ECONOMIC CRISIS AND HIGHER EDUCATION
Forum for the Future of Higher Education

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Panelists

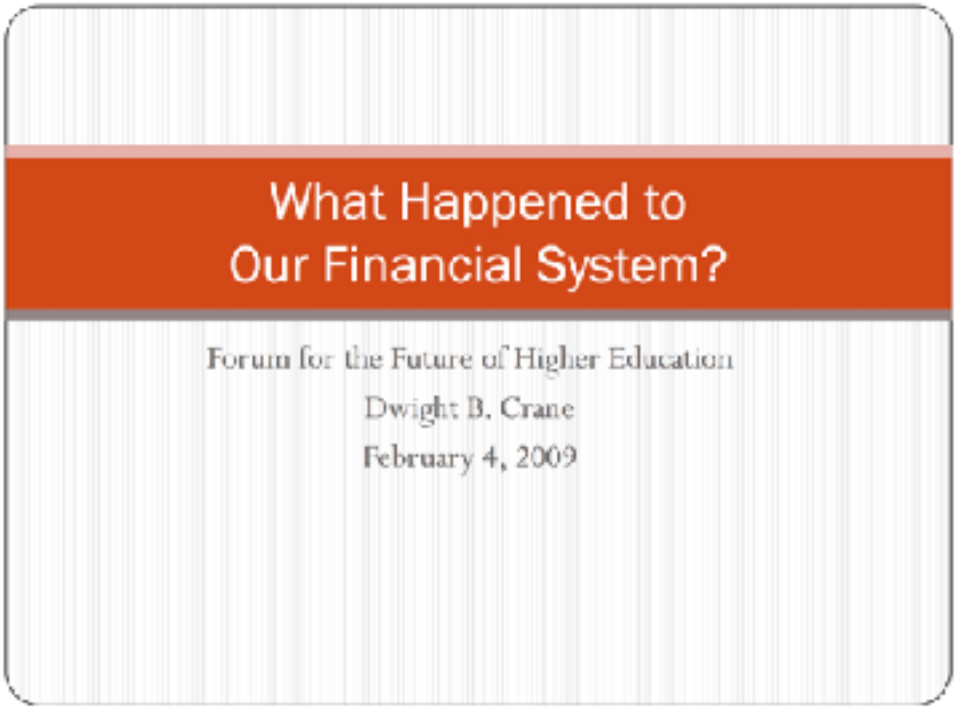
Future Prospects for the Credit and Capital Markets

Dwight Crane, Harvard Business School
Thomas Healey, Harvard's Kennedy School and Goldman Sachs
Perry Mehrling, Barnard College, moderating

Abridged Transcript With Slides

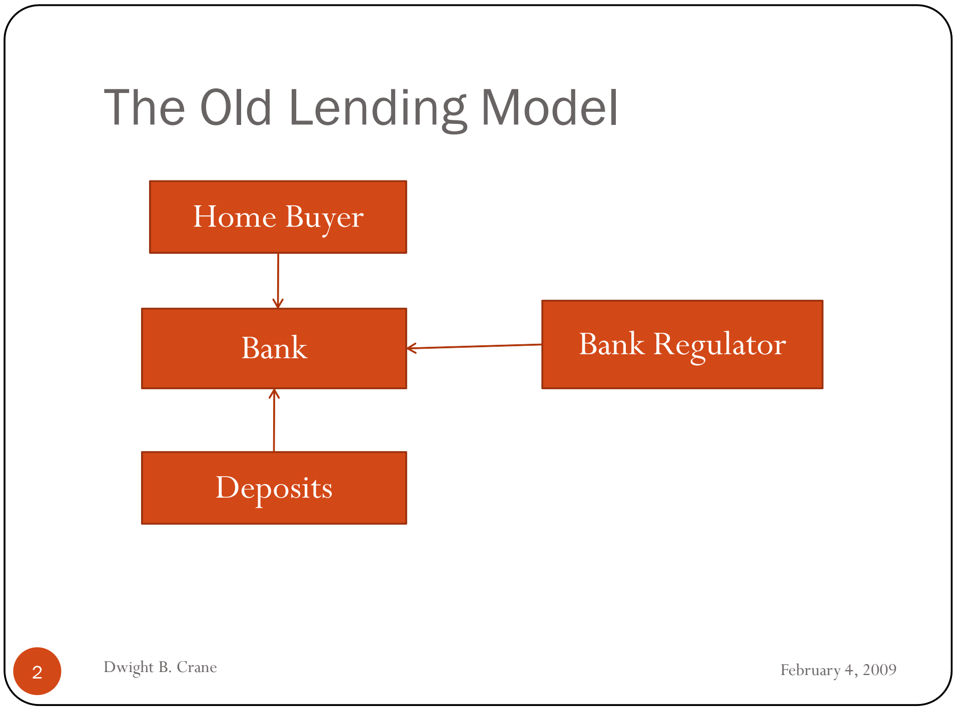
MR. MEHRLING: This session is titled "Future Prospects for the Credit and Capital Markets." Our lead-off speaker is Dwight Crane from Harvard Business School, and he's going to talk about what is happening to our financial system.

MR. CRANE: It is a pleasure to be here. What I'm going to try to do is give you a sense of where we are and some thoughts about where I think we might be likely to go — and then Tom's going to follow up and talk about some of the current issues that we're facing.



To do this, I need to warn you I'm going to look backward for a bit for a couple of reasons. One is that as we think about how to get out of the mess we're in, I think there's going to be a tendency to try to see what worked in the past. The other thing which will happen is we'll try to figure out who the villains are. We want to regulate them so they can't misbehave again. So it's important to look backward a bit.

The old lending model



Here's the way the lending model used to work. We got a home buyer (or student getting a student loan). We go to their local lender. It might be a bank. It might be an S&L. That bank or S&L would fund the loan out of deposits on the books. The loan would stay on the books. We got a regulatory system based around a bank regulator. I listed bank regulator as if it's singular. We actually have a number of them.

Old Fashioned Banking

Liquid Assets	300
Loans	700
Total Assets	1,000
Deposits	900
Capital	100
Total Liabilities	1,000

10:1

Capital requirement limits loans & growth.

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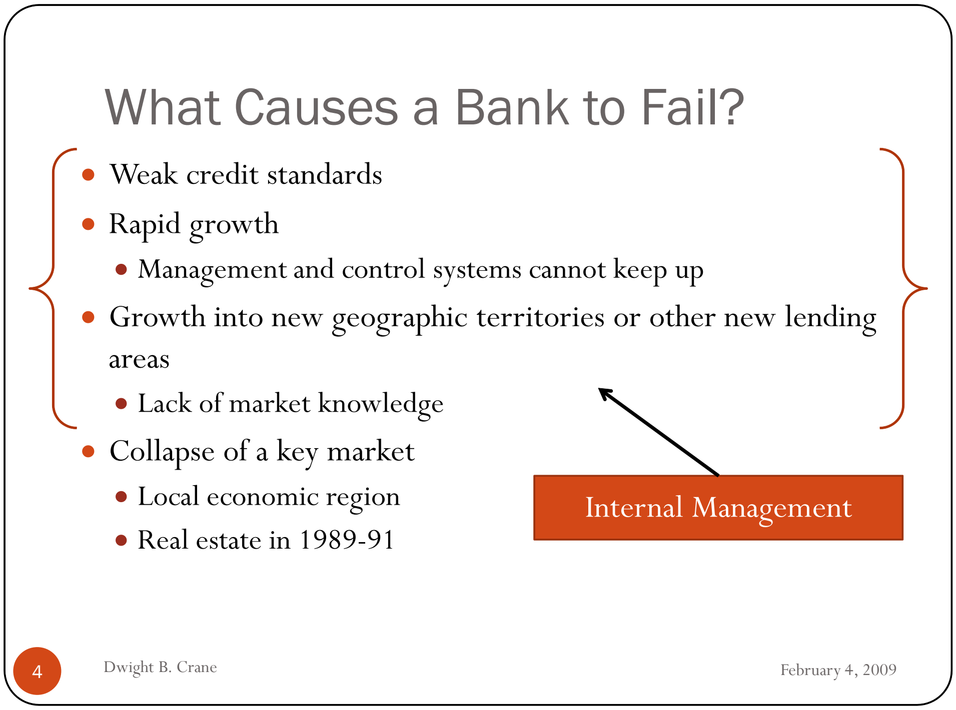
So we're going to build an old fashioned bank. We're going to put in $100 million of our hard earned money as capital. That will support about $900 million of deposits that we'll collect over time through advertising and attractive interest rates. As you can see, we have roughly a billion dollars to invest. Some of that we will keep in liquid assets — probably less than $300 million now. The rest we will be willing to loan out. The important thing here is the relationship we have between capital and assets. Charlie Schultze mentioned today a ten to one ratio. That's an important ratio to keep in mind. It's a rough number. Sometimes it's more. Sometimes it's less. But the notion is that if we have capital requirements and we have loans on the books that limit the amount of loans a bank can have, it limits the leverage that a banking institution can have.

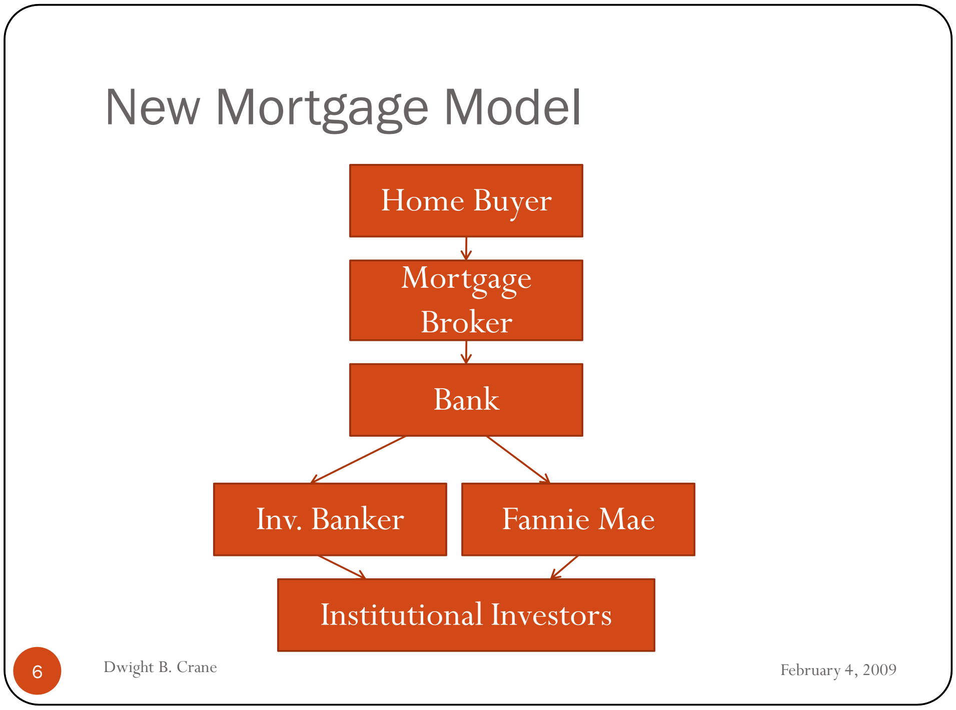
What causes bank failures?



What causes a bank to fail? I left one thing off the slide here. The most common cause of bank failure is fraud. But let's look at management issues. If we have weak credit standards, we're too generous in making loans, we can fail. If we grow too fast so our management and control systems can't keep up, we lose control and we can go under. If we grow into new areas, new geographic territories, new businesses — that can cause a problem. We also have a problem if we're based in a local economy and that economy collapses. Through no fault of its own, the bank has trouble. And also if a major industry begins to fail that a lot of banks are involved in, that's also a problem. Now these first three things are basically management issues. So if our bankers run their bank properly, they're actually pretty safe institutions. The problem is that they are dependent upon the economic region they're in and in some cases they're dependent on a major industry. The biggest industry collapse we had was in '89-'91 when the real estate industry collapsed. That was a huge problem for banks. In those three years, we lost almost 500 banks per year. So in those three years, we lost almost 1,500 banks. They were either merged or failed or taken over by the FDIC. Just by way of contrast, last year we had 25 banks fail. So what we've done is figure how to keep the commercial banks safer. But we haven't made the system safer.

What we tried to do to make the banks safer basically is figure out ways for them to generate loans and get the loans off the books.

New mortgage model



Over about 20 years, we developed a new banking system — a new lending model. My example here is the mortgage market, but it could be the student loan market. It could be the corporate borrowing market or so on. But in the mortgage market, we had a new player become important — the mortgage broker. We had that mortgage broker as a link between the home buyer and the bank or the S&L or whoever the lender might be. And now we have investment banker types and Fannie Mae and Freddie Mac in the picture as buyers of loans and as packagers of loans. They package loans into securities and sell them off to institutional investors.

Enablers of Mortgage Growth

- Federal Housing Authority (FHA)
  - Insured mortgages and established standard terms
- Fannie Mae and Freddie Mac
  - Bought mortgages from institutions
- Ability to package mortgages into securities that could be sold to institutional investors
- Credit rating agencies
- Ability to buy credit insurance
  - Credit insured by a mono-line insurance company
  - Credit default swap

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So now we have more players, more regulators and we have the question of where's the risk? The risk, by and large, is no longer in a traditional bank. It's in the marketplace.

One might ask why would an institutional investor such as a pension fund in the Netherlands buy a package of student loans? Well, they do it for two reasons. First of all, they're a long ways away from student loans or the U.S. mortgage market or whatever kind of loans they're buying. They relied on two things. One is credit ratings from Moody's and Standard and Poor and Fitch and others — but primarily those three. They also relied on credit insurance. We won't go into details of the credit default swap market. We don't need to. But basically there's a market where an institutional investor can go out and buy insurance on the credit portfolio that the institution just bought. So the investor could have called up a trader at Lehman Brothers and said, I want to buy some insurance on this $100 million portfolio I just bought and the Lehman Brothers trader would say, sure. And there would be a transaction, which would occur, by the way, at very low cost. Credit insurance was way under priced a few years ago. Then Lehman Brothers had this exposure. They would then call up somebody at Bear Stearns or Merrill Lynch and say, I want to buy credit insurance. So they would offset the risk they just insured for the institutional investor. So we see, by the way, a mechanism for moving risk around which didn't exist until relatively recently.

This is a great deal for banks — because look at the game that banks can play now. Not just banks — Countrywide Credit, Ameriquest — other lenders in the marketplace. They solicit mortgages. They package them into securities. They sell them off along with the credit risk. They no longer have most of the credit risk on their books. This is great because the capital requirements are small. They only keep about 10 percent of the loans on their books so they can generate a lot of loans per dollar of capital, creating leverage. It's great for profits because you haven't committed much capital to this as much as your equity base. You've got the front end fees coming in. You've got the management fees coming in. So your return on equity goes up and you've sold off the credit risk. It's a great deal. Now the question is, what's our strategy as a bank? We can take advantage of this in a careful way, continue to grow at a moderate pace but have a more diversified portfolio, or we could grow very fast. Wells Fargo, by the way, which has been in the press in a negative way recently — they actually have strong credit underwriting standards that they maintained even as the number one mortgage lender in the country. They've done that. They're still alive. They're one of the better quality banks now.

Washington Mutual (WaMu)

- CEO in 2003: “We hope to do to this industry what Wal-Mart did to theirs…”
- Rapid asset growth through acquisition and aggressive lending
  - Asset growth: $195B in 2000 to $343B in 2005
- Top-down pressure through the ranks to grow mortgage volumn
- Low credit standards
  - A Mariachi singer with “six-figure income” applied for a mortgage

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But they aren’t the only player out there — Washington Mutual, to pick on one example. The CEO said in 2003, “We hope to do this industry what Wal-Mart did to theirs.” Basically, let’s expand our market. Let’s grow it fast. Let’s go down into the lower income level. We’re going to grow very fast. In fact, their assets grew by 75 percent in a five-year period. That’s very rapid growth for a bank. Banks used to grow like five or six percent a year. This is a 12 percent growth per year. It’s double the normal rate of growth for a bank. How do we grow fast? Well, we put a lot of pressure from the top down to generate mortgages.

Evidence for the Income

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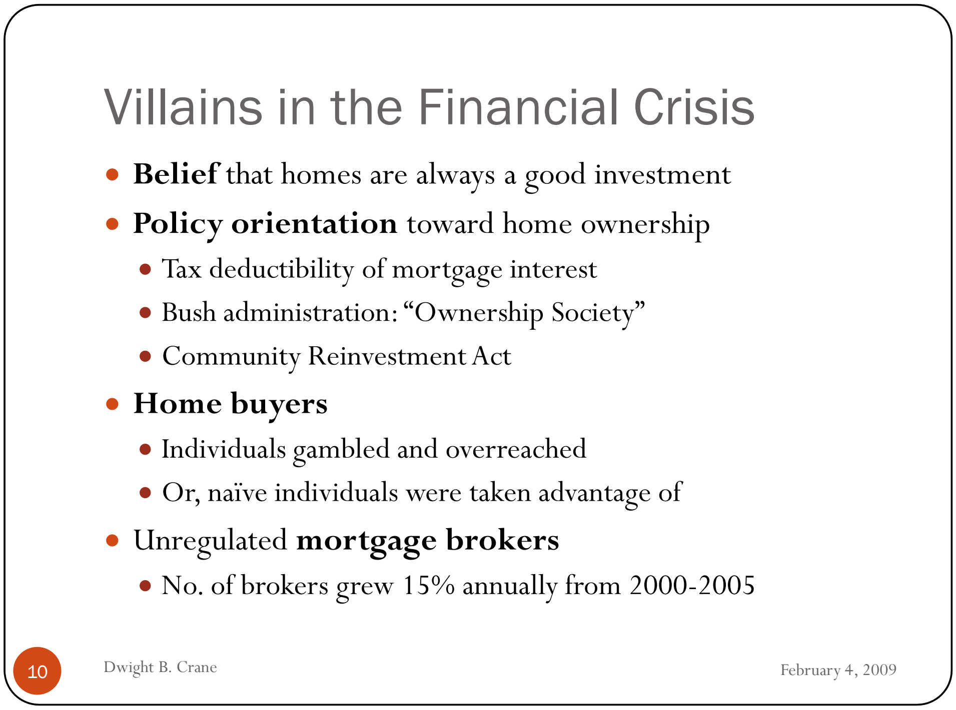
The New York Times had an interesting story about Washington Mutual — WAMU. Very low credit standards. They had one example that they found of a Mariachi singer who claimed to have six figure income. The credit officer had no documentation, so he went out and took a picture of the Mariachi singer. True story. What I don't have here is the truck. The picture was the Mariachi singer beside his truck with his name on it. That was the evidence of $100,000 of income. Not the way to lend, by the way.

Villains in the financial crisis



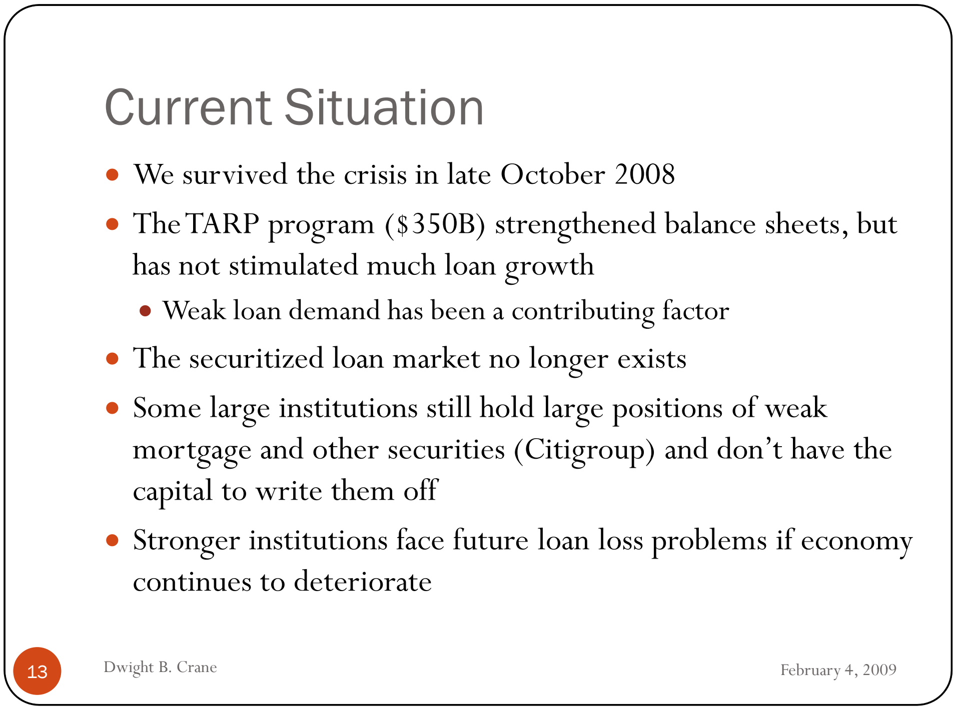
Now let's look at villains for a moment and, as I said, the reason to look at villains is these are the problems that we are going to try to fix in the years ahead. First of all, I'm not sure we want to fix this, but there has been a belief for a long time that homes are always a good investment. I can recall telling my children when they were buying their first homes, stretch a little bit on your first home because your income is going to improve. The home value is going to go up. It's a good investment. Now, a Michigan consumer research survey shows two percent of households believe homes are a good investment. The mood has changed on that.

We have had for a long time a policy orientation towards home ownership which goes back to when we made mortgage interest tax deductible. By the way, on these villains, there is a Republican view and Democratic view. The Republicans blame the Community Reinvestment Act of 1977 done in the Carter Administration. Their story is that the Community Reinvestment Act encouraged banks to go out and make loans to home buyers who couldn't afford the home. On the other hand, the Bush Administration, which the Democrats focus on, sponsored the Ownership Society and under that program we really encouraged home ownership — particularly by minority groups and low income groups. Typically, around 64 or 65 percent of households own homes. That number rose to 70 percent last year. It has started to come down, not surprisingly. So we really encouraged home ownership the last few years in particular. Now, the GOP is probably going to view it as the homeowners who are in trouble gambled and overreached. It's their problem. If you're a Democrat, you believe that naïve individuals were taken advantage of. I think both parties are correct.

Mortgage brokers, which are by and large unregulated — in some states, no regulation, no license required. They grew 15 percent annually over the five years from 2000 to 2005. Needless to say, the number has come down since then.

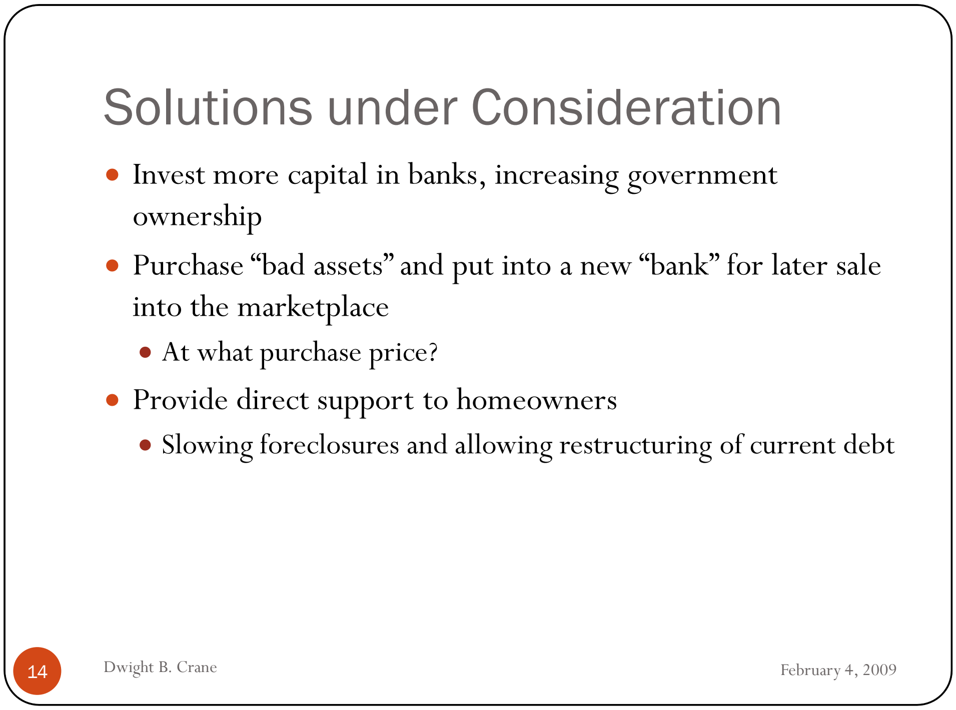
Several institutions lowered credit standards — WAMU, Ameriquest, Countrywide Credit and others. They're no longer with us. They're gone. Mortgage design got very creative to make it easy to buy more home than you can afford. Pick-a-pay was one program that Global Western Savings Bank had, where basically you decide what you want to pay. If you pay less than your scheduled payments, your principle builds up and if your home value has gone up, that's just fine. But if your home value is going down, that's the problem. Credit rating agencies — they basically came into existence in an era when their job was to analyze financial statements of towns and states and companies. They got in the business of analyzing complex securities, which are extremely hard to understand. They didn't do a very good job at it and they lost all their credibility. We can expect to see some restructuring in the way credit agencies do their business. Investment banks were very aggressive in seeking out new loans. Merrill Lynch, by the way, to generate more mortgage loans, bought a mortgage origination company — a small version of Countrywide Credit, which contributed to their downfall. Institutional investors relied very heavily on credit insurance — mainly the swap market, and the swap market was way under priced, as I said. So it was very easy to buy credit insurance.

The regulatory environment has been shifting for decades to less regulation. You probably saw Alan Greenspan's statement that he believed too much in the effectiveness of market self-regulation. Again, there are Democrat and Republican views here. The Commodity Futures Trading Commission was prohibited from regulating derivatives such as swaps. That occurred in the Clinton Administration — Phil Gramm was the contributing factor in that. Some of the states a few years ago wanted to regulate banks more tightly. Most of the big banks are nationally charted banks and Congress would not let them regulate a national bank. And what got a lot of press recently is in 2004, the SEC lowered capital requirements for large investment banks. Basically, if you're Merrill Lynch Corporation, you had Merrill Lynch Brokerage, and Merrill Lynch Brokerage — and the other brokerage firms — had strict capital requirements. But in 2004, the SEC allowed money to flow from the brokerage up to the parent in a way which allowed them to have less capital in the bank. This was done for five investment banks. None of the five exist any more. Bear Stearns is gone. Merrill Lynch was acquired. Smith Barney was already owned by a bank. Morgan Stanley and Goldman Sachs are now banks basically. They're bank holding companies subject to much more strict capital requirements than they were before. So that didn't work out very well for the five investment banks.



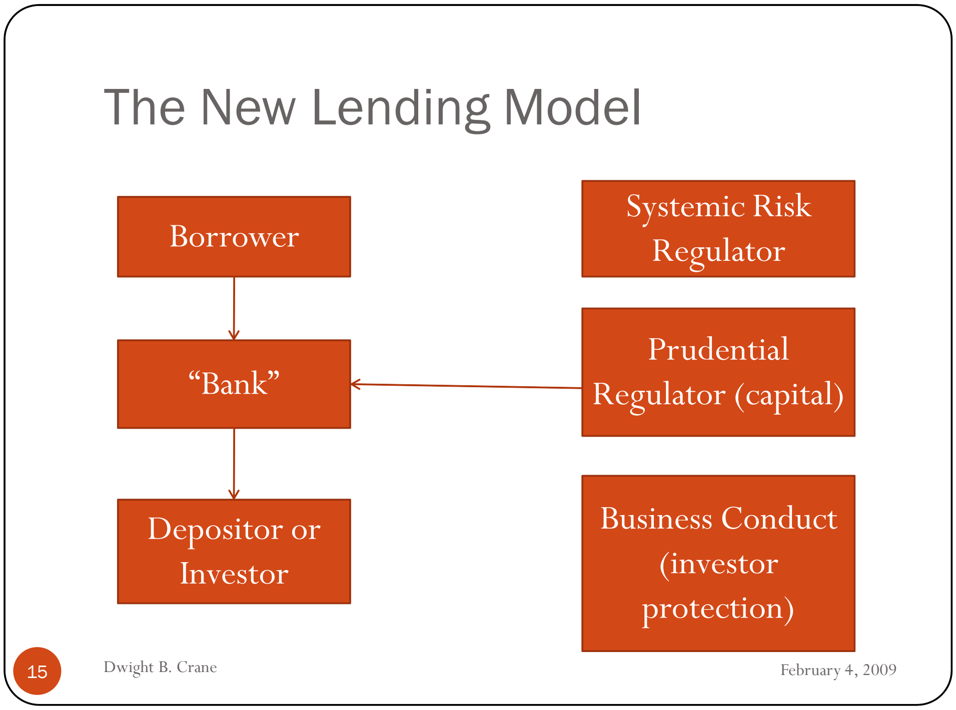
So where are we now? First of all, October, 2008, we were near a financial meltdown and we survived that, I think in large part because of the TARP program. We can criticize the TARP program, but the fact that that came into existence gave us a moment to pause and it actually did strengthen the capital ratios of the banks, which helped them. It did not lead to a lot more loan volume, but loan demand is quite weak because of the economy. So it's not all the fault of the banks. The securitized loan market is dead. It doesn't exist. Maybe a few deals are being done, but it's gone basically for student loans, mortgage loans, asset-backed securities generally. It's just a dead market. Now we have some of the institutions like Citigroup that have serious problems. They have a lot of bad assets on the books. The real problem to worry about is the last bullet point — that we have stronger institutions that had good underwriting standards and they're sort of doing okay, but if the economy continues to just fall through the floor, they're going to get in trouble too. And that's a huge problem to try to solve.

Solutions under consideration



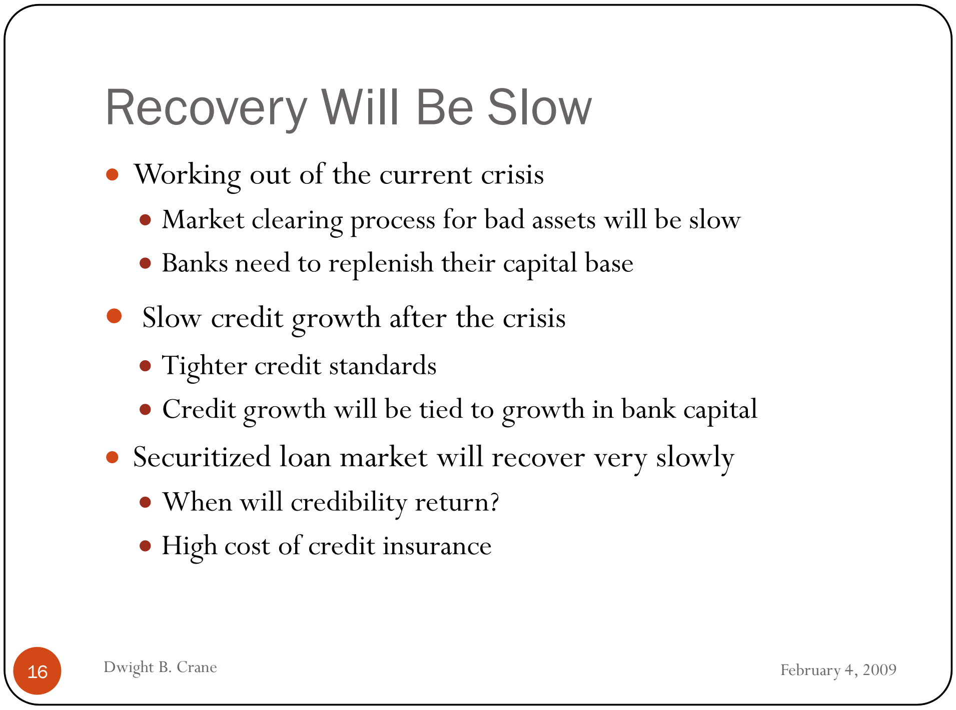
There are three major solutions under consideration. I'll just highlight these briefly. One is to invest more capital from the TARP program, for example, in banks so that the Federal government would actually buy preferred stock or common stock or some sort of stock issued by banks. We could figure out some way to purchase bad assets and put them into some new bad bank for later sale to the public. The real challenge here is, at what purchase price? If we actually paid them what is probably the true market value, that's a big hit to the capital banks. If we pay more than that, that comes out of the taxpayer's pocket. There are also efforts to figure out ways to provide direct support to homeowners. Sheila Bair, at the FDIC, has been working on a program for some time. I suspect we'll see some combination of these three solutions.

The new lending model



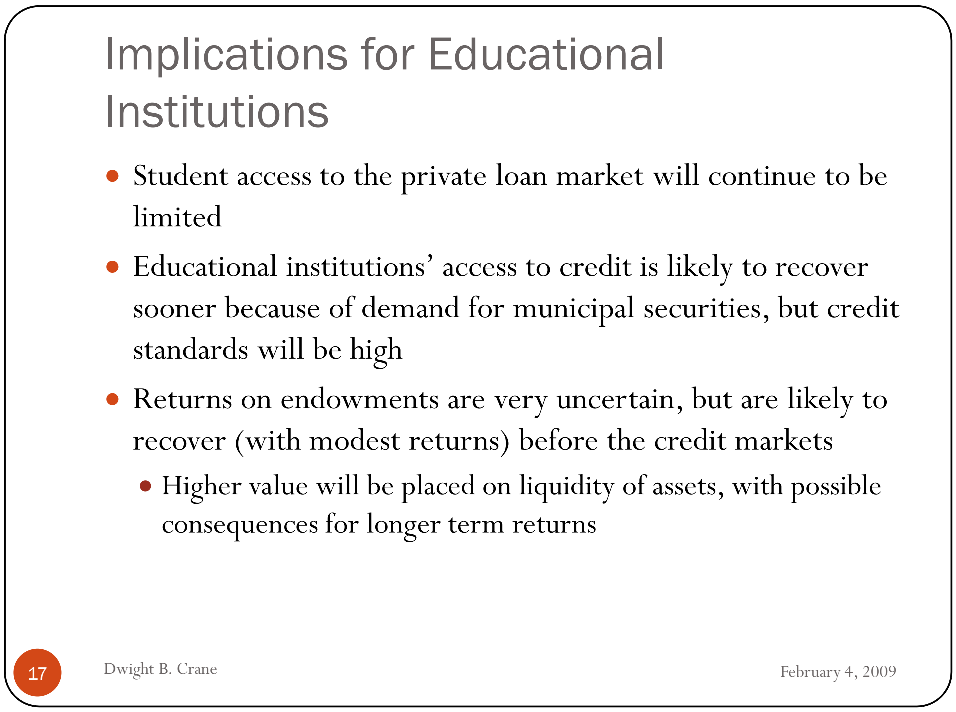
We are moving back to a new lending model where basically the securities market has been less helpful recently and will continue to be less helpful for a while. We're basically going back to sort of where we were, although "bank" now is a much more broadly defined institution. The surviving model seems to be either a traditional commercial bank or a universal bank that does both commercial banking and investment banking. We will have a bank regulator. In the Department of Treasury proposals and other proposals out these days, it's called a "prudential regulator". They will basically regulate the capital held by these institutions. It will apply to all institutions that accept deposits. We have now lots of prudential regulators. They're going to get collapsed over time. It's politically a mess to do because no one wants to give up power. But I think that will begin to happen. We will get a systemic risk regulator — somebody who looks over the total risk of the system. That's going to happen soon. It's most likely going to be the Fed that ends up with that job. I think we'll also begin to see a third regulator which has to do with business conduct, investor protection, transparency — sort of like the SEC does now.

Slow recovery



I think recovery will be very slow. Getting the banks out of the problems they have now will take a while. It will take a while to sell the bad assets. Once we do solve that problem, then the banks — broadly defined — will grow more slowly because their growth will be tied to their capital base. They won't be able to get the leverage — and should not be able to get the leverage — that they had in the past few years. So it's going to be slow. The securitized loan market will recover very slowly because it has no credibility. The rating agencies have no credibility. The cost of credit insurance and the SWAP market has gone way up. So that's going to be slow.

Implications for colleges and universities



What's that mean for you? This was hard to think about, by the way. But student access to the private loan market, I think, is going to continue to be limited and family ability to borrow is going to be hurt maybe even more. You do have access to the credit markets as institutions. I think that's good. I think you will continue to have access to the credit markets before others do. A traditional company's customers can go away, and the banks are always worried about, will this product continue to sell? Your product will always continue to sell. So your problem is more on the cost side than on the getting students to come side.

I think there is a positive story about endowments. I'm not predicting the stock market is going to turn up tomorrow. But the stock market tends to lead the economy, so you will get some more relief here before the economy begins to turn around. But, to manage your endowment now is really tough. How much of your money do you keep liquid? And I don't mean liquid in the sense of the ability to sell. I mean keep it short term – cash, near cash. If I were managing a modest endowment, I would be very nervous about rushing out to buy lots of equities hoping that equities will return. They will return, but when to make that bet and how much liquidity to hold is a tough problem. I think the real challenge you face is, at what point do you decide you need to lower your fixed costs and basically change your business model? If you view the current situation we're in as temporary, you postpone that for a while. If you view it as long term, you begin to think about that problem pretty soon. Let me turn it over to Tom.

MR. HEALEY: That was terrific, Dwight. What I'd briefly like to do is to address seven questions that seem to me relevant and interesting. One, what's the context of the crisis? Two, what should Geithner's agenda be going forward? Three, what's the banking system end game? And really Dwight has covered that. I just want to emphasize one point. Fourth, why was the Lehman bankruptcy important? Fifth, what's the moral of Madoff? Sixth, is the endowment model of investing broke? And seventh, what should be the goal of Washington going forward?

Context of the financial crisis

Context: The S&P 500 declined 38.5 percent last year — the biggest since 1931. It proceeded to decline another 10 percent in January. So it is hard to underestimate both the depth and the rapidity of the decline. Endowments July 1 through November 30, 2008 lost 23 percent of their value — about $94 billion. And that doesn't include the upcoming decline and write-off in real estate and private equity which lags by three to six months or more. Even that will be marked to market eventually. The evidence of Harvard's failed private equity sale says that a lot of those private equities may be worth 50 cents on the dollar. Now, look at the financial service industry. The handout very graphically shows the huge decline of all of the institutions in the financial services industry. **(Insert handout.)** What the government has done is tried to recapitalize the banking industry, transform forever the securities industry, backstop the mortgage industry, nationalize the world's biggest insurance company, and throw a life preserver — maybe not a very big one — to the automobile industry. And we're just getting started.

Agenda for Geithner

So, if you're Tim Geithner, what's your agenda? You've got to stabilize the banking system. You have to fix the regulatory system. You have to reorganize Freddie and Fannie. Remember, they're now government entities and at the moment they're growing substantially to try to ease the housing crisis. But they can't grow forever. Then you need an exit strategy for all these assets that have gone on Washington's balance sheet. And when you get through all of that, maybe you can deal with taxes and entitlements and the twin deficits that are going to be left over as the headache from that. So there is a lot there.

Pricing bad assets

The first one of those I suggested was stabilizing the banking system. What's the end game there? I'd just like to focus on one issue, because many say, well, the Resolution Trust Company did that for the real estate industry. Why don't we just do that again? The Resolution Trust Company never had to price what it bought. It didn't buy anything. It was given it. It was all the residue from the 1,500 failed banks and savings and loans. It was just assigned these. It never had to price it. The pricing from a live institution is actually a very tricky problem. If the new entity — if there is a new bad bank — underpays, then there's no incentive to sell. If it overpays, then there will be lots of selling, but the taxpayers are going to end up suffering. And there's no easy pricing mechanism that anybody, I think, has discovered to date for these very complicated, hard to understand assets. It's a very difficult problem.

Lehman failure

Moving ahead to Lehman: The notion of moral hazard has always been very important to the financial policy makers in Washington and New York. And the worry is that Washington will bail out everything — that everybody's too big to fail and therefore all the risk goes on Washington. Lehman seemed liked it could fail, to prove to the market that there really was risk, so that people behaved prudently. Well, the unintended consequence of that was that with Lehman failing, no financial institution seemed safe any more. Now if I had been in Treasury as I was in the mid '80s, I would have done the same thing. I would have made the same mistake, but history will show that the Lehman bankruptcy was an amazing mistake. There was a run on the investment banks — Merrill, Morgan Stanley, Goldman Sachs. Now there are none. There was collapse of the money market funds. There was collapse of the commercial paper, collapse of the interbank loan market, collapse of AIG. Lehman is the biggest bankruptcy ever and if you want to make a stock bet — if you can figure out a way to go long lawyers in London, they will be enormously profitably occupied for the next five-plus years trying to figure out who owes what and is owed what in the Lehman bankruptcy.

Madoff morals

Madoff. The the consequences are quite striking if it's $50 billion. The consequences for gifting, but also a good consequence, because it is going to increase skepticism. And that, I think, is healthy for the markets. But three morals for Madoff. If it's too good to be true, it is too good to be true. That's moral one. Second is regulation. The repetitive failures of the SEC in Madoff is almost as scandalous as Madoff. And somehow we will try to correct that. And then the last moral I would derive from President Reagan, who said it in a different context with Russia, which is, trust, but verify. And I think that fits Madoff perfectly.

Endowment model of investing

Alright, second to last question - the endowment model of investing. Is it broken? What is the endowment model? Longer term investment horizon, resources available to effectively implement that, bias towards equity because it's growth oriented, bias towards value, precautionary hedges, rigorous investment process, and substantial diversification. What went wrong? Returns last year were 25 to 30 percent negative — in some cases, maybe even worse. Diversification helped, but not enough. But the worst problem wasn't diversification or even returns. I submit it's lack of liquidity. And let me just look at two simple examples of what I think happened. If you look at June 30, which is the last data I have at Harvard and Yale, Harvard had 55 percent of its endowment invested in alternative investments and only 11 percent in cash and fixed income. Any kind of stress test would have said that that's not enough liquidity. Yale — David Swenson is a very smart guy. Yale had 69 percent in alternatives and only six percent in cash and fixed income. I mean really it's extraordinary. When I looked at the data, I was surprised. But the clear conclusion is that the risk management function must focus as intensely on liquidity as it does on investment risk. It's not that hard to do and we didn't realize that it was important. Now we do.

Now, as to whether or not that model is broken. I can argue for a longer view with a simple set of examples: June 30, 1998 — a little over 10 years ago — you had $1,000 to invest and you measured yourself October 31, 2008 — a couple months ago. Just over 10 years later. I give you four investment choices — the S&P 500, Berkshire Hathaway, Harvard and Yale. What would that $1,000 be worth 10 years-plus later? Well the S&P 500 — $1,000 had become $1,013. Berkshire Hathaway — the most successful investment company that we all know — had become $1,475. Harvard had become $2,800. And Yale had become $3,400. So the model works. Ten years is a long enough period of time to begun to become statistically significant. And the conclusion, it seems to me is, although bumpy, sometimes more bumpy than comfortable, over time that model yields significantly better results and should continue to be the kind of investment strategy we would employ.

Last question — what's the goal of Washington going forward? I'm going to quote from *The Economist* — two sentences in there I thought were depressing but accurate: "Government policy should not be aiming to avoid a repeat of 1929. It has already failed to do that. Instead it should aim to avoid 1930 to 1932." Thank you.

MR. MEHRLING: Thank you. Maybe I will say one or two things and then we'll open it up for discussion. I particularly wanted to show you the balance sheet of the Federal Reserve Bank because we've been talking a lot about the Fed. And, in fact, the Fed is where all the action has been. And that's not that well understood. Now, just to summarize some of the things that we've heard, as background for this: The big story that we heard from Dwight is about how we moved from a bank credit system to a capital markets credit system and that that was a brave new world. And it happened in the last 30 years — really ramping up in the last 10 years. And a very important backstop for that system was this system of risk insurance, these credit default swaps that Lehman Brothers was in the business of. They were writing insurance and they were buying insurance. The end of that chain of insurance were the mono-lines and AIG. So, when Lehman went down, and AIG went down with it, that was the end of the backstop of this brave new world of the capital market credit system and we have been in freefall ever since.

At the time that happened, I wrote a letter to the *Financial Times* saying what the government should do right now is take over these positions itself. It should get into the credit insurance business right now. We could at least put a floor under it. That didn't happen. I think next week we're going to hear that the government is going to go into this business. We've been poking our way toward it with the way the Citibank deal worked — this $300 billion ring fence and the way the Bank of American deal worked, about $100 billion that's ring fenced.

And the Fed's new term asset-backed security lending facility is working that way, too, to try to get the securitization markets back up and running.

Blow up of the Fed balance sheet and the money base

But that's just getting started. What we have done between September and now is use the regulatory apparatus that was designed to deal with a bank system that we no longer have. But we had to try to hold onto whatever we could — basically supporting banks instead of markets. And that meant the Fed. It all happened on the balance sheet of the Fed, which has more or less doubled. You think you're under a lot of scrutiny. The Fed reports its balance sheet every week on Thursday. **(See Fed balance sheet handout.)** The top line is the total size of the balance sheet. Reserve bank credit is about $2 trillion at the end of the week. And if you go two columns over, the change from the year before is $1.1 trillion. So there's been a doubling of the balance sheet and almost all of that has been since September, in fact.

If you took money and banking 30 years ago, you would have learned that the central bank is a very simple institution. As assets, it holds Treasury bills and as liabilities, it has currency and some bank reserves. Note that of that $2 trillion, U.S. treasury securities are $475 billion. So, the Fed doesn't hold very many securities relative to its size. And, in fact, most of those are lent out, you would find out in the footnotes. What it in fact is holding is all kinds of things that it never held before. These weird things — net portfolio holdings of Maiden Lane LLC. These are things left over from Bear Stearns, from AIG. All of these bailouts have wound up on the balance sheet of the Fed.

If you look again at that third column, whenever that third column is about the same number as the left hand column, what that means is this is a line that didn't exist a year ago. And there are a lot of big lines that didn't exist a year before. Look at term auction credit, $415 billion – that's $365 billion added since a year ago. All of these new facilities are added. The long and the short of it is that what the Fed has been doing is moving the wholesale money market onto its own balance sheet. Banks don't trust one another and it is standing in the middle, taking money from the lenders who want safety and lending money to the borrowers that need cash. That blows up its balance sheet.

The last point I'll make is a line down toward the bottom: You see $465 billion for central bank liquidity swaps. This is $465 billion worth of loans to the European Central Bank, the Bank of England. This is the international dimension of this crisis that's just starting to get attention. There was an article in *Barron's* on Saturday. It was quite a mistaken article, I think. It brought this up to attention — arguing that the Federal Reserve has lent $400 billion to the ECB and the ECB is never going to pay it back. They're going to default on this because they've lent that money on to their own banks that have bought mortgage-backed securities. But we don't want them to sell them now because selling these into a market like this will drive the price down further. And so the Fed is enabling these European banks to hold their positions by lending them the money to do so. Just as it's doing domestically with the Term Auction Facility, it's doing internationally through the central banks, and it is vital for keeping the system going. So far it's passed completely under the political radar.

Now, last point. What commentators tend to focus on is the second page, which is the liabilities of the central bank. And particularly the last line — reserve balances with Federal Reserve Banks — $795 billion. Look at the difference from a year before — $783 billion in additional reserves. This is the blowing up of the money base. It used to be bank reserves were about $10 billion. A small number. Now it's $800 billion and going higher because none of these new credit promises are on the balance sheet yet. None are on the balance sheet at all. They're off balance sheet insurances. Reserve bank credit is $2 trillion more right now. It could easily be $3 trillion in six months. So, that's just to put some numbers on this. We're trying to figure out how much do we want to do this on budget? How much do we want to do this on the Fed? So far we've been doing it mostly on the Fed. So, now I revert to being moderator. Questions? Thoughts?

BEGIN Q&A/DISCUSSION

Subprime crisis

SPEAKER: When the subprime crisis hit in August of 2007, our investment committee asked ourselves, who owns the bad paper? And we couldn't get an answer, so we went 10 percent into cash and kept asking. And we asked all of the rest of 2007 and all of 2008 and kept increasing cash because nobody would tell us who owned the bad paper — and how much there was. Wouldn't it have been worthwhile somewhere along the line for all the banks to get together like they used to do and say who has got loans out to this company? And put a thousand CPAs to work in a room and actually figure out who owns the bad paper and how much it is? All I've heard is, it's just incredibly complex. Well, it's not impossibly complex. It's just very complex. So, the uncertainty of not knowing who owns the bad paper and how much it is is one of the big problems we have. So can you tell me why — or maybe you can just tell me who owns the bad paper before it becomes me and the rest of the taxpayers?

MR. CRANE: A major part of the problem is that it was held all over the world. A lot of it was outside the U.S. There's no data. There's also definitional problems of what's subprime. But, I think we're moving to a system where there will be much more transparency and much more ability to figure that stuff out than we could.

MR. HEALEY: Just to tag on, Citibank alone had well north of $100 billion in off balance sheet facilities of various and different kinds that no one knew about, that didn't have to be reported in the footnotes. Your question is a good one. I, at least, was stunned that that was permissible under the accounting rules. Actually, one of the unintended consequences of ENRON was in some ways it clarified the rules of what you had to do to adjust to get the stuff off balance sheet and made it easier to hide, not harder.

MR. MEHRLING: Another dimension of this is these collateralized debt obligations they were slicing and dicing. And the banks mostly retained the top tranches — the super-senior tranches. So they thought that they had gotten rid of all the risk and that the median tranches were held by some stupid European banks or something like that. But, of course, the underlying securities are still the subprime mortgages. So when things start to go wrong in the lower tranches, the troubles move northward. In fact, UBS got into trouble almost entirely with its super-senior tranche position, which was all insured by AIG.

Wall St. culture and psychology

SPEAKER: I have a sort of follow on of the same question, that's more about the cultures or psychology of this. I get that we exported the risk. We carved it up. We sent it flying around the world in a very complex system and so we had a sort of game of hot potato going on until the music stopped sometime last fall. But, what I'm curious about - Tom, you made the comment about Madoff: if it's too good to be true, it's too good to be true. I've read as much as I can find about the VAR system and the whiz kids crunching all of that and monitoring it and then the Goldman guys sitting down and saying we feel a little uneasy about this. But I wonder, what is it about the culture of all of this that some honorable, common sense people didn't say I'm just really uncomfortable with the amount of opacity and uncertainty. I'm just curious how you see that culturally or psychologically as having happened.

MR. HEALEY: We probably all got lulled into it little by little. I'll give you my personal epiphany. Dwight mentioned the change in 2004 to remove the leverage ratio on the investment banks, which only affected five firms. That was the year I retired from Goldman Sachs. When I read my annual report this March, I was stunned that Goldman Sachs' leverage was 32 times. And I know enough about how they manage their balance sheet to know that that really means it was 50 until they sold as much as they could the day before November 30 at the end of the reporting. I was stunned. I still thought it was back at 12. That kind of thing happening and no one commenting is just remarkable. So I'm agreeing with your point. I don't know why people didn't say, you know, investment banks shouldn't have 50 times leverage.

MR. CRANE: Bankers have a long tradition of following the current way to make money. They rushed into telecoms. They probably rushed into railroads. I don't know that.

SPEAKER: They did.

MR. CRANE: They did. They rushed into real estate. They rushed into leveraged buyouts. And I wondered over the years why they fall for the next one, but they do. So there's that phenomena. Bankers are in a business where you can't make much money basically — where the institution cannot make much money. So when a new opportunity to make money comes along, they rush in. The other phenomena is the growth of financial engineering as a field. The models got developed by financial engineers. Quick story — a few years ago, a bearded graduate student type wandered into my office and wanted to talk to me. It turns out he was about to get his Ph.D. in applied math and he had offers from Goldman Sachs, Morgan Stanley, Merrill Lynch. He had no clue what these institutions did. Basically, if you ever talk to a financial engineer and you aren't one, it's a different language. And they develop these risk assessment models called VAR — variance at risk. It's an assessment of how much money you can lose if the market moves a certain amount. And that was their major risk control system and they began to believe it. But it ignored the probability that something really bad could happen.

The book *Black Swan* is a useful read, although I found that if you read the first chapter, you're sort of done. So we had this sort of cultural community develop, which did a lot of good things by the way, but that community was very hard for the senior bankers and the board to understand. I do think the senior bankers let us down here. Consider Warren Buffet's philosophy: If I don't understand it, I'm not going to do it. By the way, Hank Greenberg — who got a lot of flack over his salary at AIG — back when derivatives were first becoming important, he set up a shadow trading group to try to mimic what his regular traders were doing so he could understand what they were doing. But when Hank left, that discipline got lost at AIG, which did a lot of deals with no collateral. They relied on a triple-A rating. When they lost the triple-A rating, they were dead and we had to bail them out because the market was going to collapse if we didn't bail them out.

Global trade imbalances

MR. MEHRLING: I'll make a slightly different point — the macroeconomic point of view. It's quite true that this stuff wouldn't have been possible without financial engineering and so forth, but historians will look back at this period and realize that one of the contributing factors was, in fact, the global imbalances in trade. The opposite of our trade deficit is that the world is looking for dollar denominated fixed income assets. And the Chinese were buying all of the Treasuries and all of the good ones. And so if you could figure out a way to make a mortgage look like a Treasury bill, okay, you could sell it. And that's what they did.

Future model of the financial industry

SPEAKER: So following up the previous question, what organizational model do you see evolving for the financial industry? And by that I mean it seems that this notion of too big to fail, this vertical integration we've allowed these companies to do, and allowing them to be public, has created what I think are bad incentives. If this were a partnership model, and the partner's capital were risked this way, I think we'd have much better risk management practices. So, should financial companies even be public? Should they be in all the businesses they're in? Should we go back to Glass-Steagall? How do you see this playing out over the next decade? Are we going to go backwards in terms of organizational models?

MR. MEHRLING: Did you have a second question? And then we can take them both at once.

SPEAKER: I think blaming financial engineering is trendy, but the money always flows. And the reason why structured products came out was you had banks and there was no functional equivalent. The functional equivalent 20 and 30 and 40 and 50 years ago of the triple-A SIV was a depositor. A depositor would go into a bank — whether it was a corporation or a state or an individual or a family — and then the bank would lever. And you talk about some of these capital ratios at four percent or 10 percent. Ten percent is a 10 to one levering bank, and five percent is a 20 to one levering bank. So, over time the bond holder just became the synthetic depositor and it was the same thing. And now what you're seeing is the model going backwards. The Fed is forcing the investment banks to be banks and bank holding companies and they take in TARP funds and they take in deposits and essentially what you have right now is the government and depositors becoming the triple-A bond holder yet again in the next cycle. And trust me, when people figure out a better way of doing that, they'll go back to the straight old bond holder.

I don't think anything has really changed here other than one thing — the credit destruction to some of the players in the game is terrible. Right now, in the private student loan market, people are paying LIBOR plus 11, plus a fee to get their hands on money and they can't defer it and it's real short and the families are getting ripped off and the students are getting ripped off, and it's because there has been credit destruction. And there's just no accounting for the cost. I mean that's the true cost in the system. The true cost in the system is that students and families are paying too much money and schools can't get enough money to grant access.

MR. HEALEY: What's clearly happening now is huge de-risking and de-leveraging in these big financial institutions and we will end up, I think, with a bank regulatory structure that makes them — I don't know if more prudent is right – but makes them lower their leverage and not be allowed to take risky behaviors so that Goldman Sachs won't be a bank-oriented hedge fund any more. It'll be just a bank. That'll actually be good for the hedge fund business I believe, because people who want to take more risk, if there's less competition, the hedge funds will do really well if they don't have to compete against Morgan Stanley and Lehman and Bear Stearns. You will see flows of money that wants to take risk into that kind of vehicle, which is not too big to fail, and then you'll have more stable banking institutions with lower leverage and with less risk.

MR. CRANE: Just a quick answer to your question, to follow on Tom. I think we'll see three kinds of institutions emerge in the years ahead. One is a traditional commercial bank of various sizes like we have now. The community bank, by the way, the small still survives. At the other extreme we will see some talented investment financial advisor types spin off out of Morgan Stanley and Merrill Lynch and form boutique firms to do advisory business. That's going to be a valuable business. But then we'll have a small number of large universal banks that will do both — what we used to call commercial banking and investment banking. Glass-Steagall assumed, for example, that a bank corporate loan was a different product than a corporate bond. They are the same thing. So they're going to put both those things together. So we'll have five or six big universal banks, some traditional banks, and some boutique investment advisor types.

MR. MEHRLING: Thank you.