all the things that make it difficult for stockholders to assert discipline over non-financial companies, but financial companies are service providers. If you have a hostile takeover of a financial company, the best people will just leave. They don't want to be around for that. So, it's a kind of automatic poison pill. And, even more importantly, we have the Bank Holding Company Act, which makes it difficult for somebody who has any controlling interest in a non-financial company to buy a controlling interest in a bank. So, we have designed our regulatory system to make large financial institutions immune to stockholder discipline.

AYRES: I'm Ian Ayres. John, looking into the future, this is a question about how we should regulate the next high end of the leverage cycle. And is it sufficient to cap leverage at,

say, 10 to1 for homeowners? Should we care also about the distribution of leverage? And it seems to me that it's more fragile if everyone is at 10 to 1, and then you have a 20 percent drop in housing prices relative to having some at 20 to 1 and some at 2 to 1, to have more of a distribution, which we had more it seems in the past as people used to amortize out. So, do we need to worry about the distribution of leverage as well as the average?

GEANAKOPLOS: Managing the leverage cycle doesn't just mean managing the crisis. As Ian's basically saying, it is more important to prevent the leverage from getting so high on the high end. An important way to do that is to just make things public. I mean, just as none of you knew that Shylock had a zero percent loan, I bet virtually no one in this room knew what the leverage was on different kinds of mortgage securities that one could get five years ago. I bet it just never occurred to you to ask that question. And even now, if you want to find it out, there's just no way to find it out. You know, the newspapers tell you the interest rate everyday. They don't tell you what the leverage is. I appeared before Bernanke and tried to explain four months ago the leverage cycle and what he should be doing. So, two months after that, that's two months ago, somebody asked me for that graph from the Fed so they could use it. The Fed doesn't even know what leverages are all over the country. They are not even keeping track. They should know every hedge fund's leverage, what margins are being typically asked for every security in the market. Simply getting the stuff public is the first step to regulating it. Then the whole public knows if leverage is going way up or going way down. It's embarrassing if you're over-leveraged. All that should be public. Once that's public, I think a lot will change.

On the high end, it's easy to limit leverage. You just say, you can't be leveraged more than so and so. We're not going to let banks that the government regulatory boards have control over give zero percent mortgages. You can't give 5 percent mortgages. Now, there's going to be, I believe, a distribution anyway. A lot of people don't take out the maximum leverage. So if

you set the maximum leverage at 10 or 20 or 5, not everybody is going to be maximally leveraged. Mortgages do amortize and people don't refinance all the time just to squeeze out the last bit of equity in their house. That was mostly subprime borrowers and stuff like that. But I think if you put the cap at the right level, there will be a distribution below it, and so I'm not that worried about it.

KASHYAP: Can I just add one thing? I'm not as sanguine as John about this. I think there's a fundamental asymmetry. In good times the market fundamentally wants less than the regulators will want. The endogenous response of the market is to want less than whatever the regulation is going to be in the good times. People are optimistic. And then in bad times, they want more. So, it's important to remember that if we cut capital requirements to zero right now, it would make no difference, because the market is completely skeptical as to the credit worthiness. So, that means the regulation to be effective has to bind in good times, but the fact that it binds generates attempts to arbitrage and create SIV's and the whole thing. So, I don't think just publicizing it is nearly so easy, and, in fact, I don't even know how you would define leverage if they've got these legal contracts that say these things can't come back onto the books and then it turns out because of reputational considerations they have to take them. So, I think this is a much tougher problem than John just made it out to be.

GEANAKOPLOS: Could I just respond to that one second? This excuse that it's too hard and therefore we shouldn't do it I think is shameful. That's what they've been saying for years. Oh, how could we do it? Leverage is so complicated. How do they know –

KASHYAP: Just say yes – publicize it.

GEANAKOPLOS: So, you don't want to think about it?

KASHYAP: No, I say publicize it, but don't assume that will fix it.

ROMANO: We're going to go across the room for the next question – this side then.

GLAZER: Michael Glazer, Auctor Advisers, Zagreb, Croatia. It was pointed out that a modern bank run occurs through the repo market. And I'm wondering, we've discussed some of the more dicey structured securities. But I'm wondering if we're seeing this effect in the prime and the corporate securities as well?

CALOMIRIS: The point is the maturity of the debt instrument limits the rate of any run. So, it's the money market instruments. Repos are overnight. Most of the Libor transactions are very short-term. Commercial paper has an average maturity of 30 or 40 days. So, that's why you're seeing it there. And those instruments are designed to be risk intolerant. That's why they have such low maturity, to adjust on quantity rather than on price.

GLAZER: Well, I'm thinking more in terms of the collateral that can be put up for the repos. Are we seeing an increased dislike for even corporates? And according to the repo market, it is shrinking in size, even for corporate.

METRICK: We don't have really good volume data. Actually, I would love to have this data. I have some good data on repo haircuts, which is sort of the stuff that John was talking about, which we got by wheeling and dealing. But I don't have any good data on the volumes. What we do know anecdotally and from some of the spread stuff that we see is that it is only the very highest quality – everybody wants Treasuries as collateral, and Triple A stuff – there's not a lot of Triple A corporates out there. There's sort of GE – maybe not for much longer – but there's lots of Triple A tranches, very, very short-term Triple A tranches of all of these structured securities that probably aren't that – I mean CDO squares may be our problem, but a lot of this stuff probably isn't a problem. But even there we're seeing huge haircuts, which has got to be decreasing the volume of what's going on there and higher spreads.

MURPHY: Westbrook Murphy. I thank the panel – I haven't had as much fun in this room since Fritz Kessler used to stand at the podium and try to sell his watch, which some of

you who are older may remember. Two different thoughts: One is historic for whatever it's worth to you. The National Bank Act of 1864 originally prohibited a bank from making a loan secured by real estate. And you will look in the early 19th and early 20th Century at a bunch of cases where, nonetheless, they did take real estate as collateral, and when the banks did try to foreclose, there was an objection that it was *ultra vires* and the bank said, oh, no, no, no, we just took that out of an abundance of caution. We were really relying on the borrower's creditworthiness. That statute began to change in the early 20th Century. I believe the first change was five years and 50 percent margin. By the time I came along in bank regulation in the '60s and '70s, it was 25 years and 80 percent, and now, of course, it's disappeared entirely. So, that used to be regulated by statute. I leave it with you as to whether it should be again or not.

The second, and this was a very intriguing idea about marking from bank to bank Wells and J.P. Morgan Chase should have the same thing. And you used the credit card example. There are a number of issues there. First, the bank regulators have across banks marked some assets to market for a long time now, forty years at least with what they called the Shared National Credit Program. To the extent that the credit card receivable is collateralized and it's a bond, that same program might work. Once you get into the individual banks with what's in their own portfolio, that's going to be somewhat more difficult, because there are so many different ways to underwrite and control the risk in the credit card. The agencies have gotten around that now for a good number of years by simply saying a credit card would go into non-accrual status and previous interest charged off if it was more than 90 days past due. And I believe if it was more than 120 days past due the principal got charged off. And here is the real issue. The IRS, after a good deal of back and forth, accepted that for purposes of income tax. Now, you make the point that that's probably not a very good rule right now for credit cards, because we can look at credit cards and we can see there are going to be real problems there in

six months or nine months or whenever it's going to be. But my real point is, whatever rule you come up with, you have got to have IRS acceptance if you're going to get the banks to accept it. Otherwise, you're just in for more years of fighting over it.

CALOMIRIS: I just want to say something briefly about credit cards. It's tangentially related to your point. Until a couple months ago, credit card originations were actually hanging in pretty well, which was remarkable. I've written about credit cards, and I think the answer for that is a couple of things. Mainly, we've had this for three decades. It's been tested over many business cycles, and actually, it's structured pretty well, and we've had a lot of opportunities to learn about credit cards' risks, and I think that with respect to your point about the transparency and some of the information sharing, credit cards are a successful securitization device. I predict they will come back. One other good thing about credit cards is their margins. The margins on credit cards are really high, and they can absorb losses. So, I think actually though the credit card business is suffering losses, it has suffered losses like this before. Maybe these are going to be the biggest, but nonetheless, the margins can absorb it. That's different from the rest of the world that we're facing right now.

KASHYAP: I'm not pretending if you took four big banks and used their models you'd get a true valuation for any particular loan. It's more a question of whether you have any confidence that when you do this, and you would get the confidence interval around these different things, that the range would be 10 percent or 30 percent. We have no idea. It makes sense that if you're optimistic about an asset, you'll be the one that owns it and your valuation is going to be highest. I'm not saying there's anything wrong with that. But if the other guys – in particular the most solvent ones – have really low marks on this, that ought to be a red flag as to whether we pour more capital in. And it ought to inform us about the size of the hole. And I think a lot of this would work through provisioning. In fact, the auditors that are signing off on

your books may currently be signing off on different valuations for somewhat complex stuff. There's only a few auditors and they're auditing all the same big institutions. So, if the government wanted to get really nasty, it could come and crack down on the audit firms and say at Wachovia you signed at this rate, on Wells you did this. We can be tougher here. It's not a panacea, but there's room.

DEAN: I'm Steve Dean, and first I'd like to second what the last questioner said. I found this as entertaining as it has been brilliant. I'd like to go back to what you were saying on incentive structures that encouraged excessive risk taking. The way I understood it, it's not that investment managers didn't understand it. They did. But their incentive structures led them to buy these maybe Triple-A-rated vehicles that were really lousy anyway. Given that, the TARP legislation, I believe, includes provisions that require TARP recipients to assess the incentive structure and the board to make sure that the incentives do not encourage excessive risk taking that would destroy the value of the bank. The audit committee has to talk to the risk officers. They have to certify that now. And John White at the SEC made a speech last fall saying he'd like all companies to do that. He'd like boards of companies that don't receive TARP money to be thinking about this and make similar disclosures of material in their CD&A's. So, given that, what do you think about that set of requirements in TARP? Is it a good thing? Could it be effective?

CALOMIRIS: I have a hidden agenda. I would like the commission that's been proposed by Representative Issa and Senator Shelby to come into existence to investigate the causes of this crisis, and I would like one of its main data gathering missions to be to collect data on internal compensation systems of financial institutions, because we have some great research we can do. Not every financial institution bought this stuff. Deutsche Bank got out in 2006, 2007 in time. Goldman Sachs was not hit by this. UBS was hit hard. Merrill was hit hard.

Citibank was hit hard. We could potentially learn a lot by looking across institutions if we can get those data. So, I put my plug in. You can all send a message to your congressman.

ROMANO: We do have a break now that we'd like to keep to stay on track and be back at 11 o'clock for our second panel. I'd like to thank everyone on the panel.

Session II: Causes of the Crisis: Conflicts, Compensation and Reputation

BROOKS: Welcome to our second session. I'm Richard Brooks, Professor of Law at Yale Law School. I'm going to try to keep us on schedule, because I realize I'll eat into your lunchtime if I don't. We're going to continue with our distinguished panels. Sanjai Bhagat, Professor of Finance at the Leeds School of Business at the University of Colorado at Boulder. Ed Kane, James F. Cleary Professor of Finance at Boston College. Jonathan Macey, who now needs no introduction, Deputy Dean and Sam Harris Professor of Corporate Law, Corporate Finance, and Securities Law at Yale Law School. And finally, Steve Schwarcz, Stanley A. Star Professor of Law and Business at Duke University School of Law.

I will mention just briefly, that many of the papers that are discussed here will be published in the next issue of the Yale Journal on Regulation. So, let's jump in right away. Sanjai.

BHAGAT: This is a joint work with Roberta Romano. In the last session you heard at least a few times references to the incentive compensation of the various key players, whether they were in investment banks or in mortgage companies or in corporations at large. This is a problem that those who have been working in corporate governance and corporate finance have been thinking about for quite some time. Our proposal will address many of the problems that we see, including the ones that start all the way back at least to the Enron days. Then you have WorldCom, and, of course, the current set of mortgage-backed security players and investment bankers. A lot of these problems that you're seeing can ultimately be traced back to the incentives of the managers, the traders, the bond fund managers of the institutional bond funds. So, what's the proposal? Well, we wanted to keep it very simple because if you work with the compensation committee of a board and you look at the compensation contract of a CEO, usually it's about a one-inch thick binder. And you look at that and you wonder, "What is this?" I've

been working on this for a long time, and this is not very complicated. What you're trying to do is align the interest of the CEO or the manager with that of the shareholders. It's called the share price. So, why do we need this one-inch binder?

Anyway, here's our proposal – it's very simple. We are recommending that all incentive compensation consist only of restricted stock and restricted stock options – restricted in the sense that the managers be required to hold the stock and not exercise these options for at least two to four years after their last day in office. Now, what would this do? We think this might diminish their incentives to make statements that might be misleading and to manage earnings. Some earnings management might be okay, but some earnings management might not necessarily be in the interest of long-run investors. Also, in the context of this current crisis, it might have given them a disincentive to accept a high level of risk.

Now, we also are seeing a fair number of proposals from Congress. The Treasury has come up with its own proposal to be somewhat punitive on executive compensation. We think trying to put limits on incentive compensation might not be a wise thing. We're not recommending any limits on incentive compensation. We are suggesting a limit on cash compensation. I think we have a number like $2 million or $3 million. You cannot derive this number from any economic theory that I'm aware of. But it makes common sense. However, we have no limits on incentive compensation. In fact, we actually end up recommending that managers be given greater incentive compensation in restricted stock and restricted stock options, not less. The problem is not that we are giving them too much incentive compensation, but that we might be giving them too little. But, again, it has to be restricted.

There are three caveats that we note with our proposal and there are many others that some of my colleagues have pointed out. I'll just highlight three of those in the time that I have. The first one is the obvious one that if you require them to hold the stock for roughly three years

after their last day in office, then they're terribly under-diversified. All of the incentive compensation is in terms of the stock or stock-related assets of the company. Their human capital is also tied to the company. What under-diversification essentially means is that the value the executive places on the stock or option is less than what the shareholder might place. So, you essentially have to give them more. But, again, if you give the CEO too many shares and options they have an incentive to try to hedge that. That has to be discouraged, in fact, prohibited if you can enforce that.

The number two issue is one of liquidity. They would claim that, well, we cannot cash our shares for three years after the last day in office. We respond that that exactly is the point. They may claim that the compensation we are recommending, about $2 million or $3 million, is not too adequate, but that they have to earn several hundred million dollars a year. In fact, they keep telling us about the loss of talent that will occur if we do not provide adequate compensation. And I'm thinking, "Loss of talent? You've just run these banks to the ground. What talent are we talking about?" The notion is nobody's complaining about the billions of dollars that Bill Gates made. And the reason that nobody is complaining about his billions is when he made his billions, his shareholders made hundreds of billions of dollars. So, those are the incentives we want to set up here. Let the manager do well when the shareholders do well.

Finally, the third caveat is sort of a technicality: the tax liability that they will incur. We suggest allowing the CEO to sell the shares or options to pay off this tax liability. We are not suggesting they satisfy the tax liability out of their cash compensation.

I will reserve the rest of my time for later comments. Thank you.

KANE: Thanks. I've never been at a conference where the speaker before me hadn't used all his time.

This session focuses on "Conflicts, Compensation and Reputation." Endogenous information asymmetry hides the safety-net subsidies that are the fundamental cause of the crisis. My three-part thesis is that unacknowledged safety-net subsidies to risk-taking create incentive conflicts; these subsidies distort compensation; and the resulting compensation structures make a firm's reputation less important to its managers and line employees than it should be.

I will mix in three other foundational ideas. The first of these is that the subsidies make financial crises inevitable by making bubbles inevitable. Periods of healthy post-crisis recovery have to turn into bubbles eventually and a bursting bubble produces crisis.

Second, crises arise from a path-dependent collision of rewards that financial institutions extract from aggressive risk-taking with contrary efforts by internal and external supervisors to control risk-taking activity. Control is exercised within profit-oriented private firms, within governments, and within private regulatory entities such as credit-rating organizations. Two kinds of risk-taking are particularly important: leverage – other speakers have emphasized this– and interest-rate risk exposure that comes from financing assets with shorter or longer liabilities. Regulated institutions seek to expand both forms of risk in nontransparent ways and to shift responsibility for funding the deep downside of their loss exposures onto national safety nets.

Third, prudential supervision cannot continue to look at the solvency or capital adequacy of individual institutions in isolation. Micro supervision has to be supplemented by "macro" prudential supervision that measures and responds to correlations in aggregating risk exposures across firms.

Twenty years ago, I used a simple scenario to explain the roots of the S&L mess. The financial-engineering bubble that ended in mid-2007 developed as a continuation of the credit-allocation model that drove the S&L mess. The story begins with a set of politically-preferred

borrowers that the government decides should be given special terms: implicit and explicit interest-rate concessions. In the U.S., the favored borrowers have been homeowners and builders. They approach lenders, (traditionally banks and other deposit institutions). In earlier times, the lenders would insist that -- in exchange for making concessionary loans whose value is sabotaged by political pressure from day one -- they receive help from federal regulators. This help consists primarily of offering lighter-touch supervision of risk-taking to institutions that concentrate on the politically preferred loans. For a long time, Uncle Sam's loss exposure from "desupervision" was not recognized. Nobody tracked it. (One desperately needed reform is to make officials responsible for measuring and reporting the expansion of safety-net subsidies over time.) But inevitably officials reach back to the taxpayer who is unable to prevent her purse (or his pocket) from being picked.

To illustrate the mess of 2009, we must introduce hit-and-run nonbank lenders like New Century Financial and a new layer of operatives to stand between lenders and their government supervisors. The simplest way to characterize the actors in this new layer is to call them financial engineers. They claim to have the magical powers to pass their hands over pools of very risky mortgage loans and transform them into riskless bonds. This hand-waving reminds me of a restroom in which a dispenser produces paper towels when you wave your hands in front of it. This looks like magic because the machinery that makes the towels appear is unknown to the user. It is hidden in the wall.

Financial engineers have diverse functions. The profession includes accountants, appraisers, investment bankers, broker-dealers, credit-rating organizations, and statistical model builders. Their main task -- though they didn't admit during the bubble and will surely deny it now -- is to overvalue assets and understate (or even hide) risks.

Monoline credit insurers were roped into the game. They saw others drawing the safety-net subsidies and wanted a piece of the action. Like other parties in the securitization chain, they allowed themselves to be fooled at least a bit by the people working ahead of them. Financial servicers contributed by not investing in staffing or plans to handle the downside. They did not claim the contractual rights they needed to be able to adjust claims to a troubled pool efficiently. All the while, government-sponsored enterprises were shamelessly hooking Congress and successive administrations, (no matter how much they may deny it) into making a deal to pursue ambitious "affordable housing" goals (especially after 2004) in exchange for Congressional protection from regulators. Trusteed investors and the GSEs purchased much of the highest-rated private-label mortgage securitizations. Honorific trustees put too much confidence in credit ratings. They ignored a lesson that everyone in this room knows: If the spread on AAA bonds is (say) only 15 basis points, an instrument that offers a 60 basis-point spread can't also be AAA.

How did all this obfuscation and complexity develop? One of my slides contains a very useful diagram. Traditionally, banking took place between clients and designated deal-makers at the bank. Deal-makers were subject to substantial internal supervision. Top management understood that they should manage credit as a portfolio and that the government sought to supervise credit risk closely. At firms and in governments, officials accepted that responsibility. How well they've executed the duties they accepted is another matter.

With securitization and regulation-induced innovation, supervisory performance deteriorated over time. The impact of Financial Engineering is illustrated in the right-hand corner of the diagram. It introduces a market in which institutions could transfer credit risk. This market generated information on credit spreads. But who supervised this market? The credit rating organizations (CROs) supervised it. (I avoid the word "credit rating agency" except as a slip of the tongue, because CROs are not "agencies". It is scandalous that they have been

allowed to claim to be agencies. Somebody in government should have objected to this inflated characterization because an agency ought to have some kind of government connection. Worse yet, the way that their work could produce safety-net subsidies was left unsupervised. This is my main point. Intolerable defects exist in private and government supervisors' duty of accountability for safety-net subsidies. Reforms are urgently need in the incentive structure of supervisors. The structure of regulatory missions is secondary to this , although this is the focus of the legislative interest in reform. How much would it help taxpayers if we were to fuse a couple of agencies? Regulators are asking for new authority and new instruments and they are promising to adapt failed instruments (e.g., Basel). What is needed is to hold credit rating organizations and other supervisors strongly accountable for minimizing the cost and adverse distributional effects they engender in facing and resolving incentive conflicts that are inherent in regulation and supervision. Supervisors must be asked to bond themselves to disclose enough information about their decision-making to allow outsiders to hold them accountable for neglecting or abusing their powers.

Contrast this with the administration's scheme -- I hesitate to call it a plan -- as it was floated this week. It purports to rescue everybody, but we are not given any practical details. There's no explanation of how the policies ought to work so that the press could tell the public promptly what is working and what is not.

Everyone owes common-sense duties of loyalty, competence and care, to those who rely on their work. The dialectics of the bubble and crisis was based on incentive conflict created by contradictory policies. Low interest rates caused an implicitly subsidized credit-allocation scheme built upon them to balloon out of control due to a consequent desupervision of risk. The rising costs of providing loans and guarantees to participating institutions was not being monitored. Eventually the viability of the contradictory scheme had to be tested by market

forces. Doubts arose as to whether firms and government officials could manage obligations that they'd taken on.

The process took the form of silent runs: big money quietly moving out of weak institutions. A good deal of the movement took the form of margin calls. As these tests deepened, authorities misframed the problem as a shortage of aggregate market liquidity rather than a wave of incipient insolvencies. This misdiagnosis created rather than resolved uncertainties that were worrying creditor and counterparties. This is the tragedy of the crisis that we've seen. Instead of containing uncertainty, authorities continually refuse to answer the following key questions: How big are the losses? Who's going to pay?

Officials delay and disavow actions that could contain the damage. Instead they promulgate a strategy of keeping zombie institutions in play. Meaningful reform comes not when the credit allocation scheme unravels and the costs of the recapitalizing individual institutions become manifest, but when the costs are CAPPED. Fixes that fail to control loss-making by zombie institutions deepen the crisis.

Some reorganization of the regulatory system will occur. Coming out of the crisis, the central policy issue ought to be how to persuade and empower regulators and supervisors to measure and control future safety-net subsidies. Rather than focus on rules, principles, and turf, public servants should be asked to embrace a series of overarching duties. The paper I prepared for this conference lists five duties.

The first is a duty of vision. During the bubble, the biggest failure lay in vision. Surveillance systems failed to address the simple fact that in a financial market every innovation offers a firm two kinds of potential benefits. One of these is an economic-efficiency enhancement. But another benefit comes from the way that innovation undermines the effectiveness of the existing regulatory system. Someone needs to recognize the need to devise

rules to deal with previously unforeseen instruments and corporate structures. Almost every innovation creates or widens loopholes that make it easier for institutions to extract safety-net subsidies.

We can treat some of the other duties as self-explanatory entailments of a top official's oath of office. Conscientious representation asks supervisors to mitigate principal-agent problems by embracing a more explicit fiduciary obligation toward society as a whole. Most importantly, regulators must accept a duty of accountability for whether or not they perform the first four duties.

If we're going to fix things properly, we have to understand the fundamental cause of crisis mismanagement traces to the way the safety-net subsidies are produced and delivered. The pursuit of these subsidies is what made securitization become incentive-compatible. Bad deals went forward because regulators and investors had blind trust in the reputational bonding of key firms despite compensation schemes at these firms that communicated gypsy ethics to their employees. The gypsy ethic entails never giving a sucker an even break. Outsiders closed their eyes to the predictable consequences of volume-based compensation schemes. People were paid the same for originating bad deals as they were for originating good ones. This reinforced the shortcutting of due diligence and the outsourcing of due diligence in markets for synthetic credit transfers. Bad incentives passed up and down the line. As long as some sucker stood ready to pay good money for garbage, why should anyone throw garbage away?

I want to finish by identifying some principles of crisis management. A financial crisis resembles a battlefield. The job of a crisis manager is to contain the further loss of life and limb. Regulatory medics first have to take on the task of locating the wounded and sizing their afflictions to determine who can survive. These medics have imperfect tools with which to perform the triage necessary to contain the damage. They face hostile fire from the press and

criticism from the dying. They need access to the legal equivalent of transportation facilities to move potential survivors that they've identified to deposit insurers whose staffs are at least trained and experienced in restructuring. Paulsen, Bernanke, and Geithner have made the mistake of trying to save the institutions that scream the loudest, without sorting out which of these entitites are hopelessly moribund.

Every crisis has two interacting dimensions that officials must manage. One is the economic dimension. This concerns losses and continuing loss exposures. A crisis goes on as long as there's uncertainty about the size of the losses and who will ultimately be made to bear them. The political dimension focuses on reducing uncertainties. The purpose is to establish confidence in policymakers and to persuade the public that the program of loss-shifting undertaken is efficient and that the beneficiaries are deserving. To date, US authorities have failed on both counts.

A crisis ends once the loss absorption has been capped and blame has been plausibly assigned. Misframing concerns about the solvency of loss-making firms as if they were driven by a market liquidity problem has aggravated the uncertainties driving the crisis. The only thing that I like in the plan announced this week is the commitment to undertake stress tests. Forensic accounting is needed to identify the size of the industry losses. We can only pray that these tests will be administered honestly.

Highly leveraged, short-funded institutions and investment schemes lose value whenever default spreads rise or premiums for liquidity or inflation increase. Such events lead people to worry about how adversely the economic net worth of such firms has been affected.

Economic net worth has to be treated as an interval estimate. The previous panel came very close to saying this. The point is that near-insolvency is only slightly different from complete insolvency. Creditors respond to either condition in the same way. An honest analyst

can't pretend that the underlying problem is a shortage of aggregate liquidity. Today, the US economy is rolling in aggregate liquidity. Creditors aren't rolling over the debt of troubled firms because more and more of their interval estimates for these firms' net worth falls into the negative territory. Creditors don't want to be burned.

Studies of crisis management around the world show that the cost of safety-net support depends on sequencing. The ideal sequence starts with careful triage. This is what US government experts have told other counties for years. Triage uses forensic accounting and relicensing to contain the damage and size the problem. Only when triage has taken place can the industry be restructured intelligently.

The final steps in the sequence should be to finance explicitly the losses and terminate government support. The policies the US has been following continually extend and expand rather than terminate government support. These policies have followed the reverse of the ideal sequence. Authorities have offered loans and guarantees to insolvent firms and then been surprised that these zombies didn't make good use of the funds supplied.

Violating the ideal sequence deepened and lengthened the crisis. One has to wonder why the Treasury began so badly and stayed with its failing policies so stubbornly into a second presidency? Why did our leaders do the wrong thing? I see two reasons. First, industry lobbying pressure has been enormously strong. The best place to make money for a financial institution today is in Washington, D.C. I don't know why a firm's best people would be working anywhere else. Second, unlike 1933, when the regulatory horizon for an incoming Franklin Roosevelt was long (in fact he had the longest term of any President), no one seemed to understand that the thing we have to fear is fear itself. Nearing the end of his term, George Bush and his brain trust had a fixed date when they were going to hand the crisis over to a new administration. They tried to patch things up and hope that they could escape blame. It wasn't so

much the Lehman bankruptcy that deepened the crisis, but the chaotic rescue of AIG and President Bush's going on TV and foolishly scaring the populace. A spate of bank runs began right after President Bush signed off. He made a huge mistake in saying that the crisis required that federal funds had to be injected right away. Predictably, none of the appropriated funds went anywhere for four weeks after the emergency legislation was passed. The inconsistency between words and deeds robbed people of their confidence in the government.

The last thing I want to say is that society must face up to the role played by influence. The de facto corruption of authorities by the financial industry is intolerable. No one in authority is challenging the idea that the real economy cannot recover unless financial institutions are spared the consequences of their bad behavior. You might ask why Wall Street isn't asking for different and more-efficient policies. Why are they supporting the preservation of zombie firms? The answer lies in this quote from George Bernard Shaw: "When you're robbing Peter to pay Paul, you can count on the support of Paul."

MACEY: My talk does follow on some of the comments that Frank Partnoy made about the credit rating agencies. But I want to tee up the issue in a slightly different manner and to put the issue into a little bit of context.

Ever since Barack Obama was elected, even before his inauguration, he's been invoking the word "trust" a lot. On January 18, 2009 – this is just before the inauguration at a speech at George Mason University– the President-elect said, "Our problem is not just a deficit of money; it is a deficit of trust." And more recently, on February 4th, he said, "In order to restore our financial system, we have to restore trust." And February 9th he says, "We hear a lot about the loss of trust and the relationship of trust to the current crisis." I was going to just count up how many times he used the word "trust," but it wouldn't be very fair since he uses it just about every

time he gives a speech, so it's not clear if that's a spurious correlation. But anyway, trust is important, and President Obama knows it.

Now, the reason trust is important—and lots of people have talked about this; Max Weber, Francis Fukuyama, Robert Putnam –is that it lowers transaction costs. Unless you have a weird kind of contract where both parties perform absolutely simultaneously, there has to be some mechanism that causes one person, the person who performs first, to think that the other party will actually perform later. And there are a lot of different sources of trust and markets can't work without it. One source of trust that we might see would be kinship group, and that seems to still be working. Next is what Max Weber talked about. He talked about how one of the great economic achievements of religion was paving the way for cooperative economic activity that occurred beyond the kinship group. Obviously Bernie Madoff recently may have put a pretty big dent in that – but it's still around at least to some extent. Then, of course, the third would be government. That is if you trust the government to really enforce your contract or to make the other party live up to the terms of the bargain, then that is a replacement of trust and that's something that's been problematic to get to work. And then fourth is what Frank was talking about and what I'm going to be talking about. The fourth and in a market economy probably the most important source of trust is reputation.

And so, the basic economic story is the one that Frank Partnoy alluded to which is quite simple. The idea is that we start a firm off in time period zero with no reputation, so nobody trusts us. Over time we invest a whole lot of money in developing our reputation, building our reputation up. The reason that it is rational to spend this money in developing a reputation and in developing trust is because we'll have lot better demand and be able to charge higher fees for our services, because people who deal with us know that we won't cheat them because it's not in our self-interest to cheat them, because the gains that we would obtain from a short-term fraud

would be dwarfed by the loss to us in our long-term reputation. And something that Frank Partnoy said, with which I completely agree – I have not always agreed, but I do now – is that with respect to credit rating agencies, the reputational model that I think existed, at least historically a long time ago, got replaced by regulation of the NRSRO designation, the kinds of things that Frank was talking about, it would no longer exist today. People use credit rating agencies essentially because of this regulatory license reason that Frank was talking about.

Now, my contribution to this is twofold: The first is even clearer if we look at the Enron crisis than if we look at the current crisis. But with respect to either crisis, there are lots of reputational intermediaries around, besides credit rating agencies. There are law firms. There are investment banks. There are accounting firms. And this is very clear with Enron, but I think it's even true with respect to the current credit crisis. All it requires is the breakdown in trust with respect to all of these reputational intermediaries, all of these institutional components of the corporate government system for us to really get in trouble. It's a system of checks and balances. And what's really interesting to me about these recent crises is that we've seen, as Frank Partnoy just observed, that there is a problem with the credit rating agencies acting in ways that are not consistent with the simple kind of economic reputational model that I just articulated. And we see with respect to all of these institutions that the reputational model that once existed historically has been displaced. Regulation is largely responsible for displacing the reputational role that reputation historically served. In addition, the development of new technologies and markets also played a role in the demise of reputation. The basic point – and I think it is a big problem for us in trying to figure out how to get out of this mess – is that it is, simply put, for companies – I'm not talking about individuals – I'm talking about companies like the law firm in Houston that might have represented Enron. And the law firm in Silicon Valley that represented so many of the companies involved in the options backdating scandals. It is no

longer as rational economically as it once was for these firms to invest in reputation. There's not the same payoff, because competitors can compete very successfully for business frankly without making the same sort of reputation. So it becomes irrational for firms to make that sort of investment and reputation.

I'll use a few examples to illustrate this point. I won't talk about credit rating agencies, because I think Frank's covered that quite ably. What about law firms? I want to talk about law firms, of course, since we're in a law school. I want to talk about stock exchanges. And I want to talk about accounting firms. And if I have time, I'll talk about investment banks. With respect to law firms, the basic story is one of lower price of information. That is to say it used to be the case, I will assert, 30, 40, 50 years ago, that companies would hire law firms with high reputations. And the economic model was that part of the fees that the client paid to the law firm was essentially renting the reputation of the firm. Now, to a much greater extent, sophisticated clients, particularly corporate general counsels, don't hire law firms anymore. They hire individual lawyers within the firm. So that if you think that X person, Rodge Cohen at Sullivan & Cromwell, for example, is a great banking lawyer, you will maybe direct your certain banking transactional work there. But if you have T&E work or mergers and acquisitions work or antitrust work, you're going to go to other individuals, maybe within that firm, maybe not, depending on who the best people are. So, the payoff for an investment in a reputation by developing a client practice is much more localized and the ability of firms to capture these investment and reputations has decreased so that it's just an unintended consequence of market development and greater sophistication of information markets, if you will.

Another thing that I've studied with respect to reputation are the big accounting firms. We have, as the GAO has pointed out, a cartel that existed even before Arthur Andersen disappeared among the four large accounting firms that audit virtually all of the public

companies. My Cornell colleague, Ted Eisenberg and I, after the Arthur Andersen collapse, did an empirical study called, "Was Arthur Andersen Different," in which we looked at all of the big five accounting firms and all of their clients, in controlling for firm size and industry specialization, geographic area, everything else we could kind of think of, and it turned out that Arthur Andersen was not measurably different than any of the other large accounting firms with respect to how often their clients got into trouble for accounting fraud. For example, clients who had to restate their revenues or had revenue recognition problems that caused them to restate their financial results in their public filing. So that's a very big blow to the reputational model, because it means that if you're the chief financial officer of a public company – it is not an option that you have to chose accounting firm X over accounting firm Y on the theory that by paying firm X more, you can send a more credible signal to the marketplace that you're not engaged in financial fraud or other kinds of shenanigans.

I think the same story is true for stock exchanges. The New York Stock Exchange historically had a huge investment in reputational capital. Firms would pay a lot of money for a listing on the New York Stock Exchange because it conveyed prestige on listing firms. We now live in a world in which we are much more sophisticated than that, and many public companies like Microsoft, Intel, Apple, others—brand-name, very high quality firms—have no need to list on the New York Stock Exchange, and in fact don't, because there's no reason for them to pay a premium to rent this reputational capital. So the idea is that some corporate governance institutional intermediaries have evolved in such a way that it's not rational, or as rational for them as it used to be, to make these very large investments in reputation. So, the people have entrusted them, and that's why at the moment in the current crisis I think Barack Obama is correct to say that there is this crisis of trust. There's been nothing vaguely associated with any of the initiatives that the Treasury team has come up with that addresses this problem, but I do

think, hopefully, just from a basis of private incentives, firms will begin once again to develop incentives to invest in the development of reputation. Thank you.

SCHWARCZ: This panel talks about causes of the crisis. I recently published a piece arguing that the crisis is largely dependent upon three C's: conflicts, complacency, and complexity. There's a fourth C, cupidity, but it permeates all the first three C's so much that it's hard to distinguish it. I've also argued that, to some extent, systemic risk additionally can result from a type of tragedy of the commons. But my talk today focuses on conflicts, and to some extent, complexity. And the more specific focus is on secondary-management conflicts of interest.

As financial markets and the securities traded in them become more complex, and as financial firms become more heavily leveraged, conflicts of interests between those firms and their mid- to lower-level managers, who I call secondary managers, increasingly have the potential to trigger the collapse of firms and the collapse of markets. Most scholars have focused on conflicts between the owners of companies, the shareholders, and the top managers, like the CEO's. I will focus on the secondary-manager conflicts. I'll discuss these conflicts in the context of secondary managers of financial institutions, but many of the lessons I'll talk about can have a broader application.

Secondary managers are compensated typically for performing their tasks without regard to the long-term consequences of their actions. This can create perverse incentives. I'll give you an example using VAR, the value-at-risk model for measuring investment portfolio risk. As this model became more accepted, financial firms began compensating secondary managers not only for generating profits, but also for generating profits with low risk as measured by VAR. As a result, secondary managers turned to investment products like credit default swaps which have low VAR risk profile, generate small gains, and only rarely have losses. For profiling risk, the

VAR model does not typically include potential losses less than 5 percent, or in some cases 1 percent. The secondary managers knew if there was a loss, the loss would be huge, but they didn't always disclose it to their seniors.

Why are secondary managers typically compensated in this way without regard to long-term consequences? There are a number of answers. One is that secondary managers are subject to supervision by the top managers, who should basically be responsible for making sure that the secondary managers act in the interest of the firm. But the increasing complexity of financial markets and securities breaks down the effectiveness of supervision. Complexity, I argue, causes over-reliance on signals as simplifying heuristics. Let's take some examples. Ratings were talked about quite a bit. Over-reliance on ratings is problematic, and in many cases, secondary managers – although they knew ratings do not cover the risk of fraud, that ratings are imperfect, and that they're based on various assumptions – did not do their own independent due diligence to try to determine what would be appropriate for their institutions. Similarly, models like the VAR model can help, as a rule of thumb, but they can be inaccurate to the extent they rely on misleading data or misleading assumptions, as we've seen in the current crisis.

Over-reliance also is problematic for top managers. Over-reliance makes it difficult for top managers to adequately monitor the secondary managers. The top managers will not hopefully be as conflicted as the secondary managers in terms of long- versus short-term compensation, although they may be. But even if they're not conflicted, the complexities of the signals of what the ratings mean and the complexities of the models make it more difficult for the top managers to go beyond the ratings, to go beyond the models, and therefore to question what the secondary managers are basically recommending. These problems all become exacerbated with increasing leverage of firms, because increasing leverage means that losses are

more liable to bring down the firms, and also more liable as firms collapse to bring down markets.

So, how can we address this? The obvious answer is to align incentives. The most obvious way to do that is to tie secondary-manager compensation to long-term interests of the firm. This can be done in a number of ways. You can do a clawback. So you basically pay secondary managers, and after some period of time if there is a failure of the investments or structures, you can clawback income. I'm not sure this is practical. You might also pay a portion of the compensation contingently over time, or pay a portion in some sort of equity compensation. I think this could be done, but it creates a potential collective-action problem. If you're a firm that wants to compensate your secondary managers this way, how do you get the best managers if other firms compensate secondary managers with full income right away. You may need to have some sort of government fix to solve this collective-action problem.

Another way to try to align incentives, of course, is to terminate secondary managers where there are problems. I'm not sure this is an effective way for a number of reasons. First of all, many managers may not fear being fired in these circumstances. In fact, in many cases secondary managers go from firm to firm every few years, and they figure by the time there's a problem, they're going to be at another firm, and they're not going to care. In addition, there is the herd-behavior issue. Many secondary managers will feel safe following a herd of other secondary managers. So, if you have a lot of analysts who recommend you invest in mortgage-backed securities, MBS – or as we saw some years back, a lot of managers who say, well, we're not sure about Enron, but everyone's investing in Enron stock, we better do it – then you have a problem.

Yet another way to try to mitigate the conflict of interest between the firm and its secondary managers might be to improve the accuracy of signals. For example, what if ratings

were made better? What if models were made better? This can be very highly fact-dependent and also is liable to have unintended consequences. If the accuracy of the signal is not improved as much as the perception of the signal's improvement, then you actually may increase over-reliance. Remember that the widespread acceptance of the VAR model for assessing risk was due precisely to the widespread belief that this model would assess risk properly. Thank you.

BROOKS: While everyone lines up for questions, why don't I give the panelists a chance to comment on each other's work. Before we do that, let me perhaps frame it a little bit. One theme that ran through the panel was the separation of consequences from actions, creating a moral hazard that's really the source of the crisis. And each panelist presented a different way of addressing it. Jon Macey suggested that it's really a breakdown of reputation and trust, and what we might do is reinvigorate encapsulated trust. Ed focused more on strengthening and expanding fiduciary duties, which is a strict alternative to focusing on trust, something that substitutes for trust. And Steve was more interested in aligning the incentives in order to avoid this moral hazard of managers and their employers.

And Sanjai, I don't know if I can fit your framework into that context. But if you could all comment, if you have any wishes to comment on how your work connects with each other and which alternatives, now that you've laid out these three clear options, is most likely to occur and most useful.

MACEY: Something I would throw in at least with respect to the executive compensation and the trust issue is – maybe I'm oversimplifying or I'm looking at this in too naïve a way – but it seems quite clear to me that the large compensation packages that we observed at the top – that is for the very, very top executives – were given to a large extent on false premises. The premises were that a certain amount of profit had been made, certain performance measures had been obtained, and so the bonuses were granted. And it turns out that

this was not true. It turned out that once the true value of some of these decisions was realized, that the decisions weren't so great.

Now I want to shift from that and just briefly talk about the AIG Scottish hunting expeditions, and the seven thousand people at Merrill getting million dollar bonuses. So, forget the top fifty of those, let's just look at the bottom few thousand of these people. You can't really tell much of a capture or an agency cost story for these people. You can't tell it for the AIG people. I think it's a very different story, and one I haven't heard anybody tell. And maybe I'm wrong about it, but here's my story about what is going on for the bottom of the top, the people who are only getting the million or two million dollar bonuses. These people actually earn their bonuses in a weird way, which is to say they're basically being incentivized to sell financial products. And you can think to yourself, well, why do you need to have such high incentives to sell these financial products? Because you have essentially very, very high commissions, because the financial products aren't very well suited to the buyers. Anybody can sell something that's very transparent for its real market value, but if you want to sell some bizarre Triple A CDO or Triple B CDO that's actually not worth much, you have to have some talent. So, these people are getting compensated appropriately in this measure, particularly if you could continue to sell it to the same people for years. So, to my way of thinking, the fact that you listen to Morgan Stanley and the guy says, I have no reason to believe he's lying, we got to protect our financial advisers, which is now the modern term for stockbroker. There's a tremendous amount of competition for these people's services. The same thing with AIG. These people who are selling these complex insurance instruments for AIG and are being taken on the hunting trips in Scotland, you know, they can go anywhere, because they can really sell this stuff. Well, it suggests that the problem isn't over, at least to me, because we're still selling, shoving this toxic

stuff out the door. So, that's part of the compensation thing that I wish we could focus on a little bit more.

KANE: There are four sets of long-term reforms that would be helpful, and within each, any number of smaller steps that would help. All taxpayers are going to get out of this crisis (if they are lucky) is to see small improvements in the long-run structure of oversight incentives for internal and external supervisors.

Long-run governmental reform has to begin by rewriting the contracts of government supervisors. Existing contracts presume that top officials are perfectly altruistic, perfectly informed, and perfectly competent. Firms and supervisors ought to be required to track safety-net subsidies. The capitalized value of subsidies should be estimated in the first instance as an intangible asset by the accountants of every financial firm. Because this expands work for accountants, they should see the value to them of routinizing this task. Then, to guide macro prudential policy, capitalized subsidies should also be re-estimated and aggregated by politically accountable supervisory officials. This can't only be done by the Fed, because the Fed isn't politically accountable in a meaningful sense. Second, genuine reform must include explicit programs for crisis preparedness, both at the private level and at the government level. Crisis-management plans should be established and publicized. Authorities should regularly rehearse their benchmark plan for crisis management. If we had had in place a system of crisis plans and crisis training, crisis managers would have done a better job and been more accountable for the things they did. While authorities have repeatedly congratulated themselves for their "creative" responses to crisis pressures, in many cases these responses proved unnecessarily destructive. Third, as somebody else has already noted, government regulation should not naively rely on private credit-rating organizations' ratings. Finally, deferred compensation and contractual clawbacks must be used much more widely. This is the essence of what Sanjai and Roberta

propose. I think deferred compensation is critical, particularly at the top levels of government as a way to lengthen decisionmakers' horizons. We also need more use of it in the private sector too, along with contractual clawbacks for bad performance.

I did not mention what credit rating organizations should do. They are going to have to reform themselves. They're going to have to take responsibility for future mistakes by bonding themselves against employee incompetence and negligence. They're going to have to change the way they present information about instruments that offer a lot of imbedded leverage and (therefore) great downside volatility. It was a mistake for them to pretend that their letter ratings on bonds and structured securitizations meant exactly the same thing. I hope that CROs eventually report ratings as confidence intervals or even report separately the mean and volatility dimensions of each confidence interval.

SCHWARCZ: I have just two brief thoughts. One is that—and I refer now to top managers as opposed to secondary managers—there is a problem that when we have top managers whose compensation is so high that it basically sets them for life, we lose a great deal of accountability between the agents and the firm. I think that firms themselves should attempt to address this. I don't think any managers should get an immediate compensation high enough to set them for life. Secondly, my research suggests that there was a very significant "mutual misinformation problem." And that is that many of the investment banks selling highly-complex mortgage-backed securities believed in them. In many cases they bought themselves into some of the tranches, in some cases even the lowest tranches, the so-called "equity" unrated tranches. The problem here is human failure more than anything else. We are human and we're going to make mistakes. But the consequence can be high. As a result of the sellers believing in their product and putting their money where their mouths were, it induced investors to buy those products. And that was, I think, at least part of the story of what happened.

BHAGAT: We heard the term "experts" in investment banks and mortgage banks; experts who are coming up with these very specialized, very technical products that few people could value. We heard why they had to be compensated so highly. This is becoming less and less clear. Having taught many of these people who then go and work in investment banks, I have a sense of what they know and also what they don't know. We keep talking about the skills of the financial manager, the mortgage securities expert, or the investment banker. What skill are we talking about? What skill do they really have that requires these tens of millions or hundreds of millions of dollars of compensation? Is the skill we are talking about the skill to convince the client that they have a skill?

Let me elaborate with a little bit of technical background to what may really be going on here. A lot of these financial derivatives are based on the Black Scholes model, which is based on the heat equation used in physics and engineering. Solving it is non-trivial, but for most people with a masters or an undergraduate in engineering, it's straightforward. To me it was not that complicated, but most of my other finance colleagues treat part of this work as though it were rocket science (and indeed there is a term "rocket scientist" in Wall Street). So, you look at that heat equation and it works very well in engineering and physics. It works well in physics because the laws of physics don't change. They don't talk of hypotheses in engineering – they know precisely what is going to happen. We can send a man to the moon and bring him right back to a certain point on Earth. The model in physics has an R-square of 99.999 percent. The model in finance when they use the same equation has an R-square of less than 0.1. I mean, we have explained the systematic part of changes in the prices, but we have explained very little. The vast part of price changes is still unexplained. And when we try to take these models and get the second and third derivatives, then we are really out on a limb. And because these models are so complicated, a lot of the senior managers tend to not understand to what extent these

models apply and to what extent these models don't. So I'm not surprised that the subprime crisis has really spread, because few took the trouble to understand how much damage this could cause to their company's profits and share price. I think we have this issue of trust. I think there is a problem of how credible the financial geniuses are. I think their claim to have very good understanding of the economics of what's going on in the mortgage markets is very debatable.

BROOKS: Thank you. So, let's alternate and we'll begin over here. And if you could just identify yourself for the audience.

KONIAK: I'm Susan Koniak. Jon, I want to tell a different story about lawyers' reputational model than yours. I think it works just fine for firms. Vinson & Elkins represented Enron. Kirkland & Ellis was on the other side of that transaction representing Fastow, his little entities. The year after Enron went bust, Vinson & Elkins and Kirkland & Ellis rose in Corporate Board magazine rating. Their ratings by other board members went up; their share of the market went up. If you went to their web site a year after Enron, it advertised how great they were at doing complex structured finance transactions –

MACEY: This is my point, Susan.

KONIAK: No, no, it isn't your point. It isn't your point. You were telling a story about individual lawyers within the firms. I'm talking about the firms themselves, apart from the individual lawyers, benefitting from a reputation for cheating other people. Okay.

MACEY: Now I'm listening.

KONIAK: So, you're turning their reputation for honesty. The reason they benefit for reputation for cheating other people is that we have eliminated aiding and abetting liability for law firms and other actors, including banks. That means that lawyers' interests are not aligned with their clients' interest, because they are not at risk for being sued by private parties, and the SEC has not the resources to go after them for aiding and abetting, and therefore, they're

available to help clients who would like to try to get away with schemes, and they have something to sell similar to a rating agency, which is a legal opinion that people count, they think counts, almost like a get-out-of-jail-free card. And as a practical matter, that legal opinion does operate to help firms, even though legally it is not a get-out-of-jail-free card, because it backs off regulators. There's a revolving door thing in law firms that backs off regulators for a time. So, you're more likely if you get one-by-one these legal opinions to cheat other people through some complex deal, then you're much more likely to get away with it in the end. So, we must restore aiding and abetting liability for law firms and for banks, by the way, and no one's talking about it. But the reputational model is working better than you think.

MACEY: Well, it's rare that I get out-cynicked, and I'm quite happy to be. Thank you for those comments.

REESE: David Reese from Brooklyn Law School. We spent the morning looking at causes of the crisis, and I'd just like to focus on one of the causes at the origination level, which is the absence or the gutting of consumer protection legislation and regulation over the last ten years or so. And I'm curious as part of talking about responding in the future and reducing risks in the future, if increasing consumer protection legislation, which has been seen as paternalistic, but may be appropriate not only in terms of protecting consumers, but providing a backstop on overly optimistic underwriting that most of the panelists on both session had said is a natural part of the business cycle. So, is that part of the solution and is that something that we should be thinking of, not just to help individuals, but to stop systemic risk?

SCHWARCZ: I have a couple thoughts. The subprime mortgages whose defaults initially triggered the crisis went beyond what consumer legislation had previously allowed. But they were made pursuant to a government aim to enable people who otherwise could not afford houses to buy houses. And there were at least some legitimate theories for how the subprime

mortgages would get repaid. There were at least two types of subprime mortgages; in terms of the ones where borrowers may not have had sufficient de facto income, the idea was that home prices would appreciate, and the borrowers would be able to refinance. For fifty years, home prices had continued to appreciate. Now, one could say that the problem that happened – that home prices suddenly stopped appreciating and the homeowners could not get refinancing – was contrary to fifty years of experience. From that perspective, it's sort of like Monty Python's "no one expects the Spanish Inquisition." So, you have to balance everything here. I have more to say, but I'll let Ed talk.

BHAGAT: Let me interject if I can. I think this notion had been raised apparently on the subprime mortgage lending issue. One is that since we haven't seen a decline in the real estate prices over the last twenty or fifty years, it never happens. We do have a real estate history. From the business school across the block here, they've come up with real estate indices that go back the last hundred years, and there were several episodes when real estate prices have gone down. But more to the point – we've always had a long tradition that for mortgages you put 10, 15 percent minimum down. The notion took hold for a variety of political reasons, some of them were well-intentioned, that homeownership is a good idea. Well, if you believe it's a good idea, then why are you issuing mortgages where you have hundred percent debt and zero equity. If there's zero equity, where is the ownership? You need the ownership for a variety of things. One is to provide an offset to the under-investment problem that is discussed a lot in corporate finance: it has relevance to whether homeowners take care of their houses, maintenance repair and so forth. We threw away a lot of traditional finance principles to satisfy, I think, political motivations, and I don't think you need more consumer protection legislation. I think what you need is going back to traditional banking and finance models where if you're talking about ownership, let's have ownership.

KANE: Well, let me step in. I think attributing mortgage problems to a gutting of consumer-protection legislation is a mischaracterization. It is the enforcement of pre-existing lending standards that failed. State-enforced mortgage standards were left more or less unchanged. I would characterize these standards as saying that mortgage lenders should: (1) lend on income, not on collateral, and (2) demand a high-enough down payment that borrowers' repayment capacity isn't dependent on future prices. The decline in enforcement was endogenous. It emerged as a product of lobbying pressure. If we were to rewrite the consumer-protection legislation at the national level, you can be sure that loopholes would be inserted that would create possibilities for overlending down the line as people forget this current episode. Scott Gibson and I studied the immediate effect that authorizing Alt-A mortgages had on the stock price of financial firms. We found evidence that market participants thought this would benefit large financial corporations. This reaction predicted that firms were going to use these instruments to advantage themselves, not to advantage the households that were supposed beneficiaries of the policy exercise.

BROOKS: Roberta.

ROMANO: Yes, Roberta Romano. So, I have a question Ed, to follow up on your wanting to make supervisors more accountable, do you think government employees should also get incentive pay that would be based on their valuations of the banks and how well they do? I guess you'd have to do it over a long term with deferred compensation. Also, we're looking at financial issues in banks, what they hold and their risk management. The other question that I had is should they also be looking at the kinds of things that Steve Schwarcz was talking about in terms of how they're compensation people or conflicts? Should that be part of what goes into a CAMEL rating? Or one of these things when they look at the bank? Or, just thinking about how you would make them accountable, is it suing them? As Rick was pointing out, it's not clear if

fiduciary duty is going to be what we want as opposed to thinking more about the incentives. I'm wondering what your thoughts are.

KANE: Well, my short answer to the question is yes. But the long answer is that bonding is a better solution in many of these cases. Deferred compensation is a form of bonding. Suing firms that have gone broke or criticizing government employees after they have left office is not very productive. They don't create a reliable and forward-looking incentive effect. I believe that deferred compensation is an underrated approach. I applaud you and Sanjai for making incentive compensation apply after one leaves office. I proposed, about fifteen years ago, that there be deferred compensation at least for top officials in the government safety net. There are two ways to do this. The simpler way is to insist that if we experience a crisis within a three-to-five year window after a top regulator left office, he or she would have to forfeit the claim to deferred compensation. Forfeiture would generate a nasty reputational hit. Take the case of Alan Greenspan. The dollar cost would be secondary to the immediate public censure that would come with the forfeiture.

My favorite story on this is one that Irwin Sprague told on himself. At the FDIC, he was first a member of the top board. In the last few months before he left office, several important new cases arrived on his desk. He decided he didn't have to concern himself with them because he would be gone before they became urgent. Then, strangely enough, he was reappointed as the head of the agency. The folders he had put aside proved to be on top of the pile now marked as "urgent."

Lengthening the horizons of officials would help very much. I think such contracts should be standard because others have to suffer the long-term consequences. To manage these consequences, one has to measure them. My ideal recommendation would be to ask regulators to measure the safety-net subsidies and have their measurements reviewed by third-party experts.

In that case, changes in the measure could serve as the basis for incentive compensation throughout the regulatory system.

BROOKS: Just a thought, Ed, you know, with government regulators as opposed to people in the private sector, regulators who stay in government, I'm not sure government compensation is enough if part of it is deferred to allow them to live the way they want to live. And you're going to decrease the quality of people in government. And those government regulators who go back into the private sector are going to laugh, because now the government compensation is going to be relatively small. So, I think maybe in theory what you're saying works. I'm not sure in practice. There may need to be other mechanisms.

KANE: You can introduce all the mechanisms you want. But, the reputation of these people when they go back into the private sector is going to be affected immediately because they have preaccepted blame.

BROOKS: That's true already.

KANE: Preacceptance is different. It is going to mean that failed regulators forfeit respect and can earn even less future compensation. Again, take Alan Greenspan. Not only can't he earn the revenue from speaking fees today that he could have gotten two years ago; he would have had to acknowledge by late 2007 that his policymaking strategies were deficient.

BROOKS: But that's true already. Why doesn't the system work?

KANE: Well, I'm saying that preacceptance would strengthen and deepen the oath of office. It would limit opportunities for weaseling in that it certifies that one should not have done whatever things might have led to crisis. I agree that society should pay top officials more money, because accepting this responsibility makes their job tougher. In my scheme, the fund of deferred compensation would be additional income.

Taxpayers must recognize that it is dangerous to underpay officials. Underpaying is likely to create teams of safety-net managers that are under-skilled and under-incentivized on average. With more to lose, top regulators might not be in quite so much of a hurry to get back into the private sector. I think the reputation effect would be enormous, because officials' children can understand it, their mothers can understand it; they just can't talk their way around the evidence of an unfulfilled responsibility.

BROOKS: Adam.

PRITCHARD: Adam Pritchard, the University of Michigan. My question goes to ownership structure. These reputational intermediaries used to be partnerships, and one of the key aspects of partnerships is that the partners have to understand their business, have to understand who their partners are, and have to understand what they don't know about their business. And we've seen a shift in the ownership structure of investment banks from partnerships to public companies, and the ownership structure of law firms and accounting firms from unlimited liability partnerships to limited liability partnerships, and the people running these places don't have as much skin in the game as they used to. Is that part of why the reputational intermediaries don't serve the same function any more? And just to be disagreeable, was liability concern what drove people away from the partnership structure and toward the situation where they didn't have skin in the game?

MACEY: Yeah, I think that's a great question, Adam. Nice to see you, incidentally. So, quickly, my view of this is that, yes, the move from a partnership to a limited liability structure undermined firms' incentives to engage in monitoring and put in internal risk controls. And this was part of the problem with Arthur Andersen. But I think the second part of your question is the most interesting and that is in order for this move to be rational for firms, even after it was permissible by regulation, they had to be able to continue to attract having moved

from the partnership form to the limited liability partnership form. So, my story in focusing on reputation is simply to say, I pretty much agree with you. This is kind of supportive of my thesis that various things changed in regulation and markets to mean that these reputations were not as important, good reputation, not Susan's kind of reputation for getting business. And this enabled them without any loss in ability to attract clients to make this switch to these limited liability forms of business organization. So I think it's a big part of the story. But the loss in reputation, I think, had to antedate it to make this switch in form of business organization work. I think the same thing is true about the issue Susan raised about aiding and abetting liability.

BHAGAT: If I can add to that. My sense initially when they went from partnership to publicly held company was that they probably did it for the right reason of having more diversified risk and access to more capital. But somewhere in the process, they also realized that they could go for the upside and not worry about the downside anymore, as they had to do earlier. While I was doing some research last fall, I looked at the holdings of senior executives and directors in the various investment banks. In spite of the claims about ownership culture and so forth, which they proudly used to emblazon in their corporate material, most of the trades which I saw for the directors and executive officers were sales. I would rarely see a buy; perhaps one out of a hundred transactions, and that tells me that one of the problems we had was that none of these investment bankers themselves believed strongly in their own statements about this ownership culture. Had these investment bankers had significant ownership of restricted stock and restricted stock options, this may have mitigated some of the problems which we are now seeing.

KANE: I would add to your question, which I agree is a great one. First, the demutualization of S&L's and insurance companies has also been dangerous. Much demutualization was designed to let managers pass some safety-net subsidies through the stock

price that they couldn't lay their hands on otherwise. Second, going back in history, US bank stockholders used to have double liability and even triple liability in some states. That put bank stockholders into something like a partnership form. They had to monitor one another's behavior. It may well be better not to have a body of anonymous and unsophisticated holders for bank stock. It may be better to have institutional investors that have additional capital at stake and the ability to use their staff as stockholder monitors.

BROOKS: Lucian.

BEBCHUK: Lucian Bebchuck from Harvard. Question/comment to Sanjai. First of all, thanks a lot for making Jesse Fried and me look like moderates with respect to executive compensation. A couple things: one is that I think critics of executive compensation should really try to stay away from this question of the total amount that is being paid, and focus on structure. I don't think we have as good reasons to try to lower the size as we have for reforming structure. And it seems a bit plain that the proposals we see now for having CEO's get half a million or a million or those kinds of numbers are really driven by anger rather than by good policy. I think that if we had a system where CEO's would be able to make more money by taking a teaching position at a law school and having a directorship on the side, that's not a good system. I think we deserve it – but, okay. So, on the structure, I very much agree, we are very much worried and warned about this problem of unloading incentives. But I think that restricting equity incentives so that you cannot unload them until you retire is not a good system, because it creates perverse incentives to leave. So, someone who is very good and we would want him to stay for twelve years, would feel a lot of pressure to leave, and, you know, cash what he has. So, what we proposed in the book, which I think would be superior, is to have something that does not penalize you for staying, which is not a good thing, but rather, it's fixed, and we just allow you to unload equity incentives in a fixed number of years, like three, after

they vest. So, when they vest, they are yours, they cannot be taken from you, but you have to keep them for an extra three years, and therefore, the stock of equity incentives we have in place is much larger than what we have under current arrangements.

BHAGAT: Thank you. Here is something we have thought about. Students ask, "How much is the right amount of compensation?" I tell them, economists have precious little to say about what the right amount is. What we can tell you is if a change in that amount is right or not. So, we have a tax-deductible cash compensation cap of $3 million. I'm not entirely comfortable with this except in some general sense. So, we are not for trying to cap compensation. What we're trying to do is go the other way. I mean, no limits on the amounts of restricted stock or restricted stock options. But, again, the only time that this has any value to the CEO or to the other managers, and I would also bring directors in that class, is when the shareholders do well.

In regards to the other point, I think it is valid that we may have set the incentives up for executives to leave the company. To counter that, there are two points. One is the average tenure of the U.S. CEO is roughly five years, and to that, if you add roughly three years, you have an eight-year time horizon. Managers whose compensation everybody claims are, from an incentive viewpoint, well aligned - are venture capitalists and private equity general partners. The lifespan of one of those is roughly in the seven- to ten-year timeframe. So, expecting a CEO to wait eight years is not that onerous, especially given that they're being paid in our proposal around $2 or $3 million a year. If they allow the shares to vest after three years subsequent to their last day in office, they are less likely to approve very risky business strategies or make announcements that will increase the share price only in the short term.

BROOKS: Why don't we take one on this side again and then we'll take a final question.

CASTILLO: Hi, I'm Sarah Castillo, and I'm an alum of the Law School. My question is also directed to Sanjai. For disclosure, I do work for an investment bank; I did not make a million dollars. I just wanted to know how you reconcile your executive compensation plan with a short-term interest and needs of certain shareholders and regulatory bodies. So, for example, for short-term shareholders, I'm talking about hedge funds, activist investors, such as Carl Icahn who agitate boards and CEO's for short-term results. They do not have a long-term view of the company, à la Warren Buffet. And then two, in terms of regulatory bodies, I'm thinking of FASB, mark-to-market rules. Those are all short-term, let's say, accounting losses that are booked rather than real cash losses. So, if you could address that, I would appreciate it.

BHAGAT: My sense is that you are making exactly the point that has motivated us to come up with this proposal. The reason why you see a lot of these activist investors concerned about the share price is they don't think the managers are doing the best to create and sustain value. If they saw that a CEO's compensation was tied to long-term share value, I don't think those activist investors would be that upset. Even if the quarterly earnings were bad, the CEO's response would be, "Look, I'm not getting any bonus this quarter or year. In fact, when the company share price is going down, I'm equally hurt." And he didn't even have to say that. The investors could just see it on their annual proxy statement that their CEO owned 10 million shares; the share price declined by x dollars – you know, do the math.

CASTILLO: I actually don't agree with that. I work in the M and A group. I won't name the investment bank, but I've seen boards and CEO's put in very difficult positions because activist shareholders are either building positions or trying to take board seats from these companies. And they are looking for short-term gains, not the two- or three-year time horizons. And, in fact, CEO's have told us that, listen, I've put forth my long-term proposal. I see that there's value in this company – let's say, for example the retail sector, and unfortunately,

because of market conditions, retail sectors are not doing well. But long term, there is viability there. So, I think from a practical perspective on what we're seeing in the market place, that is a concern generally for people who are in this business.

BHAGAT: I think it's quite possible that for a few cases you might actually see that. I actually did look at this in a more systematic way for roughly two decades for a large number of U.S. firms. The question we asked: What is the relationship between performance of the company and the likelihood that it will get taken over and the managers will get replaced? What is the role of anti-takeover provisions, the role of activist investors and so forth. The econometrics do get complicated. So, simple relationships are actually not held up when you look at it more carefully. Anyway, to make a long story short, what we found and what other studies have since substantiated is that just about the only thing that works if you don't want to get taken over and lose your job is to perform better. If the share price is already high, it's difficult to offer a substantial premium above that. And our proposal is geared to getting managers to think about the share price.

KANE: Could I just add one point about too big to fail and too complex to fail? At least in the financial industry, megamergers have generated short-term value for stockholders and counterparties at the expense of the safety net by firming up the presumption that a firm was too complex or too large for the bureaucracy to liquidate or even to discipline adequately. It is a mistake to point to short-term gains in the stock market as evidence of incremental increases in societal welfare.

BROOKS: I'm going to take one last question.

McLEAN: I'm David McLean, a graduate of the law school and retired general counsel of Coopers & Lybrand LLP. And PWC LLP. It won't surprise you that I have a comment or two on the LLP idea and the notion that ownership structures may have something to do with

how people in those kinds of professions, law and accounting, control their activities and their risk.

First, if the business goes out of business, the fact that it was an LLP doesn't really protect anyone, because you no longer have a job. And that's really what happened at Arthur Andersen. I mean, the individual partners who were not involved in the particular bad acts that drove Enron under, may not have had a personal liability, but they no longer had a job, they lost their capital, they were out of business and looking for other jobs.

And as to the LLP structure and why it came into place back in the mid-'90s, at least as to law firms, who ever heard of a law firm, at least a major law firm at that point getting sued? Accounting firms got sued all the time. And accountants had at least some basis, I think for being concerned individually that they shouldn't be responsible for the activities of another partner if it ultimately drove them out of business. But at least on the basis of losing a job, they would still have one. And from my personal perspective, from experience in the business, what drove Andersen under was the fact that up until the '90s, they had had the reputation among all of the big accounting firms as being the most strictly controlled centrally, the most carefully governed internally. They lost that starting in the mid-'90s because of the conflict within the firm between the accounting and auditing side and the consulting side. They lost control of their internal management, central control, and Houston got to do essentially whatever it wanted to do, and that's what drove Houston to do the kinds of accounting stuff that drove them into trouble with Enron.

MACEY: Rick, can I respond to this very, very quickly? Two points. One is I completely agree with your second point that part of the reason for the LLP, in position of the LLP structure, was tort reform, essentially. People were starting to sue law firms and obviously there was going to be a reaction to that. So, I agree. With respect to your first point, though,

that, oh, gee, all these guys at Arthur Andersen lost their jobs, that's empirically been studied and it isn't true. It's true for the secretaries at Arthur Andersen. It's true for a lot of the non-CPA's. But the people who are actually the audit engagement partners within Arthur Andersen who were working on, let's say, Dow Chemical, they simply moved en mass to other big accounting firms and continued to work for their same clients. And my point is that these people were trading on their individual reputations, not the firm reputation. They suffered no diminution in reputation. In fact, I'm basing this on a lot of studies in the accounting literature about what happened to these people, and they went to work for other firms. In fact, often when other firms were competing for Arthur Andersen's businesses, the audit clients would say, sure, you can do our audit work, but we want you to hire our old team from Andersen because we thought they were great. I think there's something to what you say in the sense that even with the LLP organizational structure, there's still very strong incentives for people who are, say, in the New York office to worry a little bit about David Duncan, who was the audit engagement partner. But my point is simply not that the incentives were zero, but they diminished a lot, because no longer are the personal assets in the New York office on the line. There were some losses, even though these people went to other firms, I think, you know, the point that many people have made, that they lost a lot of their pension money. There were losses. I completely agree with that and I kind of over-stated. But, on the other hand, they weren't so bad – these people landed on their feet at these other big accounting firms, and so the losses were not as big as I would have expected them to be, frankly.

BROOKS: Thank you, Jon. Thank you, panelists.

Session III: Reforming Financial Institution Regulation

ROMANO: We're going to start. I'd like to keep us on track so that we'll finish on time. And so, I'm going to moderate until our moderator, Melanie Fein, comes. It's hard to avoid these issues throughout the day, but we are going to turn to thinking about reforming financial regulation. We had two people who couldn't make it and John Coates generously agreed to pinch hit. So, Lucian Bebchuk, the William J. Friedman and Alicia Townsend Friedman Professor of Law, Economics and Finance at Harvard will be our first speaker. He's going to be followed by Richard J. Herring, the Jacob Safra Professor of International Banking, Professor of Finance and Co-Director of the Wharton Financial Institutions Center at the Wharton School at the University of Pennsylvania. Geoffrey P. Miller, who is the Stuyvesant P. Comfort Professor of Law and Director of the Center for the Study of Central Banks and Financial Institutions at NYU Law School will be the next speaker. And then John Coates, John F. Cogan, Jr. Professor of Law and Economics at Harvard Law School is going to be our final speaker.

And now I'm going to leave this to Melanie Fein, who is our moderator.

FEIN: Okay. Lucian, why don't you start us off?

BEBCHUK: Good afternoon. It's good to be here. My paper focuses on the plan that Treasury Secretary Geithner put forward this past Tuesday. If anyone is interested it's now in SSRN, and it's titled, "How to Make TARP II Work."

As Geithner announced, the Treasury's back to the business of buying troubled assets. The current plan is to have a public/private partnership, which Treasury is willing to back up with up to $1 trillion, that will buy troubled assets. There were some negative or skeptical reactions to the announcement. They seem to have been at least partly the result of the fact that few details were offered. After the previous administration announced a plan under which the

government would directly buy troubled assets, it became clear that working out an effective plan for such direct purchases would be difficult, and that plan was abandoned. As a result, quite a few people are now skeptical as to whether it's possible to work out an effective plan for partnering public and private money for the purpose of buying troubled assets. I have in my paper various quotes from the media, all saying that it might be a good idea, but the devil is in the details, and it's not clear we can work out an effective plan. I would like to suggest that it's possible to work out an effective plan for a public-private partnership for buying troubled assets. And I'll present to you the design that I think would work best for this purpose.

The basic belief of the administration—and the previous administration shared this belief—is that the market for troubled assets has frozen up due to insufficient liquidity. Andrew Metrick talked about this issue this morning. "Limits to arbitrage" might now impede the flow of capital, and we need to bring in extra capital on the buying side of the market to make it well-functioning again. This will move some assets off the balance sheets of the banks, and we will also have an effective way for valuing the assets that do remain on balance sheets.

The problem with the old plan was: if the government goes out and buys troubled assets directly, how will the government know to price them and how can we rely on whatever prices the government will pay to value the assets remaining on banks' balance sheets? So now the idea is to bring in some private decision-makers on whom we can count more.

One approach that has been discussed, but I think is not the way to go, is to have one large aggregate bank that will be funded both by public and private money and have this bank run by managers with a profit motive. This approach might be better than the plan the Bush administration put forward last fall, and it would add a lot of capital to the market for troubled assets. But this approach isn't a good one because it would add just one large buyer on the

buying side of the market. It would be good to have a multitude of buyers, because that's what a well-functioning market usually has.

Suppose that until now banks have been able to get only 20 cents on the dollar for troubled assets of a certain type, and let's suppose that this is less than fundamental value because we don't have enough liquidity. Now, if the aggregated bank is going to be profit maximizing, it would have an interest in driving prices as low as possible to 20 cents on the dollar, and that wouldn't give us the price that a market with many buyers and sellers would produce. Alternatively, if we somehow twisted the arms of the aggregated bank and got it to seek not to maximize profit but rather to "pay the right price," then we are back to the plan considered last fall that did not have profit-maximizing players trying to make decisions.

So, rather than having one aggregator bad bank, what we should try to get is many "bad banks." We need to have many privately managed and partly privately capitalized funds dedicated to buying troubled assets. This general direction is one that I proposed in a paper I issued last September. The idea was that, if we want to get a well-functioning market and we have $500 billion dollars to put in the buying side, let's divide it among, say, twenty-five private funds, each capitalized with $20 billion, and each of them will be run by a private manager that will get a profit share, let's say 5 percent. The profit incentive of the competing private managers will incentivize them not to overpay. On the other side, the banks will have a strong incentive not to underpay.

The simple scheme I just described involved private management but not private capitalization of the funds. But Secretary Geithner expressed an interest in involving also private capital, and there are at least two good reasons for doing so. One reason is that the government might feel that it doesn't have pockets that are as deep as we felt it had several months ago. Thus, it would be nice to leverage the capital the government is willing to commit to this

purpose and to have more capital go after troubled assets. The second reason is that if we take the private managers in the story I just told you, and we require each of them to get some fraction of the capital from private sources, that would provide a market check on the selection of private managers. The private managers running the funds will be those that can attract capital from private players.

Thus, the key question is how to induce private capital. Because private capital has not thus far largely flown to funds dedicated to buying troubled assets, it is likely that some sort of a subsidy, possibly by the government's assuming a disproportionate share of downside risk, is necessary to get private capital to flow into those funds. Thus, the critical question, on which I want to focus next, is how to provide a government subsidy to induce private capital but do so only to the extent that it's necessary to induce the private capital but not more.

Suppose that the government were to provide a subsidy and attract private capital by providing low-interest, non-recourse debt financing. Clearly, if the government were willing to provide 95 percent as non-recourse debt financing, and private parties had to provide only 5 percent of the capital and capture the upside, that would be very attractive to getting private capital. The question is what's the percentage under the program that the government should require each private manager to get, either on its own or by partnering with some private investors. Let's denote this percentage by X. And the way in which I propose going about it, and I develop it in my paper for this conference, is by having X determined through a competitive process.

How will it work? Let's suppose that initially we have a pilot program of $100 billion. We'll ask private managers who wish to establish funds under this program to submit bids indicating both (i) the size of the fund they would like to establish, and (ii) what is the maximum percentage of the fund's capital that they would be willing to commit (rather than use

governmental non-recourse debt financing). Then the government will set the required percentage of private capital X at the highest level that would still be consistent with setting up private funds with the desired total capitalization of $100 billion.

You can repeat this process in each subsequent round. In each round, bids will be solicited, and the process would ensure that the amount of capital attracted from private parties is as large as possible. This would ensure that the expected costs of the program is kept at the minimum necessary to induce the creation of competing funds with the target amount of aggregate capital. There are various other aspects of design that I discuss in the paper. I show how the competitive process can be attached to different alternative schemes.

Let me just stop here and conclude by stating what I think are two essential elements of a good program for a public/private partnership to buy troubled assets. First, we need many privately managed and competing funds, not a single aggregator bad bank. Second, private managers should compete on two levels. Not only should they compete for troubled assets after funds are set, but they should also compete upfront for participation in the government's program. The competition for troubled assets would improve the pricing of such assets, and the competition for participation in the government's program would ensure that the costs to taxpayers are kept at a minimum.

HERRING: This will be a rapid overview of how we got to this point in the crisis and where I think we ought to be going. There's almost never a perfect time for reform. When profits are high and markets are buoyant, it's only we ivory tower types who think about it. And when there's a crash, risk aversion rises to such an extent that tightening regulations is unnecessary because institutions and markets are already too risk-averse to rekindle economic growth. But this seems to be an unusual time in that worldwide we have an enthusiasm for

rethinking the fundamentals of regulation. Yet, there's really very little agreement on what needs to be reformed or how.

I'd like to review very quickly how we got here. It's unfortunately an all-too-familiar pattern. It's happened at least 23 times according to a recent paper by Ken Rogoff and Carmen Reinhart (*The Aftermath of Financial Crises*). And it usually starts during very placid times without anyone necessarily intending to take greater risk. People take very large positions without really thinking they're doing anything more risky. But sooner or later, the world being the unpredictable place it often is, something happens that causes people to doubt that those positions are worth what they once thought they were. What was distinctive in this case was the proximate cause, the shock to economic euphoria, was defaults on subprime mortgages. The other notable difference was the remarkable speed with which the crisis spread around the globe. Partly this is because of the remarkable growth of the shadow banking system that has pooled, sliced and diced assets originated by others and distributed tranches of these pools quite widely (but perhaps not so widely as they thought since many of the key participants have ended up with much of this debt on their own balance sheets.) Private label securitizations reached nearly $12 trillion, less than a trillion of which were related to subprime debt.

This all came to an abrupt halt when it was apparent that the underwriting standards for subprime mortgages had greatly deteriorated. The model builders and the ratings agencies assumed that 2000 was the worst that could happen. The peak default on these mortgages usually occurs about 3 years out because that's when the teaser rate is replaced with a much higher rate. Very few borrowers ever pay the new rate. Healthy borrowers can ordinarily refinance at ordinary rates. But we saw in 2005 and the 2006 that the historical worst was happening much earlier in the lifetime of these mortgages. Indeed, in 2007, lots of subprime mortgages were never serviced. This cast immediate doubt on the three pillars of privately

sponsored securitization. One of the pillars was statistical ratings models that allowed us to compute how large the tranches of the pools of securities we needed to create so the best tranche of the securities could be rated Triple A. The second pillar was the ratings agencies, which you've heard so much about today. Since many of these products were extremely complex for a non-specialist investor to evaluate, the ratings agencies were relied on very heavily. The third pillar was default insurance supplied by monoline insurers.

People quickly lost confidence in the models because the institutions that had the best resources and the strongest incentives to build the most accurate models got things badly wrong. All of the biggest players in the system had immediate and very large losses from July 2007 on. Probably the biggest shock, however, was what happened with the ratings. 2001 was the worst year we ever experienced in terms of downgrades in corporate bonds. That was the year we experienced the default of Enron and WorldCom and the largest sovereign default, Argentina. Yet triple-notch downgrades were very rare and occurred mainly within speculative grade investments that were expected to be volatile. In contrast, the last year represents the worst experience with downgrades of subprime related securitizations. Triple-notch downgrades, in contrast to the case of corporate bonds, have become quite common. Worse still, they're quite common at the level where they can damage certain regulated institutions badly. BBBB is the cut-off for investment grade. And 68 percent of the securitizations that were initially rated as BBB have been downgraded below investment grade, which meant that some institutions that were required to hold only investment grade assets had to dump them. You might think that AAA did a lot better, but that's only because of the procedure used by the ratings agencies. They had to work their way through lower rated tranches before rerating higher tranches. Once defaults occurred on lower-rated tranches the AAA tranches were downgraded as well. Once it looked like investors would have to use monoline insurance, the equity prices of the monoline

insurers collapsed and their credit default spreads widened markedly. New issues of asset-backed securities have virtually halted, which is a huge problem since under normal conditions significantly more consumer and mortgage lending is financed through securitizations than through bank balance sheets. If we can't restore confidence in the securitization process, then we're going to see a credit freeze unlike anything we've witnessed so far.

I believe that from August 2007 to 2008, we wasted a whole year in reform, due to the fact that policymakers refused to frame the problem in the right way. They insisted on defining it as a liquidity problem. Public policy should start from a clear diagnosis of the problem, and that's the primary way in which they failed. It should have clear goals that address the problem. It should be efficient in a sense that it accomplishes these goals at least cost. And it should minimize distortion of incentives for people and institutions to behave prudently so that regulators don't encourage even riskier behavior in the future. It should be horizontally equitable in that it treats similar institutions similarly. And certainly it should be vertically equitable in that it doesn't tax lower income people to pay for mistakes made by higher income people. And, of course, you want it to minimize cost to taxpayers.

Even though officials characterized the crisis as a liquidity problem, it was absolutely clear from August 2007 that we faced a capital problem. Firms suffered direct losses from holding the downgraded securities. Risk management and evaluation at some of these firms was so weak that several ending up drinking their own Kool-Aid rather than distributing it widely. In addition several firms suffered losses from honoring implicit guarantees associated with off balance sheet vehicles like SIV's and asset-backed commercial paper conduits, for reputational reasons, not contractual reasons. Some institutions suffered losses from the decline in value of pipelines of assets that were waiting to be securitized. That's a huge part of the Northern Rock story. And then there were losses of a very important source of bank revenue. For investment

banks, this had become virtually 50 percent of revenue. The capital challenge was not only to replace lost capital, but also to rebuild capital to continue lending. Although several institutions succeeded in raising capital, bank losses continually exceeded capital injections until the last quarter of 2008 when official injections of capital began.

The Fed tried to deal with this as a liquidity crisis. It flooded the market with liquidity in every way it could think of. And it was marvelously innovative. Not only did it do all the usual things, such as lowering interest rates sharply, but also it began to take more kinds of collateral from a broader range of institutions in ways designed to protect the privacy of the borrower. These measures had very little lasting impact because the real problem was not a lack of liquidity, but an unwillingness to extend interbank loans and engage in other normal money market transactions because of fear of counter-party risk. While we knew there were huge losses overhanging the market, nobody really knew how they were going to be allocated. Part of the problem was variations in accounting standards and disclosure standards within countries and across countries. Moreover the piecemeal release of news about increasingly larger losses raised concerns about the integrity of financial reporting, about management's own grasp of what risks they were running, and the quality of oversight by supervisors. After implementing a policy that amounted to forbearance, the Fed and the Treasury subsidized a shotgun marriage between Bear Stearns and J.P. Morgan Chase. They feared that the consequences of the usual stays associated with bankruptcy could cause systemic spillovers that would severely damage the rest of the system. Unfortunately, they did not take advantage of the brief interval of relative calm after the assisted merger, to seek the kind of authority they needed to wind down other non-bank financial institutions under special resolution processes that avoided the usual bankruptcy process. Ironically, they had a perfectly good model at hand in the bridge bank. So they still lacked appropriate resolution tools when confronted with the collapse of the GSEs, AIG and Lehman

Brothers. In contrast to the other institutions, Lehman Brothers was not bailed out. Although Lehman Brothers was at least twice as large, twice as interconnected and twice as complex as Bear Stearns, the bailout logic didn't apply. We're still not entirely clear why although a private deal for Lehman Brothers was undoubtedly complicated by the fact that buyers assumed they were going to get a government handout at the very last minute that was at least as large as JP Morgan Chase received for taking over Bear Stearns. These policy interventions looked increasingly ad hoc and desperate. Central banks pride themselves on constructive ambiguity, but I think this was a case in which the policy demonstrably undermined public confidence in the policy framework; it was, in effect, destructive ambiguity.

Markets reacted sharply. Probably the worst blow to confidence was when a venerable money market fund, the Reserve Primary Fund, became the first money market fund to break the buck in fourteen years. Investors fled from money market funds, which meant that money market funds were no longer able to fund commercial paper. The Treasury did an impromptu rescue of money market funds. We lost confidence in the financial system, which began to show signs of panic. Illiquidity in the inter-bank funding markets was obviously a huge problem. But it wasn't because there was insufficient liquidity in the system. Banks were holding record levels of excess reserves at the Fed. They simply didn't trust each other to extend even short-term loans.

After the bankruptcy of Lehman and the bailout of AIG, the Treasury panicked and issued a two-and-a-half-page proposal for $700 billion. The proposal was deficient in every one of the criteria we talked about, starting from the analysis of the problem and TARP I failed to pass. The result was that Bernanke and Paulson tried to scare the hell out of Congress and the rest of us by saying in effect that the world would come to an end if TARP wasn't passed. Congress passed TARP II. What emerged was a 451-page bill that I doubt anyone in Congress

actually read. It had some very surprising elements, including protection for makers of wooden arrows and rum, and a monthly subsidy for riding your bicycle to work. But it also contained lots and lots of freedom for the Treasury, Fed and FDIC to act boldly.

Since TARP had been sold as a way of buying up toxic assets, many were surprised when it was used instead to inject capital into firms rather than to buy assets. But once you start giving out capital with minimal strings attached, almost every industry is requesting a piece of the TARP Fund. It's a very slippery slope. Moral hazard is rampant.

The process has been opaque and highly politicized. Elizabeth Warren, Chairman of the Oversight Committee, showed that the Treasury has greatly overspent. Even Barney Frank, the Chair of the House Banking Committee, managed to steer TARP funds to a distinctly undeserving non-systemic bank in his Congressional District. There was increasing outrage over Wall Street excesses. The administration understood this and realized they were not going to get the additional TARP money they believed they needed to complete the turnaround in the financial sector and so they announced curbs on Wall Street and tried to emphasize the private/public partnerships that Professor Bebchuk has just so well described.

Secretary Geithner has come forward with a Son of TARP II. It included capital injection, public/private investment, consumer lending and foreclosure modifications. The plan was regarded as a complete disappointment by Wall Street. You can see what happened in trading in one day. And it leaves many unanswered questions, including the central problem of how the toxic assets will be valued. S&P recently showed an example of the kind of problem the new TARP program must resolve. The asset in question had been rated triple and was a senior claim on a pool of home equity loans. One major institution holds the asset on its books at 97cents on the dollar, but it currently trades at 38 cents on the dollar.

Secretary Geithner seems determined to avoid nationalizing banks, but the determination to socialize losses while privatizing profits is not sustainable. It's only going to lead to greater moral hazard and more banks that are too big, too complex and too interconnected to fail. Without a coherent resolution policy, inevitably more and more reliance will be placed on regulatory discipline, which has proven to be wholly inadequate to the challenge. We need to supplement regulatory discipline with market discipline and improve our techniques of resolving financial institutions so that no financial institution is too big to resolve without tolerable spillovers. But the measures that are being taken in the short run are taking us further and further away from that goal. Essentially, we need for every institution to maintain a plan to wind itself down, that is looked at carefully by the supervisors and boards of directors in just the same way they currently monitor plans for business continuation.

MILLER: Well, I must say it's a little hard to follow Richard's whirlwind tour through the financial crisis. I almost felt like I was watching a Shakespearean tragedy in triple time. Whoa! A lot happened. Well, I'm going to talk about Basel. They asked me to give a talk at the University of Basel, and they wanted a title, so I came up with this title – Blame Basel? – on the theory it would draw people. So, it's going to be about Basel as a brand, the city of Basel, and the regulatory activities that are associated with Basel.

Many of you know, Basel is a paradise on the Rhine. It's clean, it's rich, and the trams run on time. It's home to Fasnacht, which is the Basel Carnival. Very odd that a buttoned-up Protestant city would have a Carnival, but they do. And the Basel Art Fair is the most famous art fair in the world. But for purposes of this talk, we're talking about the Bank for International Settlements, which is in Basel.

So, why are we talking about that? Let me suggest that there is a Basel brand. What is the BIS? It's the banker's bank for the world central banks. It's been around for a very long

time. But in addition to performing bank activities for the central banks of the world, the Bank for International Settlements in its Secretariat Building also houses a number of committees and secretariats which, while not formally part of the BIS, is closely associated with it. Now BIS and its affiliates have no formal regulatory power at all, but in fact, it is a very, very powerful and successful regulator of the financial system. That raises a question given the disaster we've been through: should the BIS, or its affiliates and the Basel brand be a source or a method by which we might consider further regulatory options?

It has some appealing features. It's inherently international. And we've seen that this crisis transcended the borders of the United States almost instantly. So any regulatory response that's going to be effective and complete really ought to be international. BIS has that feature. It has the feature of being insulated from politics. And as Richard was pointing out, politics infects a lot of the decisions that are made domestically about what to do about the financial crisis. So, the kind of bureaucrats and experts in Basel might be good at that. And it is well staffed with the very top experts around the world, so it has expertise as well. So, you might say this is a very good model for how we ought to go about managing future regulation in the financial crisis. But to assess whether Basel is a good model, we might want to think about how good a job it did in the past, in particular how good a job it did with respect to the crisis we're in now. So, I'm going to talk very briefly about three features of the Basel brand: the Financial Stability Forum, its function as a club of central banks and the risk-based capital standards.

The Financial Stability Forum is little known, but within its sphere potentially influential. This is a committee that meets in Basel, and its mandate is to assess vulnerabilities affecting the international financial system, to identify and oversee acts needed to address these vulnerabilities, and to improve coordination and information exchange among the authorities responsible for financial stability. Well, that's the central task that should have been done by

someone in the past three or four years. What better organization to do it than the Financial Stability Forum in Basel? Well, it's also comprised of powerful people and they're identified with the Basel process.

Now, this, in my opinion, may have created an impression that somebody was watching the store, that somebody who knew what was going on, was paying attention and was taking charge of the problem of financial stability. The problem was that the Financial Stability Forum is like many centers at law schools: it's a name, but it doesn't necessarily have a lot of funds, a lot of resources, or a lot of authority. And the Financial Stability Forum has little of any of those. Moreover, it's really not independent, though it purports to be, because it's very heavily dependent upon the central banks, whose activities would be the principal source of criticism. It doesn't really have a reliable ability to make comments and make reform. The Financial Stability Forum did meet frequently, issued reports, had a nice website, but utterly failed to identify the risk of the U.S. subprime securities market, and more generally, the risk of excessive credit injected into the world's financial system by central banks during the 2000's. It was a complete failure, in my opinion, although it was very well intentioned.

Okay. Now let's talk about the second feature of Basel, which is Basel as the club of central bankers. Basel is a very nice town, and central bankers like to go there. They get away from all the pressures. Alan Greenspan was actually in Basel on September 11, 2001, that's why he couldn't get back to the United States during that crisis. The BIS hosts a general annual meeting where many heads of central banks come. They go to cocktail parties. The BIS is a forum for discussion of policy, analysis, information sharing – this is from their website – among central banks and within the international financial and supervisory community.

So, this is again an opportunity. Central bankers can come together. They can talk about the issues that concern them. They can identify common trends. Maybe they can see things

happening in one country that are happening in another country in order to develop coordinated regulatory strategies.

It sounds like an excellent idea for how to manage the problem we're in now. But did they do it? Well, Basel is a club, and like any club, it has powerful members and less powerful members. The powerful members are the heads of the Fed, the ECB, and the Bank of England. And that leads to certain conventional wisdom, almost groupthink. There is one conventional orthodox set of opinions that central bankers who met in Basel tended to adhere to. And it had these features: price stability is the primary mandate of a central bank; central banks should be independent of the political branches; and an independent central bank with price stability is the best protection against financial instability. A final aspect of that is the Greenspan doctrine that the central banks should not intervene to respond to apparent asset bubble problems. What you should do is let the asset bubble pop itself and then you should make the landing as soft as possible, but not intervene to pop an asset bubble.

So you had a very strong set of shared beliefs and attitudes among the central bankers that was reinforced in the social setting of the Basel process so that they could all talk to each other. But is this wisdom? Is this the right thing to do? The Fed and other central banks have been criticized, and although I'm not a macro-economist, it seems to me this is right, for flooding the U.S. market and the world markets with cheap credit during most of the 2000's at a time when it wasn't necessary to do this, by failing to tighten up after the tech bubble had crashed and continuing to put credit into markets. That seems to have been a principal cause of the U.S. housing bubble and housing bubbles elsewhere. The world's central banks did not attempt to stop housing bubbles. This is the Greenspan Doctrine.

This raises the question of whether the Basel process has a constructive or non-constructive role. Did the common thinking in orthodox doctrine and groupthink that the Basel

process encourages among central bankers contribute to some of the problems we're having now?

Now, I'll get to the third and last point, which is the risk based capital guidelines. Basel I, the first risk-based guidelines, was perhaps the most successful initiative in the history of financial regulation. It is so successful that many countries adhere to the Basel process although they weren't signatories to the Basel Court. Basel II, which was formally announced in 2004, carries the process forward, much more technological, with a complicated, almost impenetrable set of principles that seem very scientific, vetted by top regulators, many governments, and private sector commentators. It creates an impression of a very sophisticated, highly vetted, very thoughtful, very accurate set of guidelines, and therefore, it creates the idea that maybe we should rely on Basel because the work has been done. The problem is that can create complacency on the part of other parties.

There are several features of Basel I and II that appear problematic in retrospect. Most important is that it gives talismanic importance to capital. The suggestion is that if a bank has adequate risk-adjusted capital, there's little to fear. But risk-adjusted capital is not a leading indicator of financial distress at a bank. In fact, it's a significantly lagging indicator of financial distress to the bank and it's not a protection against distress or failure. The capital was greatly overstated in my opinion by regulators and others as the single criteria that we should look to to assure ourselves that banks in the financial system are safe. All the banks, as far as I know, that have run into trouble during the current financial crisis had fine risk-adjusted capital ratios until shortly before they collapsed. IndyMac's capital was over 10 percent only two months before its failure. And this is true of all the banks. So, capital is a disastrous guide to whether a bank is safe or not, at least in the current environment.

Atavistic reliance on capital is embodied in the deep structure of U.S. bank regulation. An example is the prompt corrective action system, which is widely admired in the United States and around the world as a cutting-edge, top-of-the line bank regulatory system. PCA depends entirely on capital ratios. But if capital ratios are not a leading, but a lagging, indicator of problems with a bank, the prompt corrective action system isn't going to solve the problem and may again lead us to have a complacent attitude and ignore problems that might arise that don't have to do with capital. Capital is used for other purposes in the banking regulation in the United States and elsewhere.

What about 8 percent? So people say, where does 8 percent come from? Well, it is the infinity sign that's turned 90 degrees. That's the only reason for 8 percent. It was simply a political compromise hammered out between the United States and Japan in 1988 when the original guidelines were adopted. There is no significance to 8 percent. It has never been empirically validated that 8 percent is the right level of capital for a bank. Anyway, why was it retained in Basel II? Simply because of numerology. It's a nice number and we might as well keep it if we're going to have a new version. Everything else changed in Basel II, but 8 percent, that stayed. But 8 percent means nothing. It's just a number that was pulled out of a hat.

The Basel I guidelines also give enormous credibility to home mortgage lending. The risk rating for an occupied home mortgage loan under Basel is 50 percent, whereas the risk rating for commercial loans of any type in Basel I, which was applicable during much of the time when this financial crisis was developing, is 100 percent. Here's a quote from Basel I: "Loans fully secured by mortgages on occupied residential property have a very low record of loss in most countries. The framework will recognize this by assigning a 50 percent weight to loans fully secured by mortgages on residential property." It sounds ironic in retrospect. What it

means is that if a bank makes a loan to Exxon Mobil, it has 100 percent risk rating, but a loan to a home that's being built somewhere in Las Vegas, has only a 50 percent risk rating.

What does this do? First, it encourages banks to make more home mortgage loans, because the cost of capital against those assets is less than commercial loans of other types. More importantly, because of the Basel brand's prestige, this created the impression in the financial world that home mortgage lending is the gold standard. That's what you assess every other risk by. You can't go wrong making home mortgage loans.

Finally, Basel II allows banks to use credit ratings as the basis for reserving capital against certain assets. Some of these obviously prove far from reliable in retrospect. The use of credit ratings in Basel II endorses the validity of credit ratings and creates an impression in the financial world, given the prestige of Basel, that credit ratings are reliable things that we can look to to assess the risk of assets.

It seems to me that the Basel brand performed poorly and that its reputation is somewhat tarnished by the events that have happened. And that does raise a question: Should we look to this avenue or mechanism for reforming financial regulation in the future?

COATES: So, I'm filling in—if I look at the original schedule—for the former chief operating officer of Merrill Lynch and the former general counsel of Bear Stearns. So, let me lower your expectations for what I'm about to add to your knowledge.

I do promise you one fact for sticking around for the last part of the panel that I don't think many people know about. Lucian and I are the only two professors left at Harvard who have not gone to D.C., which worries me, because I think that means we have two thousand exams to grade in the spring. And I mention that in part because the paper that's in the material was originally written with the idea of providing some alternatives for people down in D.C. to think about that were new to the game – that were coming in, and I don't think that what we

have in that memo necessarily is what we think is the right thing to do, but we do want to see if we can get people thinking beyond the box that Richard so ably described, which the last set of regulators having gotten themselves into.

Just a couple words of background. In the last panel, it was asserted that law firms didn't used to get sued, but I remember distinctly when I started practice at Wachtell Lipton back in the early '90s, that Kaye Scholer had been sued in the last round of bank failures, and for that reason I was sent as a spy, as a first year associate, to the Bank of New England and was told just to camp out there, because that was the firm's client, and make sure that we weren't going to get sued for something that was going on while we were representing Kaye Scholer. So, a lot of what I bring to bear on this topic comes out of living through the last time it happened. Now, scalewise, what we're going through is utterly of a different magnitude than what happened in the early '90s. But I do think there are some useful lessons for policymakers going forward that so far seem to not really be part of the mix in terms of alternatives. And that's what I want to talk a little bit about today.

So, over-arching point, and I don't think this seems to be yet squarely framing the debate in Washington – it seems to me that everything that goes on here forward ought to be understood, thought about and criticized with the view to one thing only, which is whether we can get private capital to come back into the financial sector. And unless everything is measured by that, it's not going to happen. And in particular, the moral hazard that we generally think about in terms of subsidies has been replaced by one in which everyone is sitting on the sidelines thinking that they're going to keep getting more and more money given to them. Why in the world would they take any investment risk, when the government is potentially going to bail them out even more than they have to the current extent. So, that's going to frame the way that I talk about the alternatives that I'm going to describe.

There are basically going to be three transactional alternatives and three sets of legal reforms, two of which could be implemented, I think, without having to get Congress involved and therefore have that merit, and the third would require Congress to get involved for better or for worse. And I think the third one we're going to do, whether we like it or not. We're going to have to do it. All right.

Now, prefatory fact. All of the major banks that have gotten money, all of the major banks that are in trouble, all of the major banks whose troubles are overhanging the current market now are not, in fact, banks, really. They have banks, but they are bank holding companies. And the bank holding companies are the publicly traded companies that we think about: Citigroup, Bank of America Corporation, and the like. Now, the reason that's important is, first, the FDIC, and therefore, taxpayers are contingent creditors, not of those companies but of the banks that they own. So, we, through the FDIC have probably got, whether we like it or not, ownership of assets down at the bank level, and up above us is a holding company that has currently something like – say the top three bank holding companies – $440 billion of credit that's outstanding at that level. We are, through the FDIC, structurally senior to those creditors at that level. And this has been completely missed in the discussion so far. And this is Henry Hansmann/Reinier Kraakman Corporate Law 101, a parent company with credit outstanding. Those creditors, all those bondholders, $440 billion, are subordinated structurally to the claims on the subsidiary banks that those bank holding companies own. That's just fact. Keep that in mind as I go forward.

Second fact: TARP II, the one that actually got implemented, all of that money has gone in, not to the banks, which is what everybody sort of says when they talk about it loosely. It's gone into the holding companies. In fact, the TARP application guidelines insisted that if you had a holding company, the money had to go into the holding company – you weren't even

allowed to ask for it to go in at the bank level. So, of all $75 billion of the first round that went to Citigroup, Bank of America and J.P. Morgan – how much of that has actually gone into the banks? $75 billion goes in as preferred stock at the holding company level. $11 billion is all that has been down-streamed to the banking subsidiaries. $64 billion is still sitting either in the holding company, where it's doing nothing; it's just sterile, basically. Or it's been invested in non-banking trading operations. Some of them may be lending operations, to be fair. So, some of the money may be working through non-banks, doing what we want the TARP money to be doing. But most of it I suspect is not. And none of it, for the most part in the two largest institutions, has been really put to work at the bank level, which is the public depiction of what TARP money has been for so far. That's based on looking at the December 31st call reports of all the banks. They got TARP money in the fall and comparing them to the September 30th call reports, all of which are publicly available to anybody who wants them on the web, and just looking at the capital contribution numbers from those two sets of reports, stock outstanding.

AUDIENCE: Just if I may interrupt. Why did the TARP program require the money to go to –

COATES: I have no idea. I wasn't in office in the fall. And, in fact, I'm implying, I think, it's a mistake. I'll come back to that towards the end. I have no idea. We'd love to hear if anybody has any explanation for it. I have some suspicions, but I don't know.

All right. Those are just some background facts. Now, suggestions on how to take the level of detail of what to do going forward to a level of specificity that it needs to go to in order to make it practical. Three sets of transactions that have not really been pursued very seriously today. Rights offerings, equity-for-debt swaps, and so-called bridge banks, that Richard alluded to a minute ago. Rights offerings are very common in Europe. In the last year, some of the big financial holding companies have managed through the rights offering mechanism to raise over

$50 billion of new capital into what were equally troubled institutions in Europe. But this strategy has not been embraced, pursued, et cetera in the United States. It's not solely a European phenomenon. KKR used the mechanism in 2007 to raise a substantial amount of capital for its new publicly traded company. And U.S. banks have used it in the past, so, I think still the largest – Melanie, you can correct me if I am wrong on this – but I think the largest successful out-of-bankruptcy, out-of-FDIC-foreclosure process and recapitalization of a U.S. banking institution remains Glendale from 1994-95, and they used the rights offerings mechanism – I worked on the transaction – to raise a significant amount of money.

Now, rights offerings are very dilutive to existing shareholders if you're going to make it all attractive to new investors. You're going to have to dilute the hell out of the existing shareholders and hopefully, in combination with the second suggestion I'm talking about, also dilute the existing holding company's creditors. But it's a way to make new investment in these organizations feasible. Now, I don't think on their own they're going to work without something along the lines of what Lucian was suggesting, without something along the lines of bad asset clean-up. But you're going to need not just the bad asset clean-up, not just new injections of capital by the U.S. Government, you're also going to need private equity to come into these new organizations and the rights offering mechanism is one that the government ought to think more seriously about.

Second, debt for equity exchange offers – again, just to re-emphasize, $440 billion of capital in the holding company currently senior to the TARP money, because the TARP money went in as preferred, $440 billion in bonds at the holding company. There's absolutely no reason that I can understand why that money should come before all of us, should these holding companies fail. And so, both with government prompting and with some carrots that you can usually imagine along the lines of Lucian's proposal, it seems to me the holding company bond

holders, ought to be encouraged into accepting capital, equity capital, either at the bank level or at the holding company level. This would obviously reduce the cash drain from interest payments and make the rights offerings more feasible going forward. And should the banks, in fact, fail, they'll be where they should be, which is at a junior level to the TARP money.

And then third and finally, part of the push, part of the stick here, is, in fact, bridge banks. Now bridge banks sound like a nice private idea, but it's actually just another way of saying, failing the banks, but failing them in a way that has worked in the past. So, Bank of New England failed through the use of bridge banks. The FDIC used bridge banks to resolve IndyMac last year. It's a mechanism that has worked in the past. It's different from a long, drawn out resolution process in the bankruptcy system. It can be done very quickly in terms of ordinary customers in borrowers' dealings with the commercial banks that go through the process. And for many people, it would be largely invisible to their ordinary dealings with banking organizations, and would obviously wipe out holding company debt, and that would be a way of forcing the holding company bondholders to contribute to the mess that they helped finance.

Legal reform. Implicit in what I said is, I think—at least it should be on the table—that the TARP money that goes in in the near future should go into the banks. It should go in at the subsidiary level, and therefore ahead of holding company claims of any kind. If that's not preferable for some reason, if the non-bank subsidiaries or the lending operations that are outside of the banks are so important that the holding companies also need to be supported by the government, at a minimum there should be some thought given to mandating that some amount of the money must go into the banks simultaneously with the injection at the holding company level. That's what was done when Continental Bank was bailed out back in the early 1980's. If you want to think about it this way, what we've been doing is trying to help Chrysler by giving

money to Cerberus, the private equity fund that owns it. But, of course, if you give money to Cerberus, they might use it for Albertson's, which is completely unrelated to Chrysler, and Cerberus also happens to own it. Right now, the holding companies are being given the choice to allocate their capital with complete flexibility. Normally that's okay. They're private organizations. We want them to do that, but this is the taxpayer money, and if we're doing this because we're either trying to defray the cost of resolution or get lending going again, it seems to me the government ought to be thinking about how the capital is being put to use, at least in general terms.

The second legal reform that could be implemented without Congressional action is to get private equity into the game. IndyMac, the biggest bank failure in U.S. history, last year was resolved and taken private again through the use of private equity investment. Private equity was able to invest because it was a thrift, and thrifts are subject to a slightly different set of control restrictions than the commercial banks that they compete with. So, you can buy up to 10 percent of a thrift without being presumed to control it. That allows the private equity firms to form a club and invest at a greater amount of money and therefore a greater amount of influence without having to take on all the legal responsibilities that comes with the control position. The banks on the other hand, the Fed has a 5 percent threshold that it uses, and that obviously constrains the ability of private equity to put money in, especially when you're talking about organizations of the size of the largest one. Now, I'm not kidding myself that private equity is the White Knight here. I don't think there's anywhere near enough private equity that's going to come in and recapitalize the biggest banks. But for some of the regional banks, some of the smaller players, I do think relaxing the Fed's 5 percent restriction would be a significant step towards making private recapitalization of the banking system a little bit more feasible.

And then third, and finally, and the one that I think we're going to need Congressional help for – really something that should have been done in 1999 is we need the FDIC to have power to resolve the whole holding company, the whole thing. If you own a commercial bank and you have a bunch of nonbanking operations, it makes absolutely no sense for the FDIC to resolve the bank while the courts, through the bankruptcy system, are given the job of resolving the holding company. That's going to take Congressional action, I think, to either expand the FDIC's role, or come up with the role for the Fed, to take it out of the court system. But, in any event, that's something that's going to have to be on the table over the next couple of years.

FEIN: I just want to take a few minutes to make some observations. This conference is called "The Future of Financial Regulation," and this panel is entitled "Reforming Financial Institution Regulation." A comment was made during the first panel that commercial bank regulation is broken. I want to take issue with that comment and make a point that I think is very important for Congress to keep in mind when it considers proposals for regulatory reform in the coming months. And that is, it's not commercial bank *regulation* that is broken so much as commercial bank *supervision*. There is, in my mind as a former bank regulator at the Fed, a great distinction between *regulation* and *supervision*, if only for one reason, because the division of banking supervision was across the street from the legal division, and we considered ourselves the regulators and they the supervisors. The regulatory framework consists of laws and regulations on the books. Supervision is in the oversight of banking institutions through the examination of process. And in the supervisory discretion that the banking agencies exercise when they are determining how well a bank is managed. It's much more of a subjective process. It's more principles based than regulation per se. Now, the two obviously come together at some point, but regulation sets the outer perimeters, and it's supervisory judgment, in my mind, that really failed us in this crisis.

There are a number of issues that Congress is going to have to consider that are supervisory in nature. You know, how to deal with excessive leveraging. But also whether or not certain complex instruments should be regulated, like derivatives or hedge funds. Those are regulatory structure questions that Congress will be dealing with, whether there are gaps in regulatory coverage as to who should be supervised on a regulatory basis. Congress will be dealing with some very difficult questions of regulatory structure. But I think it's very important that they not confuse regulation and supervision, because there is a danger that they might think, well, we've restructured the entire financial system, and that solves the problem, because it doesn't solve the problem. There are a variety of different regulatory models that Congress will be considering: the single regulator, a more function-based version of functional regulation; whether we should have a single systemic risk regulator; whether that regulator should be the Fed or not; whether the Fed should continue to regulate bank holding companies – currently as the bank holding company regulator, the Fed already is, essentially, the systemic regulator, although obviously they don't have jurisdiction over other parts of the financial system. But Congress might be considering whether to give that to them. The role of the states is going to be a particularly difficult issue for Congress in determining what the future regulatory structure will be. Turf is going to be a very difficult problem for the regulators in Washington. I think it's going to be very easy for Congress to decide to merge the Comptroller of the Currency with the Office of Thrift Supervision – that's almost a no-brainer at this point. The SEC-CFTC merger will probably happen, but will be more complicated because of the political division in Congress between the Agriculture Committee and the Banking Committees. But that probably will happen. So, I think Congress needs to keep its eye on what it can do with the regulatory structure that is going to enhance the ability of the regulators to be good supervisors, and they're going to have to address the extent to which supervision is tied to regulation, how much of

supervision should be hard-wired in the regulations, and how much of it should be left to the discretion of the supervisors in the future.

So, with that, I will allow the questioners to pose their questions.

HEICKLEN: My name is Julian Heicklen. I'm neither a lawyer nor an economist, but I am a taxpayer. And I like the idea that Dr. Bebchuk presented that instead of there being one entity there should be many entities. And my suggestion would be that the trillion dollars be divided into $10,000 chunks, and these be assigned to each of the hundred million families in the United States to tell the government how they want their $10,000 to be invested. This would have two advantages: First of all, you would have the whole market involved, instead of just part of the market. And the second advantage would be that the money would be returned to the people from whom you're stealing it.

KASHYAP: I'm Anil Kashyap from the University of Chicago. Maybe this is a question for Melanie. I actually think the regulation is totally broken at the most basic level. I think the fundamental thing of just having a capital ratio has been tremendously destructive. Right now the regime we live in says that what matters is the ratio of your equity to your assets, which means that on a micro-economic level, a bank can come into compliance by selling assets and reducing the denominator or raising equity. And as a principle for any individual bank, that may be okay, but collectively, as we watch the economy de-lever, it's clear that that is a disaster. And that requires fundamental overhaul of the regulation, and I would say, even more basically, to get away from the idea that ex ante control of the way we're going to regulate is going to be adequate. The fundamental thinking behind all our regulations is that if we just give these guys enough incentives, they'll stay on the straight and narrow, and we'll never find ourselves like we are now, severely under-capitalized and trying to de-lever our way out of it. The question is, is everybody comfortable with regulating the capital to assets ratio, and if not, are you prepared to

endorse some sort of ex post requirement that biases failing institutions to recapitalize? And if you want a specific version, you can use Mark Flannery's version or the one that I have with Jeremy Stein and Raghu Rajan. But there's a variety of ex post interventions that say if you're going to be stuck with a capital ratio, you have to create a bias towards more equity and not just shrinking the denominator.

MILLER: Anil, I agree with you about capital, and I think that it is one of the problems we have, as we paid way too much attention to capital and it's led us astray. With respect to what to do about it, you know, Ed Kane mentioned earlier this idea about double liability stock, which is in a way a form of ex post required settling up if you don't have adequate capital. And John mentioned rights offerings, which are pretty much the same thing, because you require the equity holders to cough up some more money at the pain of being diluted. We have those models in place already, and I think it's time for us to go back to them and really consider whether they're something we ought to implement.

HERRING: I have a slightly different view, I guess. And that is if I were going to go ahead with the Basel II critique, I would say Basel II would have made things a whole lot worse, that we got huge leverage in the investment banks, when in 2004 the Europeans more or less obliged the SEC to impose Basel II regulation on the banks. They looked at their assets, not much risk there. They had models that showed it, and they levered way up about 30. And you've got to be nearly perfect to run an institution with that kind of leverage. I don't think you can dismiss capital, because when trouble comes, creditors are naturally going to look at the cushion they have to protect them. But I think that means we need to set our thresholds a lot higher than they are. I take quite seriously the point that was made that PCA didn't do us a lot of good. I think we should look carefully at why it didn't. One of the reasons was that it was simply not enforced. The OTS is notorious for being a sloppy supervisor and one of the

members of the OTS actually backdated capital to make it work with a sort of social worker mentality rather than being an actual enforcer. But, I think given the volatility we're seeing in markets, you need much higher thresholds. And there's really nothing essentially wrong with the notion of having carefully graduated sanctions that will induce banks that get into trouble to make a private sector deal before they become wards of the taxpayer. And it seems to me that we've simply blown through that. And as far as I can tell, Geithner has absolutely no intention of going back to a system where bridge banks might be important, but I think they really are the way out, rather than having a shotgun marriage over a weekend when nobody has time to do their diligence. You really need to have a couple years to figure out the optimal resolution.

FEIN: I agree that you have to have some capital requirements. But, increasingly, the regulators have relied on risk-management at banks. And that's where I think there was a big failure. And that's a supervisory concept in my mind, the types of risk-management policies and procedures that are in place in an organization. And I think that the regulators started applying this approach about ten years ago, and I think they just perhaps didn't have time to get it right.

HERRING: But they're now hard-wired into regulations.

FEIN: Well, it's something that regulators look at when they go into a bank to see whether –

HERRING: No, they're hard wired into the advanced ratings, internal ratings approach. The risk management procedures –

FEIN: Oh, yes, you mean in Basel II. Yes, definitely. But still, it's nebulous and judgmental and subjective.

KONIAK: You're wrong. There's a failure of regulation about the risk management. I am holding in my hand a statement that was issued by the Department of Treasury, the Federal Reserve, the FDIC, the SEC, on June 2006 for comment. It was issued for comment. The

original of this document was issued in June 2004. The banks and the securities industry got the agency to withdraw it and to issue this watered down.

FEIN: What's the name of the document?

KONIAK: "Complex Structured Financial Transactions. Interagency Statement on Sound Practices Concerning Elevated Risk." Complex structured finance activities went unnoticed by everyone but the banks and the financial industry and me.

FEIN: It was adopted.

KONIAK: It was adopted. It was adopted effective as of January 2007, just when we knew everything was falling apart if we watched John Geanakoplos' numbers. And this document, basically, issued by all the regulators – so, getting them together doesn't seem to be any better than separating them – first point. All of the major agencies, including the Comptroller of the Currency, the FDIC, the Fed, issued this document that basically described the following complex structure – first of all, it says CDO's, CDS's – those you don't have to worry about at all. Okay. First point – and I can read you the exact language says, when we talk about complex structured financial transactions, we did not mean to include public mortgage-backed securities or the hedging types of transactions involving plain vanilla derivatives or CDO's. They are familiar to participants in the financial markets at a well-established track record. And typically what would be considered complex structured financial transactions for purposes of this statement, which only deals with those with elevated risk. So much for our agencies. This document then goes on to say, to withdraw the 2006 proposal, which the banks went insane and say, you know, for such transactions that lack economic substance or business purpose that are designed to be used primarily for questionable accounting regulatory tax objectives that raise concerns that the client will report the disclosure to mislead about their financial statement; for those involving circular transfers of risk, for those involving oral or

undocumented agreements that when taken into account would have a material impact on the balance sheets for those that have material economic terms that are inconsistent with market norms, and for those that provide financial institutions with compensation which appears substantially disproportionate to the services provided or investing made. Those are the ones that are covering. They say, you don't have to keep minutes. You don't have to document why, in fact, you're doing a transaction or selling a product like this. Have a party! That's what this document says. It withdraws every "should" that was in the 2006 version – 2004 version of this document, because the banks went crazy. Now, if you go to the SEC site or the FDIC site and you look up this document, and you look up the comments, the only people who commented were the banks, the lawyers who represent the banks, the accounting firms, the securities industry, and me and three colleagues saying, withdraw this piece of crap. You are going to encourage risk. What are you doing? This is flying under the radar stream, because it deals with complex instruments. And they mention our comment saying that we think these should be presumptively prohibited. A bank should have to justify why they're doing any of the products of this sort, and instead, they issued a permission slip. This is something that people have to know. That the failure of regulation of every single –

FEIN: That's not regulation. That document in the banking world we would call "supervisory guidance."

KONIAK: Yeah, well, they said you don't – the first one said you had to do certain things in advance. Whatever you call it – excuse my French – it sucks!

FEIN: I'm not disagreeing that there was a failure of supervision.

ROMANO: I have just two questions. Some people have put up proposals to say that part of the issue was that banks, in expanding their activities, had bank and payment system related functions, and they were doing a lot of proprietary trading like hedge funds. So, some

people have suggested that since, of course, the government's only interested in support of the payment system, you want to do something like ring the assets or something like that if the bank thinks that we're only obligated to those. My question is whether that's possible? Is that just returning to Glass-Steagall, which we didn't want to do? No one's mentioned that as a possibility in terms of thinking about alternative regulations. There's a guy, I think at Berkeley, whose been promoting this.

And the other question is whether getting private equity back in a subsidiary is enough. Private equity went into WaMu, and only a couple of months after they went in, before they had a chance to do anything, the government wiped them out, and from what the anecdotes say, the government didn't talk to them; they wanted to talk to the government; and they were just gone, and their investment was wiped out. So, the question is what do we want the government to do? It's not clear why anyone would go in, even if they're subsidized to go in. I guess that's my question: What if the government can get rid of your whole investment, or Congress will pass laws about compensation of your executives, what they can do, who can come in or come out, or what loans we have to make? Do we have something in addition about what the government is going to do with respect to these parties to make sure you get the capital in, separate from the moral hazard issue. This is sort of the other side of that question. Or is that view about what's delaying private capital to go in false, and it's really the other aspect?

HERRING: I'll start with the first one as a co-author of one of the many narrow bank or, I guess, a more sophisticated version was collateralized deposit promotions. I have subsequently come to believe that it's politically infeasible. Once we start broadening the safety net to take in AIG and Bear Stearns and Lehman Brothers, I think that simply protecting deposits is no longer the objective that we can cling to. It really is the functioning of the credit system. And the real problem, I think, that the Fed encountered in trying to deal with this problem was

failing to understand the internally generated liquidity, because it wasn't so much the amount of base money available, it was the increased haircuts and the increased collateral that private counter-parties were demanding, which hugely reduced the leverage permissible and caused losses that really caused the whole thing to fall down.

The second point you make, I think, is part of the current dilemma we're in. We've had higgledy-piggledy policymaking for at least a year now. Some of it tries to get tough; some of it tries to get gentle. It's very hard for private actors to know what they can believe. The Obama Administration has just tried to get very tough with executives, because they believe they can't get any more money out of Congress unless they do. And any observer of the scene is going to realize that that is a real constraint on doing a deal with the government. And I can't see a lot of people being eager to climb into bed with a government fund.

COATES: I mean, I hear what you're saying, but I just want to emphasize – IndyMac, not a huge organization, but still the largest bank failure in our history, came out of a government receivership with private equity capital. So, it's not as if the private equity funds are completely unwilling to take the risk that recognizably they have—*provided* that what happens is the organization that is sold to them has been cleaned up and its value can be verified in a way that I don't think actually the WaMu investment was, I don't think they did the kind of due diligence that was done on IndyMac on the way out.

HERRING: But I think you need to look more broadly as well. If a private equity firm does really, really well with a bank, as happened in Korea, the government will ex-post take it away. And I'd like to say our government doesn't work in those ways, but –

FEIN: Let's have our next question.

TROY: Dick Troy. And my question may trip over some of the comments of the last speaker at this microphone. But it goes like this: most of the comments in the last three panels appear to be focused on the behavior of the variety of agents who act in the conduit whereby $3 to $4 trillion worth of subprime mortgages have been processed into CDO's and peddled off to third parties, and not a great deal has been said about what I understand to be the tens of trillions of dollars worth of derivatives and synthetic derivatives and other side bets which apparently have been placed on the underlying action. So, my question to anyone on the panel is, what really do you consider the significance of all these side bets to be when viewed from any one of three vantages points: number one, our need to understand them in order to evaluate the solvency of any single financial institution; secondly, whether or not you would consider them to be a proper object of governmental regulation; and thirdly, whether in your view any part of TARP funds are intended, perhaps sub silencio to grease the process of unwinding these potentially lethal interrelationships.

MILLER: Just one brief point, you know, the Lehman bankruptcy involved a very large amount of derivatives. And my understanding of that process is it's actually worked out in a very orderly way with the netting off of the counterparties, and the disaster scenario that people talk about just didn't eventuate. The market dealt with it. So, this is only partially responsive to your point. But I think that the risk of the entire market falling apart if a major swap dealer goes down has probably been overstated based on the evidence from Lehman.

HERRING: I would agree that that was a piece of the Lehman bankruptcy that was perhaps a happy outcome that we learned that wasn't quite as terrible as it might have been. But I would also like to add that the law that gave these people sort of a prior claim over everybody else in a bankruptcy really removes the people who should know best, who should be best able to exercise market discipline over banks that are taking excessive risk. And so, it's a systemic

benefit that comes with the cost, and the cost is longer term. You don't have the sharpest eyes in the industry looking at the counter-parties in quite the way they would if they were on the hook.

FEIN: Another question.

EVANS: Hi, I'm Alicia Davis Evans from the University of Michigan Law School. And part of my question overlaps with what Roberta asked earlier. But I guess I want to go to John – I understood you initially as saying one of the things we really want to have happen here is that we need to get private capital into the marketplace as a way of helping us out of the crisis. But then I also understood you to be saying that, well, of course before we can expect private players to come into the market, we've got to get the bad assets off the books; we're going to have to have the U.S. government really injecting additional capital; we need additional stability so private players at least feel as though there is some confidence that they won't just be throwing their money down a black hole. And so my question is can private parties help get us out of the crisis, or do we have to first get out of the crisis before private parties come along? Because I think part of the issue is if we could clean up the balance sheets and we can calculate and actually figure out the risks, then I think we'd all feel a lot more confident. Then I don't think we need to have special meetings or panels about how to get private parties in. They would just do that naturally, because then it's a good investment.

HERRING: You raise an interesting point about what the Swedes all refer to as the classic good bank, bad bank separation. And that was an entirely private sector deal that Mellon Bank did. They spun off a liquidating bank, called Grant Street Bank, as I recall, that was funded with junk bonds that people who were willing to take big risks would take, and the equity shares were, I think, distributed among the equity holders of Mellon Bank. Mellon Bank was cleaned up quite thoroughly, and new capital flowed into Mellon Bank very, very quickly, and it was recapitalized and became a healthy, thriving bank. Now, part of what made that possible is

that they stopped the rot before it became terminal. But the earlier example of a good bank/bad bank solution – and it's a mystery to me that the U.S. has not been trying this here – is the Continental Divide. The Continental Divide was precisely that. The Continental Divide consisted of the FDIC putting together a liquidating bank that took the bad assets from Continental Illinois, and then putting together a good bank – this was before they had bridge bank authority, so it was a little tricky getting rid of it. But they put together a good bank that actually turned out to be – it wasn't a record-breaker, but it was a decent bank that was doing a decent amount of business, and was finally acquired by Bank of America.

MILLER: Is that's what's been proposed for Citi –splitting Citi into –

HERRING: No, as I understand it, what they've chosen to do for Citi is put a very ambiguous guarantee against a very unclear amount of bad debt. And we have no idea how clean Citi is, whether that's enough, whether it isn't. It's still part of their balance sheet and you still have, I assume, CEO's at Citibank worrying about that. The beauty of a good bank/bad bank split is you take the bad stuff out and have a management that's focused clearly on looking forward and making good business.

FEIN: All right. We have time for one more question.

GEANAKOPLOS: I'll make a short comment. So, I think a way that the government can partner with private capital to make more investments without getting quite as complicated, Lucian, as you were talking about, is simply to loan against collateral. You, I guess, seem to think that they have to put in their own capital, because there's not enough private capital around. But if the Fed were to loan 70 cents against a mortgage security that no bank will loan against now, that would allow a hedge fund that had 30 cents to spend 100 cents instead of just 30 cents. And that way the hedge fund would be the one responsible for deciding is it a good investment, is it a bad investment, is it a good price, is it a bad price. The government doesn't

have to figure any of that out. It simply lets the private hedge funds and the private players make the decision, and it puts its money behind the private players. So the private players run the risk ahead of the government. Some people think that the private players won't take those risks, because they're still running a risk, but I believe they would. So, that's a comment.

My question is this – this is a very down-to-earth basic question, a simple matter of fact. Citi supposedly has $2 trillion of assets and about $2 trillion of liabilities. Given the past mistakes that have been made, it's easy to imagine they're off by about $400 billion and we're going to lose $400 billion there. There are three or four other banks that are nearly as big. So, you add that altogether, and we get trillions of dollars of potential losses. Now, my question is, is the government supposed to be responsible for making good on all these losses? Who are the people who are owed all this money? Which of them can we imagine defaulting to? And how bad is it if we default to them? So, it's just a very simple-minded question. I never hear in any of these discussions what are the debts that we can imagine defaulting on? Why is it so bad if they're defaulted on? Who do we owe all the money to? And what happens if we default on it? And it seems to me that it's pretty clear that we're going to have to default on some of that, and I'm just curious since you, John, especially, must have studied this. You know, who's holding all this debt that we seem so desperately afraid to default on?

FEIN: That would conclude our panel.

Session IV: Reforming Subprime Mortgages

AYRES: And we're here for Panel 4 – William N. Goetzmann, Edwin J. Beinecke Professor of Finance and Management Studies and Director of the International Center for Finance at Yale School of Management. Susan P. Koniak, Professor of Law at Boston University School of Law. Christopher Mayer, Senior Vice Dean and Paul Milstein Professor of Real Estate at Columbia Business School. Susan M. Wachter, Richard B. Worley Professor of Financial Management and Professor of Real Estate and Finance at the Wharton School, University of Pennsylvania. Will Goetzmann, please start us off.

GOETZMANN: My name is Will Goetzmann. I'm a professor at the Yale School of Management. I'm a Finance professor. I also do work on housing, and I've got one of my long-time co-authors here, Susan Wachter, so this is a great pleasure to find that all of a sudden the fields that we have been working on for our whole lives are the center of an incredible maelstrom that's engulfed us. I'm going to be brief in my remarks. I just have a few possibly unconnected topics. I don't have any proposals. I could make some up. I've been full of ideas, but I think my colleagues here have some very nice things along those lines to share with you.

I want to start out with some really basic information that relates to housing. These are the Case Shiller monthly calculated repeat sales indexes for twenty major U.S. housing markets. They don't go back very far in this picture, but, in fact, the Case Shiller indexes are really revolutionary tools in the analysis of housing in terms of expected return and risk. They have really become the indicator now of the magnitude of the crisis. And what you've got here are twenty major markets. We've indexed them at the year 2000, so they take different paths to get to the year 2000, and then, of course, they peak quite dramatically and then they crash. And what you see is the general trends before the year 2000 for these major cities suggest that housing was a sleepy, slowly evolving, rather calm asset before the year 2000. And since then,

the basic statistical characteristics of housing went through a radical change. What the picture doesn't show because they're indexes is the risk that housing entails for individual homeowners. These are just aggregates within a city. In fact, the individual houses can vary quite a lot within an MSA. People might be gaining and people might be losing, zip code by zip code. This is just averaging them out.

I would argue that the existence of this data is one of the causes of the housing crisis. It's great data, but before we had this data, we didn't have much econometric analysis that we could do. And the whole way that the financial industry models risk is tied very closely to doing empirical analysis. I've done as much of this as the next person, so I'm not casting any stones, but I want to show you some things that you can do with these indexes, that people certainly have done with these indexes that contributed to the crisis.

This is a beautiful picture. I couldn't resist showing it to you. For those of you who are econometricians, what this is is just a picture that's showing a sequence of the auto-correlation of housing returns from one period to the next. When you have a strong diagonal line, that means that you can predict the next period quite well. If the thing looks like just a hazy cloud, it means there's no predictive ability. So, if I go back briefly to these indexes, what they look like is they're smooth and once the market starts going up, it keeps on going up, and when it goes down, it keeps on going down. That's all that these figures are showing you. What they tell you when you look closely is that if you're building an econometric model, the model seems to suggest that you can predict housing price changes quite far out into the future, one year, two years, maybe even up to three years. There's some kind of memory in the housing trends. This data was only projecting up to 2006. So you can see the econometrician, or more importantly a risk manager analyzing housing prices and derivatives on houses or mortgages based on houses is going to feel like there's some capacity to predict the future.

You can take those models and you can build your self-confidence in intervals. So, how wrong could I be? I know I'm not dead certain that the market's going to go up, but I'd like to have some kind of boundary on this. This is called value at risk. And this has been one of the most widely pilloried risk management tools over the last six months. If you've heard this man Nassim Taleb talk about this, people who actually use value at risk should be put in jail. Anyway, I know how to do it and I'm showing it to you now.

What you see in this picture is the past price trends that go up to the year 2006 and then you see these dashed bands, which are confidence intervals, around the forecast of where the housing markets were expected to go. And what you see with the red lines is the forecast over the next few years. If you were looking at housing as collateral, you want to know how good the collateral is going to be in the future, you'd say, well, I think it's probably going to go up along that red line, but if things are really bad, it's probably not going to drop too far down below the bottom dotted line. And what you see, of course is that in virtually every market, it was much worse than that. So that's a model failure. The value at risk got the estimate entirely wrong. So we have to change everything we teach now in econometrics.

Now I'm going to go back to the year 2000. Should people have thought about how fragile these models are. And one way to think about that is to go back in time and see whether the model failed on the upside, let's say. And indeed it did. If you look at the lines there. Instead of going down into the basement, they're going out through the attic. That ought to tell you that the confidence bands were way too tight, and maybe the models themselves weren't right. This is easy to say in hindsight. The reason I wanted to show it to you is that these models made you feel like you could forecast the future of housing and this is the necessary input to a rational bubble story, where everybody expects the market to go up. They think they

can get out before the market goes down because the models say they can, and this sustains a continued increase in demand for the assets.

Now we're going to switch very quickly. I have some financial history. I know we've been looking at some financial history early on today. I just wanted to make sure I got in the oldest piece of financial history. Here's an edict by Hammurabi's son that basically was caused by a debt crisis. And it has to do with limited release from bankruptcy and really focuses on the issue of debt slavery and how bad it is. I think that's a really important issue for us to think about in the coming year, the words "debt slavery." The first big financial regulation was by Solon, the tyrant of Athens. And one of his first acts had to do with debt forgiveness and the release from debt slavery of a bunch of farmers. Not everybody liked this release from debt. The people the farmers owed money to were not quite so happy with Solon, but it was seen as a balanced decision that was followed by the prohibition on hypothecating your human capital going forward. I'm going to skip the South Sea Bubble because the analogy is obvious.

So, how does this relate to regulation? First of all, these models were not so bad, but they got us into a lot of trouble, the auto-correlation models, the VAR. How do we regulate those things? That's going to be a really hard thing to do, to modulate expectation and then push it through an econometric model. I think we're going to have to look at a bottom-up solution as opposed to a top-down solution, but I think Chris will probably talk a little bit more about that. I'm a big fan of it. I think we have to ask ourselves were we better off before subprime? That is, were we better off in a world where not everybody could get a mortgage? Or should we think about how to continue to offer democratic access to debt, which brings with it the constant potential for another debt crisis? And right in the middle of all of this noise that we've heard about the evils of securitization, I think that we should revisit the potential of securitization itself

to help us out of this mess. It's a financial technology that I believe has great potential benefit. So, I'll leave it at that.

KONIAK: I'm going to talk about a plan for stemming the avalanche of foreclosures that is facing us. But before I do, I want to just piggyback on something that was just said, which is the restarting of the securitization market, which has been mentioned by Treasury Secretary Geithner. And I do think that securitization can have great benefits, but that system better be fixed before they restart it. Those contracts are too complex. There's too much game playing. I'll leave it at that. But restarting the market without fixing the instruments, without standardizing them, would be a mistake, an invitation to disaster. So, securitization of some sort is necessary, but not of the sort we just had.

What I'm here to talk about today is a plan that, along with John Geanakoplos, who spoke this morning, we developed for doing something about the growing avalanche of foreclosures. The housing crisis is not just where the present crisis began, it is where any solution must begin. The toxic assets, by and large, are built on top of mortgages, many of them now failing or expected to fail. If we don't get something done about those mortgages, the market will expect—rightly—the toxic assets to continue to deteriorate and valuing those assets will remain extremely difficult. What should we do to stanch the hemorrhage of foreclosures?

In developing our plan, we began by asking a simple question: why are mortgages failing now at such an alarming rate? One answer to that question goes this way: We lent money to the wrong people. And then we packaged those bad mortgages using some kind of alchemy that made them seem more valuable than they were, which only spurred originators to lend more money to more of the wrong people. And that story captures a lot, but it doesn't capture everything. Today many people are being thrown out of their homes. Foreclosed homes hurt

surrounding property values. In many pockets in this country, that spiral is causing communities to fall apart.

But why are so many homes being foreclosed upon when lenders can expect so little in recovery on a foreclosed home? When someone gets thrown out of their house, the value that's recovered in foreclosure is 25 percent of the original loan, if the lender or lenders are lucky. Why is that? Well, that's pretty easy to explain. It takes about 18 months to get someone out of their house. That's lost revenue. Then there are back taxes. Then there are payments to realtors. Empty houses get stripped and trashed while they're waiting to be resold in our now glutted housing market, which further diminishes their worth. So, for all those reasons lenders are lucky to get 25 percent at foreclosure. So, what would a reasonable lender do to avoid that paltry return and maximize his return? A reasonable lender would modify the mortgage whenever modification would bring in more than what could reasonably be expected upon foreclosure. This is not rocket science. But this rational response is not happening. The question is, why?

Well, one, we start with the fact that with securitized mortgages we no longer have something as simple as a banker sitting there able to decide upon a modification – we chopped many mortgages up. The bondholders who own little pieces of these mortgages don't have the power themselves to modify a mortgage, even when it makes economic sense. Instead, there are these people called servicers, and they're supposed to be servicing the mortgages, mind you, to maximize the bondholders' interest. It is the servicers, not the bondholders, who have the right to modify, although there are generally restrictions on the number and manner in which those modifications can be done, because in the business world, and certainly in the securitization world, it's wise not to trust the good faith of your agents. So, restrictions were built in from the start with the idea that they would act as checks on the servicers, preventing them from going

hog-wild serving their own interests to the detriment of their bondholders (the principals in this relationship).

Well, why aren't the servicers doing what would be in the majority of the bondholders' interest, modifying whenever a modification would yield more than a foreclosure? First, there is some divergence of interests among bondholders, which does make a servicer's choices difficult and subject to challenge. If a pool of mortgages does not bring in all its expected monthly payments, senior tranche holders take first. Until monthly payments are low enough to reach senior tranche holders, they have no incentive to agree to modifications. In short, the interest of junior and senior tranche holders is not the same as to timing or method of modification. That creates a problem for the servicers who in private label mortgage securitizations owe equal duties to all bondholders. Unlike the much maligned Fannie and Freddie Mac securitization contracts—and I'm not an apologist for them—private label contracts do *not* dictate which bondholders' interests should be preferred over other bondholders when deciding on mortgage modifications or to what extent it is acceptable to prefer one group's interests over the other's. In the Fannie/Freddie contracts those details are provided. In the private label mortgage securities, which, by the way, are now the vast majority of the ones in distress, the contracts leave the servicers with no clear guidelines on how to resolve the divergence of interests among bondholders. Thus, potentially, whenever a servicer modifies it is subject to being sued by bondholders unhappy with how they were treated. Some such cases against servicers have in fact been brought. So it may be cheaper for some servicers, if you count the lawsuit cost, to foreclose instead of modifying even if that is not the best way to maximize the value of the pool. A lawsuit for foreclosing on nonperforming loans is much less likely to succeed or be brought than one for modifying a mortgage for a whole series of reasons. In fact, in contrast to the "modifying" suits, I know of no suit having been brought against a servicer for foreclosing

instead of modifying, notwithstanding that foreclosing "too much" may well lead to enormous, unnecessary investor losses.

But the fear of being sued is not the only, or even the biggest reason for servicer failure to modify when modifying makes economic sense. When a home is seriously delinquent, the servicer must advance the monthly payments of the homeowner into the pool. One way to get that money back – and more, in the guise of fees and costs, neither too carefully monitored, is for the servicer to foreclose. The servicers can also recoup their money by modifying a mortgage, but certain modifications leave servicers worse off, although they may be best for investors. Those modifications are modifications that reduce principal. But before I explain why that is true and why those kinds of modifications are the ones that might help, we need to continue with the misalignment of servicer and bondholder interests.

The economic crisis has left a good number of mortgage servicers increasingly cash-strapped. They cannot afford to advance money and wait 18 months for a foreclosure. They need their money and they need it now. And actually, the data that John has collected through the hedge fund in which he is a partner, Ellington Management, shows that the more cash-strapped servicers are opting to modify, quick and dirty, get their money back fast. So, what if the property defaults in six months? We are cash-strapped. We need this money back now. And the percent of all modifications that redefault within six months--as modifications have been done thus far, which is without principal reduction—is near 50% and tends to run higher when one looks just at modifications done on loans that were seriously delinquent at the time they were modified. So we have another misalignment of servicer and bondholder interests—quick and dirty modifications doomed to redefault that help cash strapped servicers but not bondholders.

With so wide a divergence between servicer and bondholder interests along a number of dimensions, there's no way, in my opinion, that we can somehow tweak the incentives of the servicers by paying them off, as the Obama plan proposes to do and end up with economically rational modifications. Here you need to understand that servicer fees are based on the principal of the underlying loans, not the interest. Whereas bondholder profits are based on the interest payments. Modifications that reduce interest, but not principal, are therefore in the interest of servicers, but, as I shall explain soon, it is modifications that reduce principal that are most likely not to redefault and thus bring in the most money for bondholders. So, paying servicers to reduce interest, which is the Obama plan, is not necessary as servicers would happily reduce interest payments drastically were it not for fear of being sued by bondholders. Modifications that slash interest, but leave principal intact, let servicers avoid advancing money into the pool until the moment of redefault, but that preserves cash now, which many servicers need, and most important, does not reduce servicer fees. Worse, paying servicers to modify by reducing interest will not stop redefaults and foreclosures, as I shall soon explain. All this does is push the foreclosure problem down the road a bit.

The proposal that John Geanakoplos and I developed would remove servicers completely from the process of modifying loans. Instead, we would have Congress transfer the modification power now vested by contract in servicers to government-hired trustees, community banks hired by the government, agents close to the affected homeowners, who would seek out homeowners in danger of default to assess whether more money could be realized for bondholders by modifying the mortgage than by an eventual foreclosure. Community bank and credit union employees would knock on doors, not just call homeowners by phone, because reaching homeowners early is critical to achieving a modification that will last over time. If the community bank assesses that the homeowner is not reasonably likely to be able to sustain

mortgage payments that would yield more than a foreclosure, the community bank (trustee) would mark the home for foreclosure and send the loan back to the servicer to execute foreclosure. The servicer would then foreclose recoup its advances, collect its fees and get whatever it could from resale to the bondholders.

We have an outline in the materials of legislation that would be necessary to implement our plan. That legislation would require the nullification of the contract provisions that now give servicers the right to modify, transferring that right to our community bank trustees. It would also remove the restrictions on the number and kind of modifications that could be done—provisions, as I've explained, that were designed to control servicers from modifying to suit their own interests and disadvantage bondholders, provisions that have done little to accomplish their intended end and instead have left bondholders and homeowners unable to reach the economically sensible solution—modify whenever doing so is likely to bring in more money than would be realized upon foreclosure.

Why can't we just do something milder, more tepid? Well, we're sinking fast. The number of foreclosures yet to come is staggering. The time for tepid solutions has long passed. But what if the homeowners are just such deadbeats that no matter how you modify their loans,, it's going to be hopeless. Shouldn't we just get it over with and foreclose on people faster and more efficiently? Well, homeowners are acting more rationally and responsibly than people think and that includes the worst credit risks, the subprime borrowers. This chart was done by the people at Ellington Management. It shows the monthly default rate by different kinds of loans through January '09. It shows the average monthly default rate by each type of loan – the X axis running along the bottom shows current loan to value. Current loan to value was figured in the following way: they took the total value of the outstanding mortgages on each property, including all liens, first and second – so the total value of the debt outstanding on the homes.

Current total value was computed by using the Case Shiller index, going zip code by zip code through the loans, to get the current value of the homes with outstanding mortgages. And what is so striking about this chart is that for every type of loan the default rate is stunningly sensitive to how much equity the homeowner has. So, if you start with the subprimes, which are the ABX loans on this chart, you will see that when these subprime borrowers have 40% equity in their homes, the monthly rate of new defaults is only 1%, 99% are finding a way to pay their mortgage, but as the house goes underwater—as the loan exceeds the value of the mortgage, the default rate rises dramatically. So, by writing down principal to give people equity in their homes, we can substantially reduce the rate of default or redefault. That kind of modification, not yet tried, would work. When they have a stake in their house, they pay. It's rational and just that simple. It's not the economy, stupid. It's not the loss of jobs that's driving the rapidly rising foreclosure and default rates. These figures, I remind you, run through January '09 and thus reflect behavior well after the economic downturn hit many families. I hope in questions you will ask me about these bogus legal challenges to our plan that claim, for example, that what we propose is a "taking" that would require compensation. It isn't. I would be happy to explain that and why no other constitutional provision prevents our legislative plan. I am also happy to address arguments based on "sanctity of contract" ideas. We do not propose abdicating contracts willy nilly. We leave all the money provisions of the securities contracts in place. In other words, the provisions for money flows and fee calculation would all remain intact. The only provisions we propose changing those that give servicers the modification job and restrict the modifications they can do are provisions imposing huge externalities on people not parties to these contracts and not serving the interests of the bondholders either, the interests the provisions were designed to protect. And in the meantime, our economy is falling apart in large part because the securities built on home mortgages are deteriorating in value, leaving our banks to

conserve capital, which in turn leads to fewer and fewer new loans, what we call the freezing of our credit markets. Contract provisions that cause that much damage are precisely the kind the law should modify, setting that precedent would be a good thing for markets and for us all.

MAYER: Hi. I think we started with the proposals, one proposal. I have two proposals. And I think Susan, you may have three – or none. So, basically, I want to just do a quick summary of housing data and understand where we're sitting, and then think about how policy can respond to this situation.

Obviously, we're in a major housing crisis and it's destroying the financial system. Secretary Geithner comes out with his initial financial system proposal and the market falls 5 percent. Rumors that we're going to deal with housing come out at the end of the day yesterday. The market erases a 3 percent drop in the Asian markets and the European markets rise. I think it's clear that we need to deal with housing in order to deal with the financial crisis, including both the banks and the consumer side of the economy. You've seen these pictures, there is lots of vacant housing. Unoccupied housing at an all time high. The next chart is foreclosure starts. Notice that foreclosure starts have actually declined in recent times, not risen. There have been significant steps to reduce foreclosures. I'll say more about that in a little bit.

The other thing I'll comment on, and Will made similar observations, is that the picture looks very different across markets. In these plots, I went back to 1975 and put in a trend line for the average house price appreciation from 1950 to 2000 to understand how current prices compare to what we would expect based on long-term average levels of appreciation. And the answer is that in the bulk of markets, except for Boston and New York (and we can argue about whether those are the right trend lines) house prices, even in the bubble markets, have already corrected. And these, by the way, are data that are from the end of the third quarter. I promise you by the time we actually get the data through January and February of this year, whatever remaining places there are will have corrected and over-corrected. You can look at other

markets. Clearly house prices have fallen and then more than corrected back to their 50-year average in terms of house price appreciation. So, when we think about where we're sitting today, house prices have already gone over the edge. Goldman Sachs' latest report in January – and they've been bearish on housing all along, quite appropriately as it turns out – suggests we're going to see another 20 to 25 percent decline in house prices. That's about equivalent to what we've seen so far in the Case-Shiller data. And look what the first 25 percent has done to us and done to our financial system. If we don't touch housing, we're not, in fact, going to get out of this problem. And the criticisms of the subsidizing housing and reinflating prices, I think, are ludicrous. What we're really trying to do at this point by helping housing is to prevent what has already been a serious problem from turning into an absolute catastrophe. So I think there's no way to think about the financial system and the macro-economy without thinking about housing, and the market has abundantly said that to Secretary Geithner.

Go back to September '08. The government takes over Fannie and Freddie. Great idea. Why did the government do it? Well, they did it because, starting in the Summer of 2007 when the credit markets went bad, the spread on mortgages, the difference between the 10-year treasury and the 30-year fixed rate mortgage started rising. So mortgage markets were failing, causing problems for housing. If you look at this picture, you can see that when the government took over the GSEs, there was an initial drop in mortgage spreads, followed very quickly by the spreads rising to even greater levels than they were before. Basically, the government intervened but didn't really intervene in any substantive way to actually fix the markets. And as a result, these spreads are somewhere between 80 and 100 basis points higher than they have been historically. So, in other words, the main channel that allows lower rates to make it through to borrowers who then refinance their credit, which is rates, in fact isn't happening. And as a result, the only other channel to fix housing affordability is for house prices to fall. And so

what we've seen is house prices continue to fall because we haven't really fixed the interest rate channel. Data shows that the short-term rate isn't what determines housing prices, so the Fed can basically cut rates to near zero and it doesn't affect long-term mortgage rates. So, the Fed's interventions in lowering short-term interest rates just haven't helped. The only thing that's going to help is getting longer-term rates down and bringing mortgage rates down. So, today we're sitting with the Fed having committed to $500-600 billion of purchases – by the way, by printing cash. Literally the Fed prints money to buy things at the New York Fed. They're buying $500-$600 billion of mortgage securities with cash. Not the best way to finance purchases of mortgage securities.

The first proposal is jointly written with my colleague Glenn Hubbard at Columbia. This proposal has shown up in the press as the "Hubbard-Mayer" proposal and has been attacked in the *Wall Street Journal*. Certainly, at Yale Law School, anyway, it is probably a badge of honor to have been hammered by name in the *Wall Street Journal* as we were on Friday for proposing a "Republican Fannie Mae." But I'm fine with being attacked, because I think our proposal represents good economic policy and the *Wall Street Journal* may not understand that. It certainly didn't in this case. We argue that the government should work to fix the mortgage market and lower mortgage spreads back to their 20-year average of 1.6 percent. That would bring mortgage rates down to about 4.4 percent today. How do we do this? Well, the mechanism would be that the government would issue US Treasury securities and use those Treasury securities to buy GSE paper, Fannie Mae and Freddie Mac bonds, and that would allow Fannie and Freddie to offer lower rates. So, that's how you bring the spreads down.

In terms of refinancing mortgages, the gains from our proposal are not from subsidizing credit. In fact, U.S. taxpayers already guarantee Fannie and Freddie bonds. By refinancing mortgages, the government might take on additional interest rate risk. And the federal

government can control that interest rate risk by how they fund the mortgage program. We as taxpayers are already on the hook for credit risk on 30 million mortgages, which represent 60 percent of all outstanding mortgages. Defaults on those mortgages are paid for by taxpayers through the GSE's. So, refinancing GSE loans does not take on abundant new credit risk. We as taxpayers, already have this credit risk. And, by the way, if you count FHA mortgages, which are another 5 million and growing, the government has guaranteed more than 70 percent of all the mortgages outstanding. By the way, many of the remaining 30 percent are sitting in banks like Citi or AIG. I think we're on the hook for those, too. So, you could argue we essentially bear the credit risk already for most mortgages as taxpayers.

So the major risk for taxpayers is prepayment risk. And I think if you put out mortgages at 4.4 percent, the odds that someone's going to take that mortgage out and then refinance when rates are even lower, I would view that as a very, very low risk, certainly not worth the premium of 1.3 percent that the market's pricing it today.

To control interest rate risk, our proposal funds itself through the government using long-term US Treasury securities to match treasury issuance to the duration of the mortgages. And unlike funding the stimulus, where we are putting money into roads and bridges and transfer programs that do not have a direct payback to the government, in this case we're issuing treasury securities that are going to be offset on the other side of the balance sheet by assets that are paying cash to the government. So, funding mortgages doesn't cost the government much money, other than the credit risk, which it already bears, And the interest rate risk, which can be controlled. The government would be increasing the balance sheet on both sides. And, of course, treasuries should match the duration of the assets so as not to bear interest rate risk.

Why do it? There is no private mortgage market. No one can say that we're intervening where the market's working. There is no market. It is in our interest to hold up house prices,

obviously, because we just can't afford to have the house prices collapse another 20 to 25 percent. This would help the banking system, as we can see up to $2 trillion of prepayments on existing mortgages, which would flood the system with liquidity and naturally separate the good mortgages from the bad. And instead of just talking about reducing uncertainty, we need to deal with the underlying problem, which is housing. If you really want to help the banks, how about stopping house prices from falling another 25 percent? That seems to be helping banks a lot more than trying to wall off assets and doing a good bank, bad bank, and all this other stuff. How about actually just stabilizing the housing market? It seems kind of obvious. There seem to be two critiques: that we are proposing subsidizing mortgages on one hand and that we are proposing intervening in functioning markets, as if mortgage markets are working well now. There are 4 million houses on the market. We should lower mortgage rates for new home buyers. Again, not underwrite crazy mortgages, but with the standard underwriting conditions the GSE's are now applying, we can offer them rates 1 percent lower, cut their payments 20 percent on buying a house, and we can do it profitably for taxpayers.

We'd refinance 40 million mortgages. Average savings would be about $425 a month. That is $200 billion a year for 30 years. That is not a one-time savings. That is a permanent savings. It substantially changes household balance sheets, and marginal propensity to consume as economists would say, is much higher with permanent reductions in mortgage costs. Then there are wealth effects – people would have a little more confidence in terms of spending if their house wasn't falling rapidly in value. There are lots of other benefits.

Now I'm going to flip to my second proposal, which is to reduce foreclosures. This is work with Ed Morrison, who's sitting in the room and who's at Columbia Law School, and Tomasz Piskorski who's a colleague at Columbia. We agree with Susan and John that we're not doing enough mortgage modifications. My colleague Tomasz Piskorski and co-authors Amit

Seru and Vikrant Vig have shown that portfolio lenders foreclose about a third less on their own delinquent mortgages than servicers do on mortgages owned by third parties. So, when their own money is at stake, servicers foreclose less. I don't know what the right foreclosure rate is, but I do know that what people are doing with their own money is probably a good guide as to what the right rate of foreclosure should be. Clearly the right foreclosure rate is not zero, because there are people in houses that have lost jobs or people who can't pay, and there are investors who just won't pay. So, we don't want to stop all foreclosures, but we want to stop any that are preventable. That's a big distinction. There are many barriers. Susan talked about these barriers, including legal restrictions, bad incentives, litigation risk, and servicers literally facing bankruptcy. Servicers are just not paid enough to do their jobs.

So, we have a specific three-part proposal to reduce foreclosures. The first part of our proposal is to pay incentive fees to servicers to collect payments from borrowers. This proposal would apply only to privately securitized mortgages, which represent 15 percent of all mortgages outstanding, but more than half of foreclosure starts. We would pay servicers a percent of what they collect. This gives servicers an incentive to collect as much as possible, but to avoid foreclosure when possible. Now, one of the differences between the plan we propose and the local trustee plan is, suppose you're a local trustee and you're looking and somebody comes in and says I want to modify my loan. Why would you say no? You modify the loan. The person walks away happy. Why wouldn't you say yes? There's no incentive for you to ever collect more money from the modification because you get paid nothing for getting more money from the borrower. So, local trustees would likely modify all the loans, whether or not a modification makes sense. Now, of course, that changes who wins or loses in the process. Our proposal also has a one-time fee if you accept a short sale, which is very important. Many people would like

to do short sales, and we would pay a fee to servicers to do that. This would have a three year life and apply only to conforming mortgages.

The second part of our proposal is to provide a legal safe harbor for servicers who pursue modifications that maximize the returns of investors as a group. This would be an affirmative defense and is not immunity for modifications. We would eliminate explicit restrictions on loans. We also have something to pay off troubling second liens that are now holding up modifications.

In principle, this is all about aligning incentives. And servicers would make more money if they pursue successful modifications. So, under our proposal, if a servicer does a modification and it fails two months later, he would receive $120. If he does a modification that lasts three years (or does not modify a loan at all and it pays for 3 years), he gets $2,160. Obviously, the incentive to do a modification is strong. But suppose I modify down to zero. What do I collect? Under our proposal, where the servicer collects up to 10 percent of borrower payments, the servicer gets nothing if the modification cuts payments to zero. So, servicers have an incentive to get as much as they can from a loan, because once the payments stop, the servicers get nothing under this incentive proposal. We think it's a very, very good proposal. And the costs of this are modest, at least compared to other proposals.

Bankruptcy cram-downs are obviously not the answer – maybe not so obviously in this room. We have 4 million delinquent loans and 51 million loans that are current. It would be a catastrophe to apply bankruptcy modification and cram-downs if it encourages those 51 million people to stop paying. The moral hazard risk of bankruptcy cram-down is simply enormous.

WACHTER: Good Afternoon. While the crisis reached the public's attention with the sinking housing market, in the second half of 2007, its sources go back to more than five years ago. Within this past year, the housing market storms turned into the maelstrom of destruction that is the global financial crisis. Was this avoidable?

At this point we need solutions. We need to understand how the structure of the financial system will be reformed before the private sector will be willing and able to invest again. Without these measures, then we are simply continuing the socialization of risk. Today the housing finance system is almost entirely federalized. Will there be GSEs in the future, or will they simply be folded into government? Will they be privatized? Will there be a private sector that underwrites private label mortgage backed securities? Under what circumstances would we return to such a system? My comments are focused on long run issues, but I believe addressing why the current system failed is necessary in order to create confidence for private risk taking going forward.

In the U.S., the crisis was preceded by a reckless easing of mortgage lending standards followed by credit markets seizing up. Lending was extended far beyond reasonable limits, and housing prices increased beyond sustainable heights. The crisis can be summed up in a few words: loans were made that could not be repaid.

The result of the historic overextension of credit was a price rise unlike any seen in U.S. history. Housing prices for a constant quality home had basically kept pace with inflation for 100 years until around the mid 1990s, according to Case-Shiller. A paradigm shift occurred starting in the late 1990s and accelerated after the recession of 2000, leading to prices almost doubling in nominal terms between 2000 and 2006. Of course, the United States is anything but one housing market. How this played out geographically is very much a part of the story of causation, as prices rose dramatically and then collapsed in the difficult to develop states, particularly the coastal and difficult to develop "sand states."

Prices have already declined more than 20 percent nationally and more in these states where the bubble was most evident. We do not know where the bottom is. The source of this uncertainty is that fundamentals are continuing to deteriorate. And prices are very likely to blow

out on the downside as they did on the upside. Non-sustainable mortgage financing was responsible for the artificially high housing prices, along with the classic bubble behavior of homebuyers and investors who extrapolated past price increases into the future. But since loans were made even to those who purchased with reasonable loan to value ratios in 2006 at artificially elevated prices, a large percentage of mortgages originated in 2006 are now underwater, with the price of the home less than the amount of the mortgage, putting even conservative borrowers who now must sell in an untenable position with default the only out.

As we explain in our paper in the *Wharton Real Estate Review* in the fall of 2008, The Uniquely Bad U.S. Housing Market, the U.S. housing market was, until recently, the least volatile of our major 14 trading partners. Something happened starting in 2000 when prices began to steadily rise at a faster rate than inflation and after 2003 when price rises accelerated further, outstripping those of our trading partners. This crisis was made in the U.S.A., though it did not play out in the same way across the nation, and in the US the housing prices accelerated even beyond the already high rates of appreciation after 2003.

Several major changes took place in this period so it was not immediately obvious what the cause of this anomalous price rise was. First, interest rates declined, but this was a global decline, and thus cannot explain the differentially accelerating price rises in the US after 2003; moreover, after 2003 interest rates leveled out and then increased. Yet price rises continued and accelerated into 2006.

In this period a second major change occurred in the structure of the mortgage market, related to securitization. We differ from other nations in the widespread use of securitization. But we have relied on mortgage backed securities for housing finance for decades. In fact, securitization rescued us from the Savings and Loan crisis in 1990. Historically, we securitized interest rate risk, not credit risk. Prior to 2000 or so, mortgage backed securities were mostly

Ginnie Mae, Fannie Mae, and Freddie Mac securities. Investors purchasing these securities were exposed to interest rate risk, not default risk. If the mortgages underlying these went into default, the U.S. government stood entirely behind Ginnie Mae and implicitly behind these Fannie and Freddie securities. The oversight that the government provided in turn led to standardized and controlled default risk.

In the late 1990s and accelerating, most dramatically, after 2003, we shifted to a private label securitization model. From a nearly inconsequential level of 15% in 2002, by 2006, almost 50 percent of mortgage loans originated were nonstandard, mostly securitized by private label groups and packaged by Wall Street firms. These mortgages were heterogeneous and idiosyncratic, which meant their value or lack thereof could not be market tested. The switch from standardization to nonstandard mark to model MBS pricing was accompanied by a huge expansion of credit, in part because despite the great risk, they were priced so cheaply and in ways that lowered the initial cost to borrowers. Household debt expanded at historically elevated rates, backed by this growing mortgage debt. At the same time, financial companies' debt expanded even more because there were not only mortgage-backed securities, but also parallel, synthetic mortgage-backed securities that were backed by nothing.

Within these loans there was a deterioration of standards. Subprime, normally fixed-rate mortgages became adjustable-rate mortgages with teaser rates, which would become non-affordable when they reset. Why would anyone take a loan that could not be repaid? Why would a borrower make a loan today at 6 percent that is going to become 12 percent within two or three years, making the loan non-affordable? Borrowers were reassured by brokers and Wall Street bankers, who told each other and themselves: "Prices have been going up historically since 2000. They will keep going up. If you pay your subprime loan rate for 2 or 3 years, your credit will

improve and you can refinance into a fixed-rate mortgage at that same low 6 percent rate. You cannot lose."

The presumed ability to refinance was a key factor in the disaster to come. As in the Great Depression, when "bullet" loans, which had to be refinanced in their entirety came due with no refinancing available, the US mortgage market by 2005 was hostage to non-sustainable mortgages that could neither be repaid nor refinanced. As in the Great Depression, when these loan did come due there was no refinancing available and the non-sustainable loans went into foreclosure in record numbers. Starting in 2003-04, subprime teaser rate loans (2/28 and 3/27, 30 year mortgages with 2-3 year initial teasers) started to be made in large numbers; they came due two or three years later with the expectation that they could be refinanced, because prices had been going up.

If prices were up, whether borrowers' credit was good or not they could refinance or at worst sell into the market. They would not default. They might have to move from their home, but they would not go into foreclosure. They would extract equity, because they could sell their home for more than the mortgage amount. Through the second half of 2006 foreclosure rates did not increase. Default rates did not increase. People who could not pay their mortgage or who needed to move would not default and hurt their credit rating; they would simply sell their homes into this rising market and recoup their equity.

What happened to change that? There are two paradigm shifts that were going on at the same time in the U.S. First, as described, there was the growth of subprime, risky loans backed by Wall Street. Second, housing prices pretty much had kept pace with inflation on average throughout the U.S, but this changed around the 1990's. Historically, the U.S. has been blessed with a housing market which economists term "elastic": if the demand goes up, the supply goes up. If supply responds to demand, housing prices do not go up. That represented the U.S.

housing market with the exception of a very few coastal states such as California, which have had a stringent regulatory environment for decades. Over time and speeding up in the 1990s many parts of the U.S. became subject to environmentally sensitive land use controls. This resulted in demand increasing prices not supply. This shift to inelastic supply throughout the nation was necessary but not sufficient to the creation and collapse of the bubble. For demand to continue exerting upward pressure on prices, the demand increase had to be based on fundamentals, which was not the case.

The other necessary factor was, as we have seen, the shift in mortgage markets. Borrowers borrowed at teaser rates. They were not able or expected to repay at reset. These mortgages were originated by brokers in a new model—originate to distribute, as opposed to originate to hold. Banks had no risk in these loans. The secondary market took these loans, packaged them in securities and again took no risk. They were then rated by Moody's and other rating agencies. The agency incentives were misaligned; they were incentivized to give a triple-A rating whether deserved or not. The rating agency took no risk either. MBS were sold to investors. Investors were buying these risky products because of a new instrument, one that really took off in a totally unregulated way: credit default swaps. Credit default swaps are a way of insuring against risk, particularly the risk of default of residential mortgage-backed securities that were packaged by the secondary market.

At every level there were short-run profits. Originators were making very large origination fees, much larger than in the prime market. The rating agencies were making large profits as well. Insurance firms, in particular, AIG, were given the right to issue credit default swaps. Legislation was passed that precluded states from requiring reserves against these credit default swaps. Insurance companies are regulated by states, and the states require reserves. But, in this case, Congress passed legislation that precluded states from requiring the issuers from

reserving, as long as they were triple-A. Credit default swaps were extremely cheap to produce in the absence of reserve requirements and hugely profitable, for a time.

The risk premium on these risky mortgages in fact decreased over time even as the actual risk grew. As these mortgages became more and more risky, they did not trade at a higher risk premium, in part because of the credit default swaps that were being issued behind them, which allowed hedging. But why were the investment banks not thinking about the risk that counterparties may not make good on their contracts? If I had been a Wall Street banker and I was thinking about AIG's counterparty risk, I might have thought that if AIG fails, everything fails. It is too big to fail.

Where do we go from here? Is proper securitization enough? Can we have securitization with accountability? Is this possible? As long as mortgages are securitized in instruments that can trade then, yes, proper securitization could be a possible solution. Market participants should be allowed to express a negative view. If market participants can respond to under-pricing of risk by short selling securities, firms and managers would be less able to under-price risk in order to gain market share. Of course, we need regulation and supervisors who will regulate such a market. Lenders will tend to under price risk. Nonetheless, while lender regulation helps, regulation can be circumvented. Absent securitization, it takes a long time to detect the problem. A banking system alone will not do it, as it is possible for banking systems to implode.

Ultimately, we need both proper regulation of players who are too big to fail along with liquid, standardized MBS. The combination of pro-cyclical deregulation with regulatory arbitrage together with non-tradable securitization produced the collapse this time around.

This much is clear. Federal Reserve Chairman Bernanke has stated that, "events… have highlighted regulatory gaps and deficiencies that we must address as we recover from the current crisis." We have much work ahead of us.

AYRES: And now we have some time for questions. Before the questions, just by a show of hands, we have two ways to help on the foreclosure crisis. How many people prefer Susan's approach? Raise your hand. How many people prefer Chris' approach? I'm saying Susan's winning that.

KONIAK: I paid them beforehand.

GEANAKOPLOS The only question is who's going to have the right incentive now to modify the loans in the right way. Should it be the current servicers who again and again have shown they won't do the job correctly? Before they were throwing everybody out of their houses. Now they're modifying like crazy, sham modifications, because, as I tried to get Susan to say, if somebody doesn't pay, the servicer has to pay on that guy's behalf. If the guy doesn't pay for four months, the servicers are paying for four months. If it's twelve months, the servicers are paying everything for twelve months. Once they throw the guy out of the house, they get the money back. This was an incentive created in the original contract because the bondholders recognized the servicers had bad incentives, so this was to get them to hurry up. So, this is something that I think you haven't taken into account, Chris, that servicers want to modify anyway now so they don't have to do the advance payments. So, the bottom line is who's going to service with better incentives? Either the servicers or the government is going to have to hire tens of thousands, or many thousands, maybe not tens of thousands, thousands more agents are going to have to be hired to look over these loans to decide how to modify them. It's not the people already delinquent now who need modifying. It's the people – Susan showed the graph – 3 to 6 percent a month in these subprime are new delinquencies. They've paid up until now and

are now going delinquent. There are millions of these people with loans that have to be looked at. So thousands of agents have to be hired.

MAYER: I think it's really important to have an incentive that balances what's going on. And our proposal aligns incentives. And I agree with John that the incentives a year ago, six months ago, currently are misaligned. And so, our proposals share the view that it's really important to align incentives properly and that we need to, in some cases, change contracts as little as possible. At the end of the day, I don't believe that starting from scratch by hiring thousands of local trustees who have no incentive not to modify loans, is a good solution, and I think if we want some idea of how many loans are reasonably modified, we should look at what lenders are doing with their own loans, and that roughly suggests that about a third of the foreclosures, a very big number, are kind of being done too much. I think that's the benchmark we have and we should encourage servicers to have the same incentives as portfolio lenders do for their own loans. Thank you.

AYRES: Thank you. Next question, please.

SPEAKER: The major proposals out there right now, the voluntary industry proposal, help for homeowners, and the FDIC proposal both attempt to reduce the debt to income ratio to something they consider reasonable: 38 percent for the voluntary initiative and 31 percent for the FDIC initiative. What the proposals don't take into account is total debt to income ratio, including car debt and the rest of consumer debt. Have you modeled total debt to income ratios to determine that the proposals that you're presenting or the other proposals would actually work? Or, in other words, are homeowners just too indebted for any of these proposals, and do you have evidence to go one way or the other?

MAYER: Just a couple quick comments. The first is debt income is actually very hard to model, because, as Susan talked about a little bit, in many cases there was not even

verification of income in the mortgage applications. So, we don't actually know what the actual income of borrowers is. I think the idea of refinancing at lower rates, which roughly reduces payments on the order of 15 to 20 percent, substantially helps the debt to income and affordability issue. And for the bulk of mortgages that are outstanding, since the government already owns the credit risk, we can do that without any additional risk modeling. So, we have thought a lot about that debt to income ratio. I think when it comes to mortgage modification, really the idea is very much to let people operating in the market figure it out, because I don't know what the right debt to income ratio is. I don't think anybody does. And I think it depends on individual borrowers to consider what other debt they have, what else they can afford. And so I think that's why it's really important to let servicers make these decisions and incentivize them to make it work, that is pay them only if they're successful in modifying. If you're somebody who's sitting with a bunch of student loans and other things, the amount you can afford on housing is very different from somebody who only has their mortgage. And I think those decisions are going to have to be made individually in modifications.

SCHWARCZ: I just want to make a comment in terms of the servicers. I'm not sure it makes sense to replace the servicers on the mortgages, because the parties that presently service are actually pretty – well, I'm not sure I'd say pretty good at it, but they should be pretty good at it. The problem they face is the potential liability, as mentioned. And that liability is, for example, if there's a workout of some sort, if you reduce principal, then you have interests that benefit compared to the principal and vice versa, and you have a whole bunch of different tranches. This is a problem that exists not just for mortgage servicers, but for any sort of trustee, and it's been a problem for decades in the indenture trust area. One possible solution is to try to change the law to give these services some sort of limited immunity in terms, for example, a

business judgment rule like you have for corporate directors, so you can really do something that makes some sense without feeling you're being sued. Just a comment.

MAYER: Our proposal includes a safe harbor that does exactly that. And we agree with you completely.

KONIAK: We think – I think—that limited immunity is for all practical purposes indistinguishable from no immunity. And giving full immunity to conflicted agents from being sued by the people they have a conflict with, which is the bondholders, is a bad idea.

HOCKETT: I just wanted to bounce an idea off of you. I think it's about family resemblances both to the Hubbard-Mayer proposal and to the Geanakoplos-Koniak proposal but maybe bears the advantage of employing institutions that we've already got. So, here's the idea. A real estate crash,1928, housing markets are flat, quite low for several years thereafter. 1934, HFA is created, essentially invents the 30-year fixed rate mortgage, makes a national mortgage market possible. In 1938, Fannie is established by the Feds also as a kind of companion organization or agency to create a secondary market in those mortgages. For 30 years it's got a virtual monopoly – not even a virtual, an actual monopoly on the secondary market of mortgages, right? It's privatized in '68. Freddie is created as kind of a competitor for it. The two of those, in turn, then for another 30 years have a virtual lock on the secondary market, right? So, it's not until about the mid-1990's that all of a sudden private actors begin to sort of horn in. And then all of a sudden we get subprime mortgages that turn up about the later-1990's. But before that, all low-end mortgages were essentially handled by FHA; all of them were FHA conforming; there were no troubles; they were 30-year fixed rates; and so on, right? Okay. So, just a few, about six, seven months ago we renationalized effectively Fannie and Freddie, why not have Fannie and Freddie buy up the so-called toxic MBS's that are out there? Then you buy time, in effect. And then FHA does what it's always done – it handles the refinancings. You

just use the same agencies we've always had, but used to have a lock on all of this. And departures from which, in a certain sense, account for all of the mess since the late-1990's and especially in the early 2000's.

MAYER: The big problem with buying up toxic MBS is that you don't get control of the underlying loans, and that's what you really need to do to kind of fix the problems. So, this is the major complication securitization has created relative to the late-'80s, early-'90s. At that time when you took over, say, a failed loan owned by Savings and Loan, you got the underlying mortgages and then you could manage those. And as we talked about, securitization destroys value in lots of ways, and that's the challenge of focusing on the securities. And we also don't know what the prices are. So, I think going through a route where we refinance the good loans out, that just leaves the bad loans left, and then we manage the bad loans appropriately, is sort of a version of the good bank, bad bank kind of view, but it does it sort of naturally by just getting everybody out who can afford to pay at lower rates. So, our proposal essentially does a similar thing to what you're talking about. But it does it in a way that focuses on the bottom, which is the loan market, as opposed to the top, which is the securities market. And that's the market that's hard to deal with.

WACHTER: To keep it simple, you can't get rid of the servicers. They come with it. And that's the problem. There are other options, we have two. The Sheila Bair plan, maybe if we have a few moments we can talk about that.

KONIAK: And bankruptcy.

WACHTER: And bankruptcy, which we haven't talked about also.

GOETZMANN: I'll just say we could be rid all of these toxic assets within three or four months. They could all be gone. And that's because they could all be prepaid. It's a matter of

how much and who pays for it. But as we dig ourselves deeper and deeper into a hole, I think we're probably going to have to think about that as a possibility. Anyway, that's my proposal.

SPEAKER: So, just following on what Professor Wachter was saying about bankruptcy, one of the hot topics on the Hill right now is mortgage cram-down legislation, which, in effect, would give bankruptcy judges for individuals filing Chapter 13 the ability to modify the principal amounts on primary residential loans. And there seems to be a lot of momentum in favor of it. Citigroup has signed up for it. The National Association of Homebuilders has expressed interest in it. And I know Professor Mayer mentioned that he's not in favor of it because of the moral hazard risk. I wonder if the panelists could expand either in their criticism of it or an argument in favor of it if they believe in it.

KONIAK: There may be a place for bankruptcy for some loans. But bankruptcy alone is a disaster without our plan. And the reason for that is as follows: First of all, bankruptcy courts couldn't possibly handle all this. There's just too many loans. That is why the proposed legislation is not really a proposal to put all the defaulting loans in to bankruptcy. It's a head fake towards bankruptcy. The idea behind the proposal is that you apply for bankruptcy, and that's how you get the servicer to modify your loan. So, we're back to the servicers modifying. And one, they have the wrong incentives to modify. Their incentives will not lead to modifications that help bondholders or homeowners, as I've already explained. As or even more important, the bankruptcy idea, without our plan, will cause those toxic assets (the mortgage securities) to grow more toxic. If bankruptcy is the only route to a modification either because the threat will bring a servicer to the negotiating table or because the bankruptcy court will modify when the servicer won't, then you encourage people to default sooner rather than later just to get some relief. That will cause the bond market to further devalue the toxic assets, In contrast, our plan builds in a presumption that you are not eligible for a principal-reduction-

modification or any modification, for that matter, if you're current at the time our plan is announced or some number of months before it goes into effect, and you go into default before the government-hired trustee gets to you to assess whether you are eligible for a modification. That presumption can be overcome by showing some independent intervening event of serious economic consequence, such as job loss or serious illness necessitating outlays for medical costs. Our plan thus, unlike bankruptcy, gives people a reason to keep paying, to hold on until the cavalry arrives. That in turn will support the value of the toxic assets and stop their rapid further deterioration. No other plan has that feature. We keep the payments coming in until the decision on modification or foreclosure gets made. If you add a bankruptcy option to our plan that would open up a route to modification for those unable to hold on until our cavalry arrives, but because our plan has none of the stigma or costs of bankruptcy, we can safely assume that anyone who can keep paying until our trustee arrives, will. Then we would have two routes to a modification. The "keep paying" route would be worth it to anyone able to keep paying. They wouldn't then destroy their credit for years as bankruptcy would do and they could avoid the paperwork, unfamiliarity and fear that going to court brings.

MAYER: I would disagree with the view that those incentives aren't there. I think they're strongly there under our proposal as well. A couple of quick comments on Chapter 13 cram-downs. The first is that the moral hazard problem is a really, really big problem. We've already kind of passed the point where it used to be that people paid off everything but their mortgage, and that was the last thing they defaulted on. We're already on the other side of that, which is people now default on their mortgage before they default on their credit cards because of the view that the consequences aren't so bad. And we have a large number of people in this country whose houses are under water. The idea that they could go to court and basically have the balance crammed down is an enormous change in the idea of what a mortgage is. That is to

say, when you underwrite a mortgage, when a bank underwrites a mortgage, they're underwriting two things. One of them is the value of the house, but, more importantly, it's the borrower's ability to pay that mortgage. So, bankruptcy cram-down essentially reverses that back to more or less the value of the house, and that enormously changes the incentives that people have, and, you know, as Susan suggested, there are 366 bankruptcy judges in the country. What they would do is appoint trustees. So, in practice, you would sort of end up with a version of their plan, which is we're going to appoint trustees to make decisions. They don't have any incentives to make good or bad decisions either. And the final thing is, actually, if you did bankruptcy cram-down without any other proposals, the real problem is, believe it or not, the servicers would actually like it. You say, what's odd about that? Well, it turns out that under most pooling and servicing agreements – and Ed Morrison had a bunch of Columbia law students actually spending break going through pooling and servicing agreements – the pooling and servicing agreements generally specify that servicers can be reimbursed their costs with any judicial proceeding. A foreclosure is a judicial proceeding, but so likely would bankruptcy be. So, servicers might prefer bankruptcy to working with borrowers outside of bankruptcy. So, in an odd way, when you call a servicer, if you just did cram-downs, what you might actually hear from the servicer is an invitation to go file for bankruptcy and then talk to us, because then all our costs are covered of doing it. So, there are many problems with bankruptcy reform, but I think the two biggest are the moral hazard risk, as economists would put it, and the problem that servicers might like it too much.

KONIAK: I have two comments to make. One, bankruptcy law allowed for the discharge of homes in bankruptcy for a good part of our history. That was changed recently. We wouldn't be undoing the whole of bankruptcy law. So, that's just not accurate. Two, bankruptcy is scary to most people. There's a court. You need a lawyer. It's not that easy.

People aren't running to that process. It's enormously expensive. I'm not saying it shouldn't be available, but it isn't the exclusive, or even the primary, route we should be building for reasons I have already explained.

MUSTO: I'm David Musto from the Wharton School. And I have a question – if I'm shutting down the conference, let me say this has been a great conference – and

AYRES: If I can just add to that – special props to Roberta Romano –

MUSTO: – and it would be memorable for all of us – the most excitement I had in this room was 28 years ago. We were doing the model UN and some friends of mine burst in as the model PLO to take us all hostage. But here's the question. A lot of things have been said here – no one's brought up the issue of state law at all here. And a lot of the proposals here would really step on the way state law works with respect to the seniority of first and second mortgages. My conflict of interest is I'm trying to write a paper about this topic here, so just bear that in mind. I'm curious what people have in mind. Do people have in mind federalizing mortgage laws or what exactly? How are they going to deal with the fact that you can't just freeze out the second lien like that, the way a lot of these things seem to presume you would do. It's a question for anyone in the room, I guess.

MAYER: I don't think any of the proposals freeze out second liens. Actually, the only two ways to deal with that are either in bankruptcy, where the bankruptcy judges have the right to address second liens, or through another proposal, which I skipped over as point three in our proposal, which is to offer a nuisance fee for second liens to go away for modified loans.

GOETZMANN: Right. You're presuming they're going to accept your nuisance fee.

WACHTER: They are. Fannie and Freddie are offering $3,000. They're accepting it.

KONIAK: The second liens are basically worthless now.

AYRES: All good things must come to an end. Thank you all for coming.