THE BROOKINGS INSTITUTION

RISK, REWARD AND THE ROAD TO RECOVERY

Washington, D.C.

Monday, April 20, 2009

PARTICIPANTS:

Welcome:

STROBE TALBOTT, President
The Brookings Institution

Presentation: Panic of '08: What Happened? What's Next?

GLENN HUTCHINS
Co-Chief Executive, Silver Lake;
Trustee, The Brookings Institution

Panel Discussion

Moderator:

MARTIN BAILY
Senior Fellow and Director, Initiative on Business and Public Policy
The Brookings Institution

Panelists:

DONALD MARRON
Former member, President's Council of Economic Advisors

DOUGLAS ELLIOTT, Fellow
The Brookings Institution

ROBERT E. LITAN, Senior Fellow
The Brookings Institution

CARMEN REINHART
Professor of Economics
University of Maryland

* * * * *

MR. TALBOTT: Good morning, everybody. I'm Strobe Talbott, and I want to say a couple of words of welcome and also establish a little bit of context for this event, and I'm particularly appreciative that all of you in the room would brave the elements and the traffic and the obstacles just out here on Massachusetts Avenue to be here for what we regard as a particularly timely and important event. I'm going to come in a moment to saying a few words about my friend and colleague Glenn Hutchins who will get us started with a powerful PowerPoint shortly. But I just want to put our work here at Brookings on the subject of the global recession into a little bit of an historical context with regard to this institution.

I'm struck by both titles, the title of the overall event and the title of Glenn's PowerPoint for a reason I'll come back to in a moment. As for the overarching title, "Risk, Reward and the Road to Recovery," there's a lot of alliteration going on there, I think the risk is clearer to us than the reward and the recovery, but of course in order to get to a recovery, we need to have a sense of what the road is and that involves a good deal of history understanding how we got where we are, what the lessons are to be drawn from the past, where the road ought to lead and what that road should look like.

Brookings has been around for coming up on 100 years and we institutionally have dealt with extraordinary times before, as has of course the nation. In fact, the institution was founded by a private-sector guy named Robert S. Brookings who came to Washington at the request of Woodrow Wilson to help the United States cope with a global crisis which was then underway, which was World War I, and to prepare the United States to play a leadership role in ending that war which the United States did, and also to prepare for a leadership role in the post-World War I era which the United States did not. The institution which Robert S. Brookings founded went on to be a source of ideas for the United States government, for the nation as a whole, and increasingly for foreign governments and foreign body politics as well as we dealt with the Great

Depression, World War II, the post-World War II era, and more recently crises and traumas like 9/11. So it's very much in that context that my colleagues, many of whom are in the room today, are approaching the current crisis.

Not just our hope, but our absolute certain intention, is to make the way in which we, Brookings, both on our own and in partnership with others grapple with the challenges of the global recession, to be a means of increasingly identifying solutions to the problem, but of course that involves in the first instance understanding the nature of the problem. So we are going to be spending the next several years as an institution doing essentially three things. One is analysis of what we are dealing with; two is coming up with an objective, sophisticated but at the same time layman friendly way of monitoring both the state of the crisis and progress toward getting out of the crisis; and then third, kind of our stock and trade, coming up with bold but pragmatic ideas on how to get out of it, and that is going to involve all five research programs here at the institution. Obviously our Economic Studies Program which is led by Bill Gale will be instrumental in that, but our Global Economy and Development Program will be very much a part of it as well for obvious reasons, Foreign Policy Studies will be part of it because this is not just an economic crisis, it is a national and international security challenge and potential crisis in many parts of the world. Our Governance Studies Program is going to be working on the politics and domestic policy side of this issue. And our Metropolitan Studies Program is going to be very much involved and indeed already is because it's doing a lot of work among other things on infrastructure, this is just one example, and infrastructure is absolutely key to the stimulus package. So we see this as an all-Brookings effort.

And it is going to draw not just from our scholars and our partners in other institutions, but also from our trustees. Glenn Hutchins is kind of a poster gentleman I should say for that effort. As I think all of you know, Glenn was an economic adviser to President Clinton. He has also been very active and successful in the private equity world, and as a trustee he has been an epitome of what I call a player/coach which is to say he's given us a lot of advice and support and we've also been lucky enough to have him engage in the intellectual and policy thinking aspect of the institution. So I'm about to turn the mike and indeed our AV facilities over to him, but I will just conclude my introduction of him by recalling for all of you a conversation we had in the other room. Panic is a word we try not to make a standard part of our vocabulary around here, panic being an extreme form of worry, and I was taught back when I was in government that worry is not a policy, but I think panic for reasons that he will make clear is appropriate here. I asked him about the pedigree of the word panic, and I actually checked this with Carmen as well, and apparently the last time panic was really a central part of the way in which this country thought about its economic straits was 1907. I said what about the Depression? Apparently they went straight to the word depression then and that was partly not to scare people with the word recession. So, go figure. My colleagues during the panel will maybe enlighten you on that.

Over to you. I know you're not a panic-monger, you're a solution-monger, and we all look forward to listening to you and watching what appears on the screen, Glenn.

MR. HUTCHINS: A couple of things as we get started here, a couple thoughts. One is that as you'll see in this presentation, there is nothing original in it at all. I've shamelessly stolen these ideas from many people, some of whom who are in the audience today. With that said, however, these ideas are only mine. I can't even get my wife much less my business partners to agree with me, so these ideas are solely Glenn Hutchins's, even though you see the Silver Lake up there.

Secondly, in my business, one of my favorite things is I say, in God we trust. All others bring data. So one of the things you're going to see today is a lot of data. This here, there's nothing particularly important in any individual of these measures, but this is something one of the fellows on Wall Street puts out that he calls a Periodic Table of Worst Ever Economic Conditions. These are all the economic indicators around the world that have gotten to the lowest level on record for that indicator. I call this my "cry the beloved country" slide. The question is how in the world did we get in that set of economic conditions?

As an investor which is what I do in my day job, but also as someone who cares about our country, I've set out to study what happened because I think uniquely now you need a view of the future in order to make decisions on behalf of institutions whether they're public-policy institutions or investment institutions, and like understanding the Civil War requires that you go back to understand the Constitution, understanding where we got to today requires first I think an in-depth understanding of the recent history, and I for one found out a lot that I didn't really understand and I also found out how things fit together in ways that I didn't really comprehend. So that's what we're going to do today.

First we're going to talk about what the root causes of the problem were. As I see them, we started out with a massive amount of liquidity in the world which flowed into two places, one the U.S. residential real estate market creating a bubble of historic proportions; secondly, widespread leverage across our entire economy. That bubble began to burst when as we'll see American homeowners began to default on mortgages at levels never expected much less seen. It then turned into what I'll call the Panic of '08. I'll note for Strobe's benefit that the '08 is important since we're now in '09, so the panic is over -- this is an historical judgment, not an analysis of the current situation -- which turned what could have been a serious recession and an important correction which we'll talk about into the set of economic conditions, crisis-level conditions, that we saw earlier. We'll talk about what actions have been taken to date to address it, pose the question, Are we at the end of the beginning? Certainly not the beginning of the end, but the end of the beginning. And talk a little bit about prognoses.

The first thing that happened post the dot-com crash was that the Fed acted very aggressively to take interest rates down. You can see the Fed funds rate which is in red, the real interest rate which is in blue, at the point where money was basically given away. Money on an inflation-adjusted basis post the dot-com crash all through this decade was essentially free. It was also hugely abundant. Over here on the left are global foreign exchange reserves that built up during that period. It's a complicated matter, but simplistically two things happened. One is that after the 1997 Asian flu, the Asian countries, most notably but not only China, and by the way, I'm speaking for myself here and I might use some phrases that if you were in the administration you wouldn't use, but let's say managed rather than manipulated, I'll use the word managed their currencies down, very low in order to generate productive capacity in their countries and to build up huge amounts of foreign exchange reserves in order to prevent a run on their currencies again. Secondly, with the increase in oil prices that were spurred by uncertainty in the Middle East around the Iraq war, massive amounts of foreign exchange reserves built up also in the petro dollar countries, and then we had the emergence of what people remember were the sovereign wealth funds, so massive amounts of money. During this time period money was cheap as a result of the Federal Reserve policy and central bank policies around the world, and it was hugely abundant in ways we've never see before.

What had to happen, and Alice and Martin will correct me if I'm wrong here, as I understand it, if we had been on a gold standard, these currencies would have effectively been sterilized by the way we manage currencies, but in a fiat currency world, these foreign exchange reserves had to go back into the global financial system, and they came back washing back into the global financial system in the form of a massive deluge of liquidity.

Simultaneously the large financial institutions around the world created huge amounts of liquidity on their own balance sheets.

Over here you have the balance sheets of the world's top eight banks, Deutsche Bank, Citibank, UBS, Bank of America, JP Morgan, Credit Suisse, Goldman Sachs and Morgan Stanley. This is their total asset position. This little yellow box down at the bottom that you probably can't see very well is their tangible book value. You can see over this time period the leverage on the books of the largest banking institutions in the world and not just in the United States by this measure, there are other measures, to somewhere around 20 times, approaching 45 times. This huge amount of liquidity that was built upon their balance sheets was lent onward into the financial services system and the general economies as we'll see later. Simultaneously, a lot of financing was raised and available to the markets off balance sheets. We've all probably gotten to know these things called SIVs, structured investment vehicles, where they bought large amounts of assets in off-balance-sheet vehicles and we'll look at those a little bit later on, but during this time period, $1.2 trillion in asset-backed commercial paper was issued, two-thirds of which had a 1- to 4-day maturity. So on and off the balance sheets of the world's largest financial institutions, massive amounts of liquidity was raised often times with very, very short maturity that was used and lent onward into the economies all over the world.

That was what happened in terms of liquidity, what I call a Niagara Falls-like deluge of liquidity poured into the global financial system. Where did it go? It went into two primary places. First was in the U.S. residential real estate market. During this time period, as a result of the flow of liquidity into the economy, the quality of the mortgages that were issued during this time period declined precipitously. You can see here that the subprime and Alt-A mortgages went to 40 percent of the assets that originated during this time period, and as the time period went on, I finally found this slide, Martin, that you and I have been trying to find, you can see that these are the default rates over here. The later assets, the 2005, 2006, and 2007 asset class all have had a much higher default rate than the assets that originated earlier. So a large amount of declining credit quality mortgages were originated using this liquidity.

If you talk to participants in the private mortgage market, and I assume Frank will take a little bit of issue with this, I apologize. I'm just reporting, Frank, what other people have told me. Fannie and Freddy distorted incentives and disciplines in the private mortgage market as the result of the huge cost of capital advantage and private mortgage participants found two courses of action to take to allow them to compete with Fannie and Freddy which they couldn't do profitably trying to originate the same assets. They did two things. One was to enter the more lucrative subprime market where there were higher fees and higher rates, and the second one was to originate as many mortgages as they could knowing that they couldn't hold them profitably but they could hold onto the servicing rights, take the up-front fees, hold onto the servicing rights and syndicate the mortgages out to the market. So the other thing that happened during this time period is, these numbers are hard to see, but over 75 percent of the mortgages that were originated were syndicated onward and not held by the people who originated them and so there's a massive explosion in the securitization of this market largely as a result of the fact that many of the people who originated these mortgages couldn't hold onto them profitably because they had a cost of capital disadvantage against their major competitors.

The other thing that happened here is that Americans went on a spending boom using their house as their ATM. Mortgage equity withdrawals is a new term being used. You come across all sorts of new acronyms when you study this stuff. MEWs reached levels never seen before, a trillion and a quarter, and the equity content of the U.S. housing stock went from 1957 at 80 percent to 43 percent at the end of this time period which is the lowest level since records have been kept. So we withdrew almost 40 percent of the equity content of our housing stock and spent it largely to subsidize consumption during this time period. So this liquidity flowed into this mortgage market and what did it do? It created what I call the mother of all bubbles.

Here are home prices in the United States. From 1930 to 1997, U.S. housing prices went up .7 annualized. I have been told but I haven't verified, but if you go back to the Civil War, the numbers are even lower. Then from 1998 to 2006, housing prices went up 8 percent, over 10 times the rate of growth we'd seen historically in this country. We got to the point where home price to rent ratio which is supposedly to be largely at equilibrium, if it costs more to rent a house than to buy, you buy, if it costs more to buy a house than to rent, you can rent, and the market is supposed to be kept roughly in equilibrium, went from an index of 1.0 to an index of 2.0. So housing prices went to disequilibrium never seen before. Why is this important? We were talking about this a little bit earlier. The U.S. home mortgage market is about $10.5 trillion in size. If you add commercial mortgage market which some people think is the next one to roll over, that's another $5 trillion. That's a $15 trillion market. That's 50 percent larger than the entire U.S. equity market. This is one if not the largest asset classes in the world. So when the NASDAQ market collapsed when the dot-com bubble came out, that was just a subsector of one of the equity markets. This is one of the largest asset classes in the world and it inflated to levels never seen historically. So I think this will probably end up being judged as the largest asset bubble of all time, U.S. residential real estate prices.

The second thing that happened was widespread excess leverage went everywhere else in the economy. The hedge funds, the dark blue bar at the bottom here at the assets they had under management, the top of the bar there are their total market position, the light blue, the difference is their leverage. A lot of the money that was on those bank balance sheets were lent to hedge funds to buy securities. Structured products. These are all the CDOs and CLOs and ABS securities, et cetera, all of which had usually about 7 percent equity and 93 percent financing went to almost a trillion dollars a quarter. Private equity leverage multiples went up by a factor of 50 percent. This is one of my favorite fun facts, I'm not sure how important it is, but a fun fact, which is that the notional amount, and notional is a little bit redundant, but the notional amount of open positions in the over-the-counter derivatives market went to $525 trillion or 35 times the size of our GDP which I think is just a fun fact. The CDS market that we've heard so much about was a mere $62 trillion or four times the size of our GDP. For people who don't know how those markets work, those are effectively leverage on the markets too. So the financial system became rife with leverage.

Household debt. These are the balance sheets of the American consumers who have been on a 25-year spending overconsumption and undersavings binge. The red line is the interest payments, the gray line are principal payments, and the blue is a combination of the two. So Americans got to the point where nearly 15 percent of their disposable incomes were used to support debt being taken on of all sorts. You can see that the last time we got anywhere near that sort of level was at the time of the Great Depression. So the American consumer and homeowner went on a consumption binge and a savings deficit that destroyed balance sheets all across the country.

The government. Everybody was chipping in. This was a party and everybody was playing. Everybody was having fun. We financed two wars and a tax cut without cutting government spending. I want to point out that when Strobe and I and some others in this room were in government these were the numbers that we posted right here. These were the surpluses, and Frank too was part of that. That was not a long-lived phenomena, and the result is we ran huge government deficits that had to be financed. We also ran massive current-account deficits, and many, many, many important economists who know a lot more about this stuff than I do think that this is the big issue, the huge current-account deficits that we ran. The result of which is, remember, no savings in our country, no capital, everybody is dissaving in our country, we weren't building up any capital to speak of so it all had to be financed from the outside, so we got to the point where 60 percent of U.S. treasury securities were owned outside the United States, largely in China and Japan.

Credit agencies. This is a fun one. Credit agencies who were supposed to be the sentries, imagine they're the sentries guarding our economy, fell asleep at their posts. In January 2008, this is another one of these fun facts that I come across, there were 12 AAA rated companies in the world, but 64,000 AAA rated structured products. Isn't that great? Sixty-four thousand. And that was up from 37,000 the year before. Think about that. This is another fun slide here. These two lines, the blue line is the total asset backed securities issuance, and the red line, people know that Moody's is one of the credit rating agencies, is their profits per employee. So you see the very tight correlation between the asset backed issuance that was going on and Moody's profit per employee. I'm not making any commentary. I'm just pointing out the data.

Also there was widespread regulatory failure. I have shamelessly much of this information from the JP Morgan annual report letter to shareholders which I think is a minor classic which I would recommend people all read. It's very, very interesting. So what happened in the regulatory world? One is key markets were unregulated. The nonbank private mortgage issuers were essentially nonregulated. Probably the most toxic of all toxic securities is something called an option adjustable rate mortgage. Not a single OCC regulated agency originated an option ARM apparently. That was all originated in the private mortgage industry outside of the regulatory structure. The CDS market that we saw earlier was an OTC market. There was on exchange. There was no central clearing. There were no capital requirements. The insurance industry was lightly regulated, there is no federal regulator, as a result of which they missed the one-sided credit insurance bet that AIG and others took in the form of credit default swaps. One-sided means the person who takes out the policy pays a little premium and the bank absorbs the entire loss. It's a massive one-sided bet. This is something that George Soros has made a bunch of noise about I think quite appropriately. The Basel 2 capital requirements were highly flawed. They allowed too much leverage. They were over-relied on the credit agencies. Back to the credit agencies again. And they didn't encompass liquidity which turned out to be the problem.

There was inadequate regulation of Fannie and Freddy. A participant in this market wrote that's perhaps the largest regulatory failure of our time. Remember, they had their own dedicated regulatory. I sort of call that suffering from malnutrition when you have a private chef. This was not about there not being enough regulation because they had their own dedicated regulator watching them and they still had their problems. The fair value of accounting standards were procyclical, so as we got into problems right down to the curb that depleted capital, that required more asset sales, more write-downs and we got into a very negative cycle promoted by, not caused by, but promoted by fair value accounting standards and financial asset regulation was uncoordinated and overlapping, they had an alphabet soup of regulators, and no resolution authority for nonbanks like Lehman and AIG which turned out to be very important in the end.

The result was this. Every time I look at this slide, as an American citizen I sort of want to cry because what this is, this is the total credit market indebtedness in the U.S. economy as a percent of GDP. It got to about 175 percent, 150 to 160 percent at the time of the Great Depression. I was asking Carmen about this a little bit earlier. It looks like it spiked up during the Depression, a lot of that was spending, but a lot of it was the fact that the economy collapsed by 25 percent. So we really didn't take on a huge more indebtedness during that time, but we had a denominator effect. So think about the time of the Great Depression when we got to about 175 percent of GDP and total indebtedness. In 2008 we got to 350 percent, by far the highest levels of indebtedness we've ever experienced in modern economic history.

The implications of this are a couple-fold. One is people ask me after I've studied this for a while, they say who's at fault? Who can we blame? Who do we go to and ask for our money back? I say if you want to know who's at fault, go home and look in the mirror. Everybody participated, everybody's at fault, everybody's part of the system. Of course the banks did things they shouldn't have done. Of course the regulators missed things, of course AIG did, of course the private mortgage industry was at fault. But if you look at it at households, remember what we saw about what people did with their own individual balance sheets earlier? Corporations took on leverage not seen in a very long time period. Yes, financial services are important but not a big part of it, an important part of it, but not the biggest. The government-sponsored enterprises, and of course the government, and that number is going to go up. So we are in this together, we will only get out of this together, and we will only solve this problem if we perceive it as something that we all have responsibility for and something that we all need to bond together to be a part of a team to solve. It doesn't do any good to point fingers at anybody. Go home and look in the mirror.

Secondly, this is not something you stimulate your way out of. The stimulus alleviates I think quite appropriately -- the first stimulus plan was hashed out in a room here at Brookings as a result of something like we did a year and a half ago, Strobe. Remember that? I've been a big advocate of that, but the stimulus that alleviates the human suffering associated with the restructuring of balance sheets needs to happen across this economy. To go back down from 350 to 150 to 175 as a percent of our GDP is a major restructuring all across our economy. That takes time. It will be painful. And it will be a drag on our economic performance for a meaningful period of time. So don't think about stimulus as solving this. Think about stimulus as easing the way.

Third, and I'm not going to deal with any political commentary, but it's very interesting to look at this. I wonder when I look at this slide how historians will judge what happened during the Reagan era which is a phrase that Sean -- for a book he wrote which I think is really worth reading, where we perceived that period as one about a great market miracle. You can also look at the year 1980 and the time period where the vast majority of the increase in indebtedness in our economy was created. So the question will be what was the role simply of borrowing of money over the last 25 years to create this market miracle that we all experienced. That's the situation where we found ourselves at the end of this decade of excess liquidity and excess leverage on our economy.

What happened? First, one little piece of background. There's a project which I have been working on here at Brookings called The Hamilton Project. It's been I think a very valuable experience certainly for me. It was based upon this issue right here, which is that the American consumer over the last decade experienced an historically unprecedented kind of weakness. This was the first recovery, you can go back even further, in modern history in which median incomes went down, so that U.S. median income went down during this time period. This slide here is the month before the recession. Structural employment when people are unemployed for more than 26 weeks. Most of employment appears to be frictional, people lose a job and they get a job. People who've been unemployed for more than 26 weeks are seriously out of work and that's historically when unemployment benefits stop as well. We entered this recession with structural unemployment as 21 percent of the total unemployed, the structurally weakest labor force we've had. There's lots of debate about what this is. My personal view is this is the result of globalization, but the simple fact is that it's not something you can solve with the tax system in this country, but the result of it was that the consumer at the end of this spending binge had been taking money out of their homes to subsidize their consumption because their incomes weren't going up and at the end of this spending binge entered the end of this economic typically very vulnerable. What happened was as Herbert Stein said, things that are unsustainable tend to stop, the economy began to roll over when the great America consumer, 70 percent of our GDP who had been supporting this massive real estate bubble, stopped being able to support their mortgages and started defaulting in droves. This is very interesting because when you talk to participants in the mortgage market, what they say is historically we experience mortgage defaults of 1 to 2 percent during good times, rising to 6 to 7 percent in bad times, we construct our balance sheets and stress test them to withstand that sort of historical experience. What we saw as a decline in the credit quality of the mortgages that were originated during this time period is levels of default that were unprecedented and unforeseen. The prime offender here is the U.S. subprime market where you can see defaults have gotten to over 27 percent. Remember, the highest level of defaults. There's a little bit of subprime fixed rate that got little bit higher levels back in the last recession, but remember that was a very small part of the overall asset class then, and these subprimes were a part of our mix, but there was a 27 percent. Right now where we sit, 48 percent of all subprime mortgages have missed one payment, and much of this, by the way, occurred before the economy went into recession. This was not an unemployed related effect. This was just the end of the bubble.

When the problem started, by the way, we all remember in the middle of 2007 when the banks started to get into trouble and there was the first round of CEOs getting fired and people running off to the sovereign wealth funds and raising capital and trying to shore up their balance sheets, was right around here was right when subprime default rates started to go to levels never seen before and the people running the banks had no concept on any one day what their capital was because as they were taking these losses their capital was depleted, but got to raise more capital, they have no idea of how to value, the stock market has no idea how to value the stock price, so people began to default in droves. By the way, the option ARMs, Martin may be short in his presentation, now the worst asset class are defaulting at about 60 percent rates when they reset, after they reset from their teaser rate, and the option ARMs are just starting to reset now. The massive wave of option ARM defaults are right in front of us that's another asset class that's coming right down the tracks that defaults at about a 60 percent rate when it becomes due, when the payments reset and you to from the teaser level to the right level. So a massive amount. The result is we have 3 million defaults on first mortgage loans and the mother of all bubbles deflated rapidly. You can see that American house prices are down now about 30 percent from peak, probably more like 33 percent when we get the latest numbers. So the U.S. consumer started to default in droves, the defaults went way up, housing prices went way down.

As I thought about this and tried to understand what happened here, what was obviously the next thing to happen? Not obviously, but what was logically the next thing to happen? Fannie and Freddy had problems because they were the largest players in the mortgage market. These defaults started to occur in droves and Fannie had the problems that we saw that forced the government to act during the summer of 2008 before Bear Stearns. Or spring of 2008 because Bear Stearns was spring. But one of the interesting things is that when Fannie and Freddy collapsed there was an important public policy decision made. Remember the Paulson doctrine was wipe out the equity, preserve the debt, that's good for the system? I thought that made a lot of good sense. But there was an important question to be decided about what happened to Fannie and Freddy's preferred stock. The decision was made to wipe out the preferred stock which counted as tier one capital for U.S. banks and had been sold to many U.S. banks as such. The result was that overnight, 10 percent of the tier one capital, 17 banks regulated by the OTS, disappeared. Just disappeared. Fannie and Freddy had about

$150 billion of preferred stock outstanding, let's say, I don't know what the number is. I'm trying to find it. But let's say two-thirds of that was owed to the banking system, leverage that times 10, you could see your way to a trillion dollars of lending that came out of the system overnight as a result of this public policy decision to wipe out the Fanny preferred. Then of course the banking sector experienced widespread problems as these assets that they owned began to default at levels never seen before.

This is a very interesting chart. It's one of my fun ones in this presentation. It's kind of complicated, but it's actually pretty easy to understand. This bottom chart here, the bottom line here, the X axis, is the change in leverage in the large banks during this period 2003 to 2007. So the people out here are the ones who took on the most leverage. We saw how the bank balance sheets inflated during this time period. This axis here is the write-downs they took as of February of this year compared to the book value they had starting this period in 2007. So the people up here had the highest degree of write-downs. The size of the bubble, and this is the fun part, is their total compensation as a percent of operating profits. So the bigger the bubble the more you were paying yourself out of your earnings. What you see are two or three things that are very interesting on this slide. One is that the players who suffered the worst during this time period, Washington Mutual, Wachovia which bought

Golden West, those were the two biggest players in the private mortgage market, and -- City which was apparently one of the largest if not the largest players in the secondary mortgage market. They didn't originate a lot of the stuff, but they bought it for their own balance sheets. Neither paid themselves disproportionately nor took on excessive amounts of leverage during this period. They just owned the assets that started to default and that was the first round of failures. Remember, the first round of failures particularly Washington Mutual and Golden West. So that had to do with maybe they shouldn't have originated the mortgages, they probably shouldn't have, but it also had to do with the fact that people who took on mortgages they weren't servicing. So there was a two-way relationship there and no one is necessarily at fault and everyone is at fault. So that's one thing.

The second thing is there did appear to be a nontrivial relationship between leverage and compensation. The people who took on the most amount of leverage were the people who were paying themselves the most amount of compensation and those were the Wall Street firms, but they didn't experience the kind of write-down levels that the other folks experienced. They had solvency problems, not necessarily underlying asset problems. You need to understand that. Why are some folks really focused on the Merrill bonuses? I think the bubble speaks for itself.

The other thing that happened is, the other thing that's very interesting, is who were the stronger players coming out of this market and who are the folks who are now trying to get them to assist us in coming through this? JP Morgan, Bank of America, Credit Suisse. Remember that big Merrill bubble went into the Bank of America bubble? WAMU went into the JP Morgan bubble, et cetera. So there are very, very important players in the banking markets who are important agents of solving this problem today who had nothing to do as a matter of business practices with any of the abuses that got everybody into trouble. So you also can't paint the entire banking industry -- out here and out here we can raise important questions about these guys are the ones who we're now looking at to help us get through the situation.

What happened? How did what could have been an important recession and a serious restructuring turn into a global economic crisis? My personal hypothesis is that it was the Lehman Brothers bankruptcy that was the tipping point. This slide here is what I call the heartbeat of the U.S. economy. The heartbeat of the global economy really. This is something called the TED spread. All economists know exactly what that is, but just in case I'll explain it for my college buddy John Anderson here. I'm sure everybody else knows what the TED spread is. The TED spread is the rate that banks lend to each other which is 3 month LIBOR, so that's what they lend to each other in the short-term markets, less the 3 month treasury rate, the rate that they borrow, their cost of funds. So the difference between those two is the profit that banks make on lending to each other often times just overnight, and the degree of that is their daily measure of risk in their own system. So it's the most immediate, most informed measure of risk in the system. The TED spread. It's the heartbeat of the global economy.

What you can see here is at the end of this time period, this is when the defaults started, the credit markets began to back up, the Fed entered with the Term Auction Facility and the Economic Stimulus Act occurred which happened here at Brookings and it came back down again. Issues began to rise again with Bear Stearns, solvency questions, Bear Stearns was rescued and it came back down again, and then Lehman was allowed to declare bankruptcy and the measure of risk in the economy went to levels never seen. This was the equivalent of a massive cardiac arrest.

Now people say to me of course we would have had a recession, of course we would have had to restructure. Lehman was just a market moment that would have happened to someone else at some other time. I think, yes, but for those of us who live in New York, the analogy I use, the public policy, and I'm not pointing fingers, that was a decision made by people who are much more informed and much more engaged than me so I'm not pointing backward and saying somebody made a mistake, I'm saying now we're living with the consequences of something that happened. And I think a lesson for the future is and part of what we're dealing with right now is for us who live in New York we should have at least tried to land the plane in the river. Get the people out, get the crew and captain out and the passengers, manage the damage rather than just letting it collapse into the city, kill everybody on board and create all sorts of collateral damage, pun intended.

But the result was, as a result of the failure of Lehman, we're now getting into what I call the horror show part of this. If there are any children here, you might want to ask them to leave. Following the 15th of September, the global economy went into cardiac arrest. The first thing we had was what I call the run on the nonbank. We figured out as a result of the Depression how to stop the run on the bank, FDIC insurance, federal resolution. But the problem was that huge amounts of money had built up in the nonbank system, prime money funds, bond funds, where people were taking a lot more risk to get a little bit more yield. That's known on Wall Street as picking up nickels in front of steamrollers. So when Lehman went bankrupt, the biggest participant in the nonbank market, the Prime Reserve Fund, broke the buck. Remember when the Prime Reserve Fund broke the buck? All of a sudden what people thought was their cash that they thought was just like a bank account was worth 95 cents on the dollar overnight. What happened was in 2 weeks, $700 billion left the nonbank system and there was a run on the nonbank and went into treasuries and cash. So a massive amount of liquidity that was being used day to day, remember those $1.2 trillion in commercial paper, 1 to 4 days maturity and all that kind of stuff, buying all this, went away. Just sucked right out of the system, as a result of which the credit markets slammed to a shut. Prices went to levels for investment grade and noninvestment grade never seen. The amount of lenders willing to make loans plummeted to historically low levels, and this is the amount of issuance. This is sort of a normalized issuance in the credit markets and this is the amount of issuance that happened in the fourth quarter of 2004. Credit markets slammed to a complete stop, just slammed the brakes on.

Then again when you look back over this you understand kind of what happened to these players, AIG failed and had to be resolved almost immediately. I'm not contending that AIG was a sound company managed in an appropriate way during this time period, but if you go back to the airplane analogy, Lehman Brothers was the airplane that AIG had insured, and when the airplane crashed, the insurance company had capital problems. When the credit markets completely ground to a stop, when the credit markets had a massive cardiac arrest, AIG was on the other side of that trade. AIG had taken on the credit default swaps. Remember, the banks thought that they were managing risk by going to AIG and buying an insurance policy against those credit assets. When those credit assets plummeted in value, AIG was insolvent immediately upon the failure of Lehman Brothers. So they had $2 billion cash on their balance sheet and $32 billion of fair value losses as of September 30 which had not been there on June 30. $32 billion got sucked out of AIG in the couple of weeks after Lehman, it was not sustainable and they had to be resolved.

The structured investment vehicle market. Remember when we talked about that off balance sheet stuff where they were borrowing money short and going out and buying mortgage assets? There was $400 billion worth of those things at peak of which, by the way, Citigroup managed 25 percent. Again as you get into this you sort of piece together the kind of players who got into trouble and what happened to them. Average life of assets was 3.7 years, average duration of debt was 5.5 months. That's what we call a duration mismatch. The result is their assets got called back in because all the money flowed out of those reserve funds that were buying the stuff and similar places around the world. They had to sell the assets, the assets collapsed by 50 percent in value to meet their margin calls, a massive sale of assets in order to pay back debts that had been taken on. That plus all the rest of this caused asset markets around the world to implode and we saw implosions of both commodity markets and equity markets that were severe and global in scope. You can see what's happened to the S&P 500 peak to trough over the course of the last 4 recessions, 10 to 34 percent, we're now down to 56 percent, levels of destruction of asset value not seen in modern economic history.

This is the point at which the financial system intruded on the real economy. At this point we had a financial markets problem as a result of the insolvency at Lehman, but when the asset markets around the world collapsed, American household net worth went down by almost $13 trillion as a result of the collapse of housing prices which started first plus the collapse of the equity value. Most economists Martin tells me think that people spend about 5 to 6 percent of their net worth in consumption each year. Do the math. Five percent of $13 trillion, $600 to $700 billion. Remember, that's about the size of the stimulus bill. The stimulus bill replaced about 1 year of spending that came out of the American economy as a result of the collapse of household net worth around the country.

Sadly, employers reacted as well. Unemployment started going up. It got to 8.5 percent. Consumer confidence collapsed. And the great American consumer whose spending had reached 70 percent of our GDP and whose savings had reached essentially zero, actually negative as you can see down here, this is savings rates since 1960 in the United States, this long glide path down and then popped up to 5 percent where it is today. So the American consumer stopped spending and the economic engine of the world went on a buyer's strike and we tipped into recession.

We have been muddling through. In the first three quarters of the year, growth was anemic but it was there. You can see the U.S. grew 1.8 percent, U.K. 1.5, all the way down to China, 9.9, the world grew about 4 percent, roughly, in the first three quarters of 2008, and then we dipped into a recession of historic proportions in the fourth quarter. You can see the numbers here, Korea down 20.8 percent, these are the export-dependent economies, the American consumer is not buying this stuff anymore. The China number moves around a bit because China reports their number on an incomparable basis so estimates are that China's growth was somewhere zero and 2 percent, so the world's great growth miracle collapsed as well. These are the S&P 500 earnings. You can see if you take out the consumer discretionary and the financial sectors which are the two that were laboring in 2008, the rest of the corporations in the S&P 500 had a 16 percent growth in their profitability during the first three quarters of the year which plunged 33 percent in the fourth quarter.

The result is that we have so far, and we're just in the early days, I fear the fourth worst recession measured by cumulative change in GDP and unemployment rates since World War II, and the fourth quarter of 2008 now ranks as the fourth worst quarter since World War II. So this data suggests to me what we've experienced anecdotally which is that we had been muddling through but the failure of Lehman and resulting panic caused the global economy to tip into a severe recession.

What's happened to date? That's the horror show. Here are the redemptive features of the presentation. Governments around the world learned the lessons of the Depression and moved rapidly and unprecedented scope to get at the problem. The Obama Administration's stated resolve to err on the side of doing too much rather than too little is clearly the right thing to do. We were talking earlier about the lords of finance. As opposed to the actions that they took in the 1930s to tighten into recession and as opposed to the passive response that Hoover took during that period, the nations of the world have moved aggressively and at an unprecedented scale and scope. Massive central bank interest rate cuts. My favorite here in what I regard as the history of Anglo-Saxon capitalism which is I think measured by the life of the Bank of England since 1694, these are the lowest rates on record. The lowest rate that the Bank of England in 315 years has taken their rates. Everybody in the G-20 has authorized recapitalization and liquidity injections into their systems. These are the G-20 countries whose stimulus packages are the percent of their GDP. So this notion that the United States is sitting out there and the rest of the G-20 countries aren't stimulating is just plain wrong. You can see, the one I love over here, the highest one is Saudi Arabia. That's kind of interesting. Those oil price declines have required a fair amount of intervention in their own economy. This is an undertaking of unprecedented scale. We've now committed $12 trillion of total resources in stimulus and Federal Reserve actions and Treasury actions, FDIC and everything, of which about $4 trillion has been spent. The estimated inflation-adjusted cost World War II, the largest undertaking in American history, was $5 trillion. So we are prepared to spend over two times the cost of World War II on an inflation-adjusted basis to get at this problem. The scale and speed of the response is what gives me a great deal of courage.

Of course, how are we doing it? The old-fashioned way, we're printing the money and borrowing it again. This is what's happened to the Fed's balance sheet which has gone from under $900 billion to up to $2.5 trillion. This is a temporary low. Most people think it will go back up. So the Fed is running the electronic printing presses. The good news they don't have to print anymore so it doesn't cost as much. They send out electronic credits to people's accounts so it's a little cheaper to do it these days. And of course we're borrowing massive amounts of money. Bill Gale here at Brookings said one day -- now let's see, the problem was that we borrowed too much and spent too much, so the answer is that we're going to borrow more and spend more? Right. But that's what we have to do. Is that a fair paraphrase, Bill? The answer is that, yes, that's what we're doing. The result is as I say at an unprecedented scale and scope.

On this axis here is the degree of fiscal stimulus and this is the growth in U.S. treasury debt as a percent of GDP. This scale is the degree of monetary stimulus, quantitative easing, which is the growth money base. And the size of the bubble is the amount at which rates have been brought down, so that red bubble out there which is our current time period is 350 basis points of easing. These are all public policy responses to economic problems since the 1950s. You can see here that what we've done in the United States in this time period is unprecedented in its scale and scope. This is kind of where we are today and those are all the other fiscal and monetary easings since the early 1950s. That's what gives me cause for a fair degree of optimism because of this kind of public policy response.

The question is where are we today? Everybody wants to know where are we today. My personal view is that we could be at what I call the end of the beginning which is sort of what I think Larry Summers was trying to say the other day when he said the ball is dropping off the table. Not that we're beginning to grow again, not that we're in a healthy economic situation, but that the crisis is probably over, the freefall in the economy has probably stopped, and now we've got to work our way through restructuring the economy around the imbalances we saw earlier. The consumer seems to be getting a little bit better. Change in nonfarm unemployment is not as bad as it used to be. We've stopped that plunge. Housing is becoming more affordable as housing prices are going down. Consumer confidence is going down here, but it's stopped going down at least. Unfortunately, I used to think that people had finally gone back to Wal-Mart to replace detergent and toilet paper and that we're starting to shop a little bit again, but you can see it came back down again in the month of March, so that's a little bit of a question mark.

Business seems to start feeling a little more stable. The cost of borrowing money. Remember that commercial paper U.S. we talked about earlier which funds investment grade businesses? That has gotten to levels that are affordable. The inventory to sales ratio is starting to go back down again which means inventory liquidation could start requiring more production because inventory decline has declined above sales which means they have to be replaced. My favorite, the Baltic dry index, everybody knows what that is, which is essentially the cost of shipping very basic goods to factories which is usually the first thing to turn up at the beginning of a recovery because factories start ordering basic goods in order to begin production again, has gone out of freefall and come back up a little bit, and purchasing managers are starting to order again. So the global economy, the manufacturing sector, seems to be perking back up again, but be ware of the Ides of March because the two recently announced economic measures were reasonably troubling. Consumer prices which is the blue line over here and this includes everything now, energy and food, had their first year over year decline since 1955. Remember the big issue we're worried about is deflation. In the Beige Book, the anecdotal evidence put together by the Fed suggests continued broad downward pressure on prices. That's a big issue. Take out food and energy and the red line suggests a little bit of growth, but a lot of that growth was the result of a tax issue with cigarettes or something. The economists here can tell me. So you can see that we're still in this area where there's real risk of deflation. And capacity utilization went down to a level never seen since the Fed started keeping records. So factories in the United States are operating at the lowest capacity on record in March. And the 13 percent decline in industrial production since the recession has been the worst since World War II. So it does look like we're at the bottom, it feels like the end of the beginning, but of course there's a lot of weakness out there which is why the sustained public policy response is needed to continue stabilizing things to get us turning back up again.

What's the prognosis? Very quickly I should say that I have no idea. So what I did was to go find smart people who had some idea about what the prognosis is, one of whom is sitting right here in the front row, Carmen Reinhart. I have shamelessly stole some work that she has done. I asked her for permission to kind of talk a little bit about it. I hope you'll talk more about it later on, Carmen. I think it's really interesting.

This is an analysis that Carmen and a friend of mine named Ken Rogoff did of the 14 banking crises that are most like what we experienced. In other words, the hypothesis as I understand it is that we're experiencing a banking crisis and a financial crisis and not a normalized recession the experience of which and the recovery from which is very different than a recession. Then what they've done is to go look at what on average are the changes in housing prices, equity values, unemployment rate and GDP per capita in those crises and their duration. So if you look at this, what you can see up here in terms of housing prices and equity values which are leading indicators, you could convince yourself, and I think housing prices are probably down to more like 33 to 35 percent now, you can see that housing prices and equity values have gotten to about the level they get to on average in a financial crisis. By the way, the whole public policy response is about keeping at or above average rather than below average. These are just average numbers. But two things. One is the unemployment rate has a long way to go bet because that's sort of a lagging indicator. Employers act with a lag on economic news. But the biggest issue, and I want to ask Carmen to talk about this later on, is the duration. Remember that chart with all the debt having to be restructured in our economy? You can see here that we're barely according to this data halfway through the average duration of the recovery from a crisis like this. So the issue right now I think is now how far down we have to go. You can hypothesize from this data about where that would go. The issue is how long it takes to get to the other side. That's the big question.

This is the institutional view. Again I've shamelessly stolen the projections from the OECD, the World Bank, the Federal Reserve, the IMF. I made a few estimates myself. What you can see here are a couple of things. This is what the institutions who are responsible for managing the global economy think about the future. OCED, the world economy is in the midst of the deepest and most synchronized recession in our times. It's interesting. What you can see here is in most cases as I understand it, most of these institutional forecasts are designed to be 50 percent base case and then 25 percent probability on either side. That's kind of roughly the way they're thought about. Right now there's a general view that the downside has a much greater chance of happening, so there seems to be about a 35 percent or one-third roughly probability of happening because all of the catalysts for upside growth, the financial services sector, the U.S. consumer, government spending, monetary easing, all those tools have been spent and we've got to work our way through the problems that we have.

I just redid this slide based upon March numbers, and what had been the previous downside case is now the base case. So in the last 3 months the institutions managing our economy have adjusted their view of global growth downward. We don't have time to go into this whole thing, but a couple of things that are very interesting, one is you can see the United States is expected now to have, other than China, the best economic performance in the developed countries for a couple of reasons which we can get to in a minute, both not go down quite as far and come back faster kind of a scenario and that has to do with the fact that we're acting more aggressively against our problems than some of the European countries which people still think have hidden banking problems they're not dealing with, and also our flexible labor market that allows us to reallocate jobs very quickly so where they need to be for growth. The problem in the U.K. is of course London is to the U.K. as New York is to New York State. They have an economy unusually dependent on their financial-services sector so that creates a real impediment to their growth. Europe made a growth acquisition about 10 years ago called Eastern Europe and they have been growing overall as a result of the growth in Eastern Europe during this time period, and Eastern Europe is now in crisis. Why? I didn't go through this, but they borrowed money. You recognize the story now. They borrowed money to fund their growth, they borrowed the money in U.S. dollars, the U.S. dollar is way up as a result of the financial crisis, they can't pay back their debts and they're now in crisis. So Eastern Europe has slipped into a crisis that sort of unexpected before this, dragging Europe down. Also Germany, the major engine of the European economy, is exported oriented and export industries are suffering mightily right now as a result of consumers around the world not spending.

Japan is a really interesting case because imagine if 10 years from now we were back into recession and we'd spent all this money and done all this easing, we'd thrown everything we had at the problem and now we had to go back at it again, that's kind of where they are. They've just come out of their lost decade, starting to grow again and now they're coming back into this whole set of problems and they are unusually dependent on the export sector.

China. People think the Chinese growth miracle is going to continue. The question I have is if U.S. consumer behavior changes fundamentally, the Chinese economy is a mirror image of the U.S. economy because they produce what we buy and if we have changed from a consumer led to a saving and investment like society, I'm not quite clear, no one has really explained to me how the Chinese continue to grow at these levels, but we'll see. You can see the growth engines in the world, China, India, Brazil, that people have been looking to are all considered by the institutions to be at risk. It's a global synchronized recession with no clear locomotive.

Here is the geopolitical perspective on this. I won't go into this in great length, but it's very clear that free-market capitalism is under a cloud or Western capital markets. Sarkozy famously said, "Laissez faire c'est finis." The central tenets of modern capitalism have been undermined as a result of the nationalization of the financial services sector around the world and we're now facing financial services reform. We have to be very careful not to do the public policy equivalent of bleeding the patient and make the situation worse during the time period when we need the financial services industry to help us recover. The U.S. global economic power and the appeal of U.S. democracy is eroding around the world. We're going to have to appear to force restraint because of these massive deficits that we're running. We can't do something like the Iraq war anymore. We simply can't afford it so we're going to have to turn inward. The U.S. budget and trade deficits will be financed largely with foreign capital. Watching the folks on the Hill sort of legislate all this money often times reminds me a little bit of my children coming to me and saying, Daddy, we've decided you're going to buy us a new car. We don't have the capital for this right. We're going to have to go borrow it from China, Japan or the Middle East. There's a new regulator in the world economic system which is the buyers of U.S. treasury securities and we've got to send them a message that we're going to get to fiscal responsibility very quickly in order to keep our capital markets open. Domestic governments are turning inward with the rise of nativism as they focus on stimulating local demand. This clearly accelerates the relative rise of China. China has a recession now because of the drop in aggregate demand. They do not have a financial crisis. China has the strongest balance sheet in the world. They had massive trade deficits and huge foreign exchange reserves. They have run until at least this year government budget deficits. They have a 40 percent savings rate. They have the strongest balance sheet in the world and they are as Antoine -- keeps pointing out to me, one of my colleagues on the board of Brookings says stop calling the U.S. the industrialized nation because everything is made in China. They are the world's manufacturing center and they think they have a huge advantage over us because they don't have to worry about democracy. They've got this autocratic government model that allows them to do kind of what they want when they want to do it so they can move they think more swiftly and more certainly than we can.

It does diminish the threat for the bad guys, Iran and Venezuela. I didn't call Russia a bad guy, but it diminishes the influence of Russia, Iran and Venezuela who are dependent on oil revenues but my friends are worried Iran and the impact a nuclear crisis could have on global confidence and the associated recovery. And we're obviously to have to restructure the global financial system. That's what's facing us sort of from a geopolitical perspective.

Finally, what I do for a living. I'm a technology investor. My view is after studying all this I've reached the conclusion that innovation will set you free, that this feels the most to me like the 1970s when I was in college and we were told we were going to be the first generation in America history that was downwardly mobile, small was beautiful, we're running out of resources, Malthusian population effect -- all this kind of stuff. What happened was a bunch of friends and college classmates went out and created the greatest productivity increase, wealth increase, job growth in history as a result of the massive tech boom. It's very clear if you look at this that we're going to go through some financial engineering to real engineering as our way out of this. R&D clearly drives innovation, innovation clearly drives productivity, productivity clearly drives GDP growth, and the good news is so far even though the top 28 spenders in R&D in this country, revenues are down almost 8 percent, their R&D spending is flat and actually the high-tech industries have increased in the face of this crisis. We are for instance right now on the cusp of what I believe is the greatest technology trend of our lifetime. We had the PC revolution and then we had the networking revolution and then we had the Internet. Think Microsoft, then Cisco, then Google. And what we have now in broadband and wireless mobility is a trend that's by far the biggest. Twenty-five years into the PC trend there are 1 billion PCs in use in the world, there are already 3 billion handsets. It's three times the size of the market. In the month of January one single Indian telecom manufacturer, service provider, when everything else was turning down in the world, had 15 million new customers, people who had never had a handset before. The opportunities and the ecosystem around that are just enormous. So once we get our house in order, once we restructure our balance sheets, there is a massive amount of innovation. I'll finish by saying Washington and New York can be pretty depressing places today, but Silicon Valley is bubbling with innovation and that's what's going to carry us through. So that plus the public policy response makes me very optimistic about the future.

MR. TALBOTT: Glenn, thank you very much. Let me suggest the following. I think every single minute that we have spent with Glenn and his slides has been more than worthwhile. I want to suggest the following, Glenn, if it's okay to you, and that is to have you take a couple of questions, but just a couple of questions.

MR. HUTCHINS: There are many more thoughtful people here than me.

MR. TALBOTT: I think it would be unfair to the group, but to keep that part fairly quick, and then I'm going to hand the big gavel as it were over to Martin to bring up Carmen, Bob, Doug and Don for the panel, because I think there is a lot of segue from the data that you've provided as well as the analysis into what comes next.

I do want to make one observation, however, just going back to what I said at the opening, and that is that this is not just an economic situation that we're dealing with, and it struck me particularly when you put the map of the world up there. I would just underscore two points from looking at that map. The largest country on that map is called the Russian Federation. As some of you may know, I spent a lot of my life worrying or hoping about Russia, and for the first time since 1989-1990, I can imagine that country coming apart at the seams, losing its integrity and viability as a state as a result of this situation, and that is not good news for anybody. Another part of that map over a little bit to the west of Russia is called the European Union, and I believe that the viability of the European Union is in jeopardy depending on those big question marks that Glenn put up there having to do particularly with duration but also with unemployment.

And taking that point to this country, whether Barack Obama remains in some sense in charge of the recovery both domestically and internationally depends on the answer to the question of how long it's going to last and what the unemployment rate is going to be. As we get into the 2010 midyear election cycle, if he owns this as a problem and is not seen as owning it as a solution, then there is going to be a groundswell of feeling that we need a new management of the problem. That's one reason why I'm glad as I look around the room, I see colleagues from the international side of Brookings and from the Governance Studies side.

In turning it over to Martin I just want to say I was very lucky to be sitting next to Martin during all this because there were only two or three points where I couldn't follow either the lingo or what you were saying and I whispered in class. For example, when I saw the Baltic dry index, you were good enough to explain what it was, but you didn't explain why it's called Baltic. But Martin knows, so he is the guy to take charge, and thanks to all of you. I have to slip out for a second.

MR. BAILY: Thank you. Glenn, would you be willing to take a couple questions here?

MR. HUTCHINS: Sure. I want to save some time for the panel which I want to hear.

MR. BAILY: So do I since I'm on it. Why don't you go ahead and take a couple of questions.

SPEAKER: You mentioned how instrumental to the growth of the bubble was the nonbank banking system. In fact, it's been a pretty significant factor in 20 or 30 years of growth that the world economy has seen. What is the future of the nonbank banking system and what impact will that have on recovery in the United States and in the world? Is it going to change fundamentally or disappear as a result of the reassessment of risk and how that works? What's the role?

MR. HUTCHINS: It's hard to generalize. That's a good question, but it's hard to generalize. One is that the innovation in finance has gotten a bad name recently because people think that that means credit default swaps when there's a huge amount of innovation in finance that's extraordinarily valuable to all of us. One good example is that if you wanted to buy stocks and bonds 10 years ago you had to call a broker and pay a huge fee. Today you can go online and go to any one of a number of companies to buy. There all sorts of financial instruments for you. There's a huge amount of innovation that's been very, very valuable one of which is the nonbank banking system. You certainly don't want to throw that baby out with the bath water. What I think needs to happen is that that system, first of all, we need to have confidence in it, the same kind of confidence we have in the banking system so we don't have the runs on the nonbank system we've had before. So it's pretty I think that that the bank/nonbank distinction from a regulatory point of view will be judged to be kind of a false distinction and they'll all be brought into the same kind of regulatory framework and that will restore confidence and allow those innovators in the marketplace to continue with one important exception which is that the private mortgage industry will be fundamentally changed I think from here and the regulation of mortgages, what kinds of mortgages, given what sorts of disclosures are associated with them or how they finance themselves, that will be an industry that I think will be fundamentally restructured because that's really the epicenter of the problem.

MR. BAILY: I think we'll take another question. Did you want to make any comment, Frank, we're lucky to have Frank Raines here, on the analysis of what happened?

MR. RAINES: I think it's terrific. Actually, Glenn, I think this was the best analysis I've seen.

MR. HUTCHINS: Thank you. I'm very flattered that you'd say that.

MR. RAINES: Because almost every other analysis takes one piece of the elephant and gives us an in-depth description of it, ignoring that there's the rest of the elephant, and I think you did a terrific job in pulling together all of the factors particularly the emphasis on crisis. I could quibble on some of the things, but I think it's terrific.

The only thing I would emphasize is, and you alluded to this in several places, but I think in addition to the liquidity side, the credit judgment side.

MR. HUTCHINS: Martin's point.

MR. RAINES: Not just the rating agencies, but the end investors. One of the major questions out there, and it includes Fannie and Freddy, is why seemingly intelligent investors somehow went crazy in 2005, 2006, and 2007 buying instruments that with even a pause they would have said this makes no sense.

MR. HUTCHINS: Good question.

MR. RAINES: There was a panel here a couple of weeks ago that alluded to this as well, the whole issue of competition in financial services and the drive for market share which regulators typically stand apart from and say we don't want to be involved in that. But as was explained, I think it was Alan Greenspan who was explaining, that is the major driver of people committing financial lunacy, because others are doing it successfully, why should we not do it? Our shareholders are beating on us. I think that's one piece, the only piece I would emphasize, two pieces, credit and the role of competition that drives people to do things that don't make sense.

MR. HUTCHINS: May I ask a question? Leave me the mike. I want to ask Frank a question. It struck me that widespread homeownership was one of the few bipartisan issues on Capitol Hill and a lot of that meant extending mortgage loans to people who were less credit worthy than had historically gotten loans. To what extent do you think there was also a political push to go into those noncredit-worthy markets that created some of this too?

MR. RAINES: I've never bought that for a couple reasons.

MR. HUTCHINS: That's why I phrased it as a question, by the way, because I don't know the answer to that.

MR. RAINES: I've never bought that, and there's a couple of reasons. One, in most of the markets where home prices have declines dramatically, 30 percent of the home purchasers in the prior years were investors. You go to Las Vegas, if you go to Florida, 30 percent of the demand was coming from people who had no intention of living in the house. They intended to flip the house for a profit. So that's an enormous piece of it.

Secondly, if you look at the big defaults that you had up there, the loans that most people get, long-term fixed-rate mortgages, normal adjustable rate mortgages, they haven't defaulted at anything like the rates that have caused the crisis, but what we've seen is that people who were bad credits to begin with and who lied essentially on their applications, liar loans are essentially those loans where people did not say what their income or assets were, that's where the losses are. The losses aren't happening from somebody who's an auto worker who wanted to own a home and he bought a $129,000 home in Canton, Ohio. That is not the crisis. The crisis is coming from people who were either investors or who essentially were not credit worthy or were not telling the truth in the origination process. If you took them out, this would be a very mild problem, so that I do not blame the average homeowner or Congress's desire to expand homeownership for the average homeowner. Remember, the average loan that Fannie Mae bought or owned was $108,000 on a $130,000 house. That's not the cause of this problem.

MR. HUTCHINS: That's a good point. For the first time in Frank and my relationship, I'm up here and I get the last word. I would say two things. One is I'm very concerned that the real economy now and unemployment levels means that we're going to get to a new round of defaults associated with economic weakness which could be the real tragic kind of part of this right. The other thing I think that you've left out, I wonder, maybe we can talk about this later on, the degree of mortgage equity withdrawal where people were literally taking money out of their homes and levering up their home. Those weren't liar loans. Those weren't people who were speculating on the houses. Those were people who were subsidizing their consumption with their homes, and that's a part of the problem too. We can talk about that.

MR. BAILY: Let's take one more, Kelly Schultz has a question, and then we'll go to the panel. We can't have unlimited time.

MR. SCHULTZ: I want to just follow-up on Frank's question and your answer. I think it was a tour de force.

MR. HUTCHINS: Thanks.

MR. SCHULTZ: There's one part of the elephant that you recognized but I think maybe you didn't emphasize enough the size of that part of the elephant which is the apparent conundrum that all during this period from about 2004 through early 2007 the apparent spreads on very risky assets, increasingly risky assets, stayed high and institutions just pumped more and more and more funds into it even though the risk was declining. I think what explains that is the compensation structure in the financial industry, essentially the very large use of annual bonuses that are not clawed back later when the risk turns out to have been much greater than people thought because in fact the system almost begged people to ignore the risk, to ignore the risk assessments even though they were imperfect, and powered this tremendous inpouring of funds into increasingly risky assets, A, particularly in the subprime housing case if you just look at the indicators of the quality of the underwriting. And secondly in a more subtle sense, the counterparty risks in the in the whole credit default swap business. My colleague Peyton Young has kind of in a formal sense worked out pretty clearly the tremendous impact of this. It always paid. You'd get 3 or 4 good years of bonuses and never have to pay back your misjudgments about what's happening to the risk. It just begs for people to overdo it because there's no penalty for having done that in the sense of 3 or 4 years of good bonuses substantially outweigh one year of zero bonuses.

MR. BAILY: You knew something was going to off your paycheck.

MR. HUTCHINS: Not mine. It had nothing to do with me. I am not a banker. I knew nothing about these mortgages. I had to go study this stuff to understand it, so I don't take any personal offense. Far be it from me to -- I'm actually the banker's client -- it would cost me less.

MR. SCHULTZ: Can I add one point to that?

MR. HUTCHINS: Please. I'm not going to argue with a person as eminent as this. I'm just going to listen.

MR. SCHULTZ: No, no. At the risk of repeating something my colleagues hate to hear from me again, I urge anybody who's interested in this to read UBS's report of how things went wrong that was required from UBS by the Swiss banking authorities just after they lost the first $19 billion of the ultimately, what is it, about $60 billion of capital losses. It just pins this down to a T explicitly saying what that incentive structure did to its own analysis of risk.

MR. HUTCHINS: Let me come at this sort of obliquely, because I understand the point you're making and it's an important one. I wonder, we were talking about this earlier so I have two points. One is I wonder if the issue -- people are most concerned, you're talking about the analytics around compensation and the incentives. There's clearly a big issue around compensation in this country. I think that comes from the slide I showed where decline in median incomes and increase in structural employment and labor market weakness and all that kind of stuff. So I think that it probably is not -- by the way, with the failure of Lehman and the massive job losses on Wall Street and a lot of people are paid in stock and they've lost all their money and there are not a whole lot of happy people there about kind of what's happened. Some of this is a self-correcting and self-immolating kind of result. So I am not defending that. But I think what we have to do as a culture is understand that we have a broader, deeper problem around labor market strengths in this country that we need to address and focusing on the compensation systems on Wall Street while easy and interesting kind of diverts us from the real problem underlying the economic issues that we have to focus on. That's where I get to the bigger is I really think it's good and important from an analytical perspective to understand exactly what happened and dig into pieces of it and try to weigh them and what not. Unless we all understand we're in this together, unless we understand that we're all at fault, we're all responsible and we all are going to rise or fall together, I think it's going to take us a much longer time to get out of this problem and we'll have unnecessary social strains along the way. So that's why I think some of those points are important analytically, but as a way to think about how we get -- which is what I'm really focused on because I'm an investor in a whole bunch of businesses with lots of people who are working hard every day to create innovation and I want to try to create a future for them. That's what I'm worried about. I think that sort of kind of finger pointing can be counterproductive, and I'm not saying you were doing that. I'm taking what you said and taking it to the next level of what do we do about it. Does that make sense?

MR. BAILY: Thank you very much, Glenn.

MR. HUTCHINS: Thank you.

MR. BAILY: Let's make a transition here. Are you going to be able to stay around a little longer or are you running out the door?

MR. HUTCHINS: I'm here. You couldn't drag me because I want to hear this panel.

MR. BAILY: Good. So we'll bring you into the discussion. So if the panel could come up, please. There are microphones that you can fit on your lapel. We're going to go through now -- what's the next set of slides that come up? Can we bring up the next set of slides, please? Sorry for this pause.

We are very fortunate to welcome what I think is a terrific panel to talk some more about these issues. Bob Litan is probably well known to this audience. He was head of Economic Studies for a number of years. He's still an external Senior Fellow here at Brookings, but also spends a good part of his time with the Kaufman Foundation. Next to him is Carmen Reinhart who has already been mentioned. She has written a number of wonderful papers with Ken Rogoff, but also a number of other works, and she is currently a professor at the University of Maryland. Next to Carmen is Don Marron. Don I got to know when he was Acting Director of the Congressional Budget Office. He's also had a very distinguished career at the Council of Economic Advisers both as a member and a senior staff person at the Council of Economic Advisers. Next to him is

Doug Elliott. Doug is a wonderful addition to our staff here. He is a Fellow at Brookings. He has worked as an investment banker on Wall Street and has written a lot of terrific stuff about nationalization of banks which he's not a big supporter of, but how that would work and what we would do about it if we really wanted to go down that road. He's written a lot about the TARP and different ways we could approach getting the financial system back on track.

This is a little ungracious of me. I'm Martin Baily, by the way. It's a little ungracious of me, but it appears that my slides have come up, so I'm going to quickly go through my presentation and then we'll go down the panel.

The point I want to make here which follows directly from something that Glenn said is that whatever has been -- of what we've gotten into, however much blame to want to have to different groups of people, the priority right now is to fix the financial system and to gather the resources to do that. Unfortunately, I'm sure this is not that visible, so I'm going to just say what it says, which is that it doesn't really matter -- I've just said it, really, it doesn't really matter who caused this, we got to get back on track.

Who's being hurt by what we're in now? Certainly workers are being hurt. What's shown in that chart is job loss by industry, both the percentage decline and the absolute decline, and it is no great surprise to see that construction, manufacturing, retail sales, those industries are being hard hit. So the biggest collateral damage that we've had from this financial crisis is the workers that have lost their jobs in very large numbers. These job losses in turn have generated high rates of unemployment for a number of classes of workers. The one on the right is construction workers where the unemployment rate has really shot up to about 22 to 23 percent. But there are a number of others, production workers that's reflecting come out of manufacturing. So this is the problem we have now that's the legacy of the problem that came out of the financial panic.

Looking now at the other side of who's getting hurt, clearly corporate profits have taken a huge hit as well. In fact, you can see there that by far the biggest contributor to profits in 2007 was the financial sector which is concentrated in the money center banks. The Federal Reserve Banks, the sort of smaller banks, didn't share hugely in those profits and they've done okay in this downturn. It's really the big money center banks that we've all been reading about that have gone from huge profits of over $400 billion down to a very small level of profit. So they've taken a huge hit. But now the collateral damage has also hit, so the manufacturing industry has taken a hit on profits, retail is taking a hit on profits. So as well as workers getting hit, we've seen also corporate profits getting hit.

Then as Glenn mentioned, households are getting hit. So $13 trillion has come down. This is from Federal Reserve data and in that data that use not the Case-Shiller Index for housing, but what used to be the OTHEO (?), it's got a different name now, and that doesn't show quite as big a decline in house prices. So we have had something like a 15 percent decline in housing wealth. Most of the rest of the $13 trillion drop in wealth has been from equities and the role that equities play in pension plans and 401(k) plans. The biggest decline here is actually in equities owned by individuals or by households, so that's gone down 44 percent. Misery loves company. Many of us have experienced that same decline. So a big loss of jobs, big loss of profits, big loss of wealth that's taken place as a result of this.

Who owns that wealth, that equity wealth that's come down? The equity wealth is overwhelmingly held by households in the top quintile of the income distribution so that's pretty much who owns that wealth. If you broaden it out to the pension funds and 401(k)s and stuff like that, then it gets a little broader. But let's be clear, it is really the top 2 or 3 deciles of the population that owns most of the equity wealth. Real estate wealth is more evenly spread, but even that surprisingly is pretty concentrated too. So the sixtieth percentile and above of the income distribution owns about, I've got it up there, 74 percent, nearly three-quarters of the housing wealth. So this is a situation where the financial crisis has hit upper-income families and then through the labor market is hitting lower-income families.

If we do a bailout and solve this financial crisis, who is going to pay for it? This is a point that I've read Steve Pearlstein make. I think it's actually even stronger than he made in his piece in "The Washington Post" because if you think why are we going to have a bailout and bail out these rich bankers? Partly because the rich folks are the people that are going to pay most of the taxes. In fact, the top decline of taxpayers pays just over 72 percent of all taxes, income taxes and little bit more in corporate profit taxes. So in a sense, if we get a bailout or the bailout we've had, it's going to be the rich restoring the financial sector. Joe Six Pack does not pay a lot of federal income tax. He or she pays Social Security taxes, state and local taxes, property taxes on his home, that kind of stuff, but not a whole lot of federal income tax or corporate profits tax. The second row of pie charts there just looks at the top 1 percent. So even the top 1 percent of taxpayers pays more than 50 percent of the corporate profits tax and about a third or 40 percent of the income tax. So the kind of anger that we've gotten at the bankers which I think is probably justified and people say why should I pay my tax dollars to bail them out, the answer is in a way because it is not Joe Six Pay paying those taxes.

My bottom line is let's stop screwing up and let's fix the banks because we need to do it. It's an essential element in getting us back on track. As Carmen will point out, financial crises tend to last longer, they have worse unemployment, worse housing price declines, so rather than sort of worrying right now about solving the whole world's problems, I think the administration should focus absolutely laser beam on solving the financial crisis, getting the banks back on their feet, and then as the economy recovers, we can start to tackle those other issues. And the kind of populist rhetoric that's gone on around it which is entirely understandable I think should be muted by the fact, A, that the rich have taken a huge hit here in terms of their wealth, and B, they're the ones that are going to pay the bill in the end. That's the end of what I was going to say. Let me now turn to Bob Litan.

MR. LITAN: Thanks very much. I know we're pressed on time so I'm going to flip through just a number of comments, one on the long-term implications for financial regulation, and then I want to give you some of my perhaps heretical thoughts about the political economy fallout of all this.

But before I start on the long-term, just to pick up on what Martin said, he's absolutely right. Getting the financial system back on track is a precondition to recovery, but there's a lot of rhetoric in Washington and a lot of blame right now on the banks, for example, not loaning money. The "Wall Street Journal" today just reported that bank lending by I guess the banks that have received TARP money is down 23 percent relative to some benchmarks. There's a tremendous amount of political browbeating on the banks to lend money.

The reason the banks aren't lending money is because their capital has been wiped out and they're scared to death of the regulators, plus there's weak demand in the economy. I think that excessive political pressure on banks to loan money when the demand isn't there and when at the same time we're worried about their capital basis can actually be counterproductive. The reason why we need the banks though restored in terms of financial help is that when and as demand picks up, you need the banks to finance the recovery. So it's at the pick-up cycle that you need them. You can't expect the banks to be ahead of everybody when the world is crashing. That's point one.

Point two. On the long-term fixes, I'm going to short-circuit a lot of the discussion and focus on one issue and that is there seems to be a consensus among everybody I think right and left that big institutions impose big external costs on the rest of us when they go down the tubes. I've coined a name for these guys. I call them SIFIs, systemically important financial institutions, and I've been writing a number of things here at Brookings about what to do about SIFIs. There are two broad approaches that I can detect. Number one is there is growing sentiment among I think very intelligent people, not just populists, that we ought to limit the size of financial institutions, and certainly I think if the government ends up nationalizing some of the larger banks like Simon Johnson has been arguing and I guess Krugman and so forth, I can support a view that says if we end up taking over any one of the main banks on Glenn's chart that when we reprivatize them, we should probably send them back out in smaller pieces and chop them up. I can see that.

But outside the nationalization context, I just want to raise some red flags about the feasibility of trying to limit financial institutions. You can certainly put the brakes on mergers, but I don't know if any nonarbitrary way that you can just sort of subtly start busting up institutions. It's just not realistic. And at the same time, what are you going to do about organic growth of the survivors, the successful ones? I can't see having a socially productive policy that says for example to a JP Morgan we're just going to stop your growth. Think about what that does to the incentives of the financial institution and the people who work for it.

It just doesn't make sense to me. Therefore, I think by default what we're going to end up with is a much tougher regulation of SIFIs. Then the question is how are we going to accomplish that? Are we going to do that within our existing regulatory structure which as we know is very fragmented so that we'll end up getting different so-called taxes imposed on SIFIs by the controller, by the FDIC or by the Fed, if we have an insurance -- have it done in an uncoordinated fashion? Or are we going to get a systemic risk regulator? I think we'll eventually get the latter, and there is a big debate about who that's going to be.

In my ideal world, I'm actually sympathetic to the original Paulson proposal which was to have one federal solvency regulator, one consumer production regulator, and I would give the systemic risk regulating function to the solvency regulator. I don't think that's going to happen politically. I think as a practical matter that we're down to two choices. It's either going to be the Fed or it's going to be the President's Working Group on Financial Markets or Institutions, the college of regulators approach. There's a lot of anti-Fed sentiment and it's grown enormously, I don't have to tell you, in the last 6 or 8 weeks. People in Congress and I think out in the public are mad at the Fed after the AIG and so forth bailouts. Barney Frank on the other hand, for example, leads a number of people to say that the Fed ought to have the power. I would say as between a committee and having one institution involved, I'll take the Fed any day. I think giving this power to a committee is a recipe for inaction, delay and finger pointing, but I think that may happen given what's happened with the Fed, although I'm still keeping my fingers crossed that if we go to a systemic risk regulator we'll have the Fed.

Some people say we've just had a massive regulatory failure and you can't expect any regulator to prevent a future crisis, and I say that's the wrong standard. Glenn knows this from investing in tech that bubbles are an inherent feature in capitalism. Every single technology wave has been accompanied by a bubble and a shakeout, so we're not going to stop bubbles. But what we certainly can do is contain their size and contain the damage when they do blow up. So by that standard I think prudent regulation can make a difference, and I'll give you one example of a country that's done it. Canada. Canada has five banks, basically. They're fine. People who sit around and tell me regulators all have failed, they're just a bunch of jerks, they're behind, they'll never catch up with the people -- financial sector. I say go to Canada. They've obviously figured out how to do this. So I'd say regulation actually can constrain risk taking, although it can't prevent all bubbles. I'll concede that.

Now let me switch gears and make a couple of controversial comments about the long-term political economic fallout of this. I analogize the economy right now to us all being like in a boat in a white water raft level five, so we're bobbing back and forth and eventually we're going to get to the calm seas that let's say on Glenn's chart is 2010 or 2011. But we all know that when we hit the calm seas we're going to run up against -- I was talking to Bill Gale, pick your metaphor, we're either about to go over a waterfall or we're going to hit two icebergs called Social Security and Medicare. We're running straight into them. You can see it just as clearly as you could have seen in 2004 and 2005 with the subprime crisis. Everybody here at Brookings and everybody else knows the humongous entitlement crisis that we're going to come up against. The conventional wisdom 2 years ago I would think, and it's reflected in a recent book by Matt Miller called "The Tyranny of Dead Ideas" which is a good book, by the way, I think the conventional wisdom was we're going to solve this entitlement crisis through some prudent mix of tax increases and cuts in future benefits, and the tax increase most likely is a VAT. I call that the sort of consensus view at least among a lot of my friends here at Brookings and so forth. I live now in Kansas City in the heartland of the country and maybe I've been captured by the vampires in the Midwest, but all I can tell you is I'll tell you where I think the heartland is. The heartland is people are furious at Washington. Not just the bankers, they're angry about the bailouts. They're angry about everybody getting all the money except them. That's point one. That's the reason why they don't want to pay higher taxes, and the business you see about the tea parties on Fox News, that's not a bunch of right-wing nuts. I'm going to assure you that is where America is at. People don't want to pay more taxes because they just lost $15 trillion. A lot of people -- most people are scared of losing their jobs and they're angry, and in that environment I think a politician commits suicide 2 years or 4 years or 6 years hence going out there and saying we want to promise the same level of benefit structure that we're getting, my age group is getting, to all future people, and by the way, we're going to have to have VAT to do that. I don't see that's possible. I think people are smoking dope if they believe that.

Just for example to give you an idea, even President Obama, that most that he talked about in the campaign was raising taxes on the rich. He talked about 94 percent getting tax cuts. We have a climate change policy which everyone recognizes that we have to "tax carbon," but nobody can say that. We have to talk about it in terms of cap and trade. You can't talk taxes in America, higher taxes. Local and state governments are under strain. People are bitching about that. So here's where I think we're going to end up on entitlements. Either we're going to have another financial crisis several years down the road where the foreigners on your chart are going to quit lending us the money. That's option one. Option two, in an effort to head that off, the Fed is going to buy up all the debt and monetize it. We're going to have massive inflation and then we're going to have another recession when the Fed tries to put the screws on to keep us from going over the edge. Or option three, either after the first two or hopefully preemptively, option three is politically what we're going to do is we're not going to increase taxes, is that we are going to massively revise the benefit structure of our entitlement programs. Social Security we know is much easier, but I think in Medicare what we're going to do is my kids and your kids out there are going to end up getting Medicare that is much less generous than what I and all of us are going to get, because all of us who are older are going to have our benefits protected. We know that politically. But young people are not going to get anything like the benefits we have, and therefore they're going to have to save because they're going to be on their own, and I think that's going to be the solution.

The final point that I'm going to raise is I agree with Glenn that the only way we're going to get out of this or at least recover to some normalcy in terms of growth is through a wave of entrepreneurial activity. Here I'll put on my Kaufman hat here. If you go to our website, we talk all about how entrepreneurs have led prior recoveries. Let me give you a factoid to add to your factoids. What percentage of the Fortune 500 do you think were started during a recession or a bear market? Does anybody have any guess? We've done the analysis and there will be a working paper on the Kaufman site in about 3 weeks that documents this. I was shocked at the number. Fifty percent. Half of corporate America was started in a recession or bear market, and that's true over the last 150 years. If you look at -- 500 lists which are the fastest growing companies, same thing, half of them started. So the bottom line is our future lies in entrepreneurial activity.

MR. BAILY: And finishing up?

MR. LITAN: Yes. The bottom line is entrepreneurial activity will give us this resurgence I hope, and if you go to our website, we have a number of suggestions as to how to accelerate that. I quit.

MR. BAILY: Thank you. Carmen?

MS. REINHART: I am going to only focus on a very small set of the slides, so if you see me flip through, it's intentional.

Let me group my commentary into three interrelated areas that are obviously very big. I'm just going to focus on small pieces of them. The first one is what is the right benchmark? What do we compare the current situation to? If we want to draw some lessons here about what lies in store for us, what's the right comparison? Number two, related to that is let's define where we are in those comparisons. What's the duration issue? How long do these things last? And along the way let's say something about defining recovery. And number three very briefly, very briefly, I will talk about once specific policy issue which Martin already raised that I fully agree with and I want to harp on that at the very end.

As benchmarks, in the current situation, in the past the typical benchmark has been let's look at post-World War II U.S. recessions. That's not particularly useful here. The longest recession post-war is 16 months. The average lasted less than a year. So in a lot of my ongoing work with Ken Rogoff that I'm going to be focusing on, we are argue to understand the right comparison benchmark you got to look at other crises episodes, and to look at the other crises episodes you got to focus on the severe ones because there are a lot of near crises. In principle we had a financial crisis called the savings and loan crisis during which most of the period we did quite well in terms of growth, so that's not the right -- so we focus on severe crises. Lastly, on the benchmark issue, let's go pre-war because this crisis unlike, I will hopefully convince you of this, other crises that we've had, is more global. Global is a term that has been widely used and abused, but by global I simply mean here it is hitting a lot of countries synchronously and it's hitting them big time. That's what

I mean by global. So the right benchmark is going to be something very different from what we've been accustomed to looking at when we've looked at prior recession experiences.

Related to that, let me begin by just showing a picture of where we are in the global context. This picture here looks at about 66 countries that account for about 90 to 92 percent of world GDP, and if you look at the upper line there, it incorporates every variety of crisis, banking crisis, debt crisis which right now we haven't seen yet in full scale meaning sovereign default. We may see a lot more of that beginning with but not limited to in Eastern Europe in the former Soviet Union. But it captures banking crisis, and it captures currency crashes which we have seen in good chunks of the world when there was a flight to quality of all places into the U.S. dollar and many currencies saw massive crashes in their currencies during 2008. And it also includes importantly as we're all too well aware of, the red line is stock market crashes which again highlights the synchronicity of what we're seeing.

What I want you to derive from this chart is that when you look at the current situation you have to look at the pre-World War II period to find a comparable event or a comparable scenario. This is not to underplay that we've had unprecedented, as we heard from Glenn's wonderful presentation, policy stimulus both on the monetary front and the fiscal front, but in terms of the magnitude of the crisis, it is pre-war. For those of us who became accustomed to hearing about the great moderation in which we had tamed the business cycle, we can forget about that.

So let me move on to say something about the issue of duration. The bottom line is financial crises are protracted affairs. They do tend to last. And in this context, let me say something concretely on the basis of this analysis where we currently place. I liked very much Glenn referring to the end of the beginning, and I think that's an excellent characterization. There is the issue of when you stop falling. Then there's the issue of when you actually recover. And then the third issue I'd like to put on the table there is when do you recover on a sustainable basis, and recovery and sustained recovery are not the same thing as I will hopefully highlight.

I'm not going to go through all these charts, but let me just say that the magnitude as we all are attuned to of the implosion of the real estate sector which is now not confined to residential housing but is spreading over to nonresidential commercial real estate, the typical post-World War II crisis which was not a global crisis, you typically get a peak to trough decline in real housing prices of about 35 percent. So you could say the good news is we're really pretty close to that. The bad news is that peak to trough, these cycles tend to last 5 to 6 years depending on whether you include Japan or not. Let us be fair. The peak in housing in the U.S. was the very beginning of 2006, so it's not 6 years from last year or 6 years from where we are now, it is 6 years from the beginning of 2006.

Secondly, the order of magnitude, and this makes a big point for my issue of is it sustained recovery, that nearly illegible table that you have there looks at the declines in indicators of construction activity during the Great Depression, and that little memorandum item that you see at the bottom there is the current U.S. position in which permits -- if you index permits to their peak during the end of September 2005, that index went from 100 to 23. In other words, it declined by about 75 percent, more or less. That's comparable to the declines that we saw during the Great Depression in a very employment-intensive industry, something that I'm going to talk about next.

I'm going to bypass discussing the equity market right now because it's in the interest of time. You have the charts.

Let me turn to the issue of unemployment. Unemployment is a lagging indicator, so this what again to reiterate I really did like which I will use myself Glenn's end of the beginning remark because the fact that certain indicators have stopped falling doesn't mean that there is a huge body of indicators out there that are still coincident in lagging indicators that are bound to look a lot worse. Translated into English that means I think unemployment is going to be rising well beyond the already steep increase that we've seen if these crises are any guidelines. And remember, these are benchmarks. These are guidelines. This is not meant to be replicated here to the T. Unemployment increases on average about 7 percent from the bottom to the peak. We already increased from the bottom to the peak by about 4-1/2 percent. So we're marching well toward that 7 percent in terms of the timing and in terms of the magnitude that we've seen in other comparable crises. In other words, do not rule out by any means a double-digit, 11 percent, maybe even 12 percent, unemployment rate, irrespective how the leading indicators start to turn. That's the issue of have we simply stopped falling or are we talking about recovery.

Let me turn to the issue now of really full recovery. What is full recovery? One limited way of looking at full recovery is not just when you stop falling which is as far as GDP about 1.7 to 1.9 years in the post-war severe crises episodes. That would put the bottom somewhere in the third quarter or fourth quarter of this year if you look at it from the dating of the NBR peak. However, what this slide is highlighting is that it takes about 4 years to get back to where you were before the crisis which is a broader measure of recovery. Four years isn't an infinite time horizon, but it's still not exactly what you would call around the corner. So that really brings me to, and this is an issue that was very much highlighted in the first presentation, we're highly leveraged, and one sector of the government as I will show later is becoming increasingly leveraged. You don't work down leveraging quickly, at least that has not been the experience. Martin, how am I doing? One more minute?

MR. BAILY: A few more minutes, yes. If you did another minute, that would be great.

MR. REINHART: Let me highlight that deleveraging has not been we simply grow our way out of debt. That just hasn't historically worked out. Without being gloom and doom, I think we should be very cognizant here to avoid policy mistakes of calling victory too soon. There are two lost decades that people refer to and both of them had to do with debt overhang. One was the lost decade in Latin America. That had to do with a massive debt overhang. The other is Japan's lost decade. That also had to do with massive debt overhang. If the private sector is now successfully in deleveraging mode, the government is on leveraging mode right now. If you look at the average increase between the year of the crisis which would be 2007 for us and 3 years later, the average increase during the severe financial crises has been about 86 percent. We're on track to see a much more leveraged government.

I will show one more slide and then I will end my presentation. This crisis is global meaning we do not have an obvious engine of growth. If you look at that chart, that shows from 1928 to the present world exports, and we haven't seen anything like this since the Great Depression. Again this is not being gloom and doom. These are not forecasts. These are pretty much based on what the numbers have materialized in the last few months.

Which brings me to my very last remark which is policy. I'm very cognizant that policy initiatives on the monetary and fiscal side are unprecedented and I give those policy initiatives high marks. Where I am completely on board with if I understand Martin's message is that the cleanup of the banking sector is essential and that is what differentiates recovery from sustainable recovery. Japan had a recovery from its 1992 crisis in 1995 and then it rolled over and died again because there was still a big stock of unresolved debt in the books of zombie banks. That is a scenario that is a pretty scary one from the vantage point of the U.S. So high marks on monetary, high marks on fiscal. I think we are a long way from cleaning up bank balance sheets, and I'll conclude on that note.

MR. BAILY: Thank you. Don?

MR. MARRON: Thanks, Martin. It's a pleasure to be here today. Two things I want to quickly discuss in whatever time Martin lets me have. The first is my version of the root causes of how we got in this crisis, and then second, building on something that Carmen and some others talked about, I'm going to talk about the budget implications of this which are frankly quite scary.

One of the things I really liked about Glenn's presentation is that he chose to begin with the root causes and I think that's very important as we go through a period of trying to diagnose what happened and learn from the experience. For me there are two big root cause questions. The first is what created this large initial shock from the financial sector to the economy. The second is why our economy was so incredibly fragile that that then spun over into a financial crisis and now an economic crisis.

In terms of where the shock came from, I think the shock can ultimately be traced back to in essence what was a credit bubble, that we went through a period driven by both what Chairman Bernanke has called the global savings glut, possibly some excesses in U.S. monetary authority, to basically the world was to a first order awash in money. One of the effects that had was that people were therefore willing to invest in riskier and riskier projects, credit spreads narrowed, risk spreads narrowed, and people just reached for further investments that had more risk that set the stage for a period to come where this would come to an end. Obviously the most glaring and important and visible part of that was the U.S. housing sector where we had a housing bubble that was fueled by the credit bubble. I think it's very important to point out that it's not just the housing story. The underlying driver was much broader than that. You saw excesses in commercial real estate which are now coming home to roost, you saw excesses in leveraged loans and LBOs. You saw it all across the credit environment. That was basically the fuel that led us to have a large shock.

Then the question is why was that shock so incredibly painful? If you think back to the tech boom, the tech because, the tech burst, we had a shock to equity values in the tech boom and bust that was a roughly comparable magnitude to what we had in the first portions of this financial crisis. So you're talking about things that in kind of the multi-trillion-dollar range. The tech boom and bust came along and put us into what was by historical standards a mild recession, and a similar comparable sized initial shock to the economy in the housing sector and some related sectors instead had much more dramatic effects on the U.S. economy. The question is why, and the answer is leverage, and the answer is not just leverage, but in particular leverage to short-term money.

To illustrate that I want to just use a simple example. This is a metaphor about imagining buying a house. Imagine that you buy a house and imagine first that you're someone who goes out and does it old school. Old school is you put 20 percent down, you get a 30-year mortgage. Very plain vanilla, old school mortgage. You're actually in pretty good shape. If you can keep your job, you can absorb say a 10-percent decline in house prices. You still have equity and you still have a mortgage that isn't due for 30 years and things can just keep on tromping along just fine. Now suppose you buy the same house, but instead of putting 20 percent down, you put 5 percent down, and now suppose that there's a 10-percent reduction in house prices. Now your situation is kind of in the middle. So on the one hand you are underwater on your mortgage. You're now 5 percent behind. All your equity is gone and you actually owe more than it's worth. But if you still have income, you can keep paying your mortgage and there's no one who's coming to your door saying, by the way, hand over the keys. So you're levered and the leverage in this situation is painful, but it doesn't cause you to blow up.

Now imagine that instead you as a homeowner decided to do what our U.S. financial sector did, and instead of doing 30-year money, you did 1-month money or 1-week money, and then you have this loss. There you're highly leveraged and you're underwater, and after a week or a month or 6 months, someone comes to you and says, oh my God, you need to have new money, you need to bring in new money. All of a sudden the losses that you had are realized much more quickly and in essence you blow up, and you see what we have now, this massive deleveraging going on which is incredibly painful to work through, and as Carmen's research has highlighted, something that takes a long time to go through.

Going really, really super root cause, I think it's actually interesting to think about some of the attributes of human behavior that may have caused some of this because ultimately policymakers should think about how human beings actually behave and how that may lead to this kind of behavior, and I would highlight two. The first is something that I know well from all sorts of studies in macroeconomics and we now see I think on a very broad scale which is if you do policy interventions or just economic changes that make the world appear less risky, people respond by taking on more risk. So if you give antilock brakes, they drive faster and they drive closer to the person in front of them. If you give hikers cell phones, all of a sudden they wander off into the wilderness without food and clothing and water and get in trouble more often. And if you go through a period for real economic reasons we perceived we were going through this great moderation where the macroeconomy became more stable and safer and we had dramatic and be beneficial mostly, but not always innovations in the financial sector that allowed risk spreading and risk management. You know all sorts of things to manage interest rates and other kinds of risks so that people could, you know, ratchet back their risk. But the natural behavior of humans when you do that is to then do things that increase the risk back up.

And so for example, its one of the reasons why we saw people lever up you level up more if you think the risks are lower. And that's one of the real challenges these days. And then the other, and this is something that Bob alluded to, is I think also frankly that we have to learn -- I taught at the University of Chicago for awhile. I've kind of done the free market thing. I'm now kind fo recovering from that.

(Laughter)

MR. MARRON: And you, after the tech thing and the housing thing, I think we as economists have to stipulate that bubbles happen. And then if you track it back to, kind of you know, what attribute of human behavior makes people susceptible to bubbles. It's basically, you know, its difficult forecasting the future and you know, 100 million years of evolution had made us partly extrapolators. And what you do in part is extrapolate from what you observe around you.

And when I think about for example, the housing bubble, what was the data that people had to extrapolate from?

The data was a situation, which just not that house prices went up every year but we went through a significant period in which house prices went up faster each year. And the people who were risky, who took out the ridiculous mortgages, who bought a second and third home early in that process did well and the prudent, boring people did not.

And eventually over time this goes on for a few years and the prudent people begin to have doubts and kind of, you know, late in the game they begin to get involved.

(Laughter)

MR. MARRON: And what you discover is you get these excesses that eventually burst.

And it's just, I think, a fundamental attribute of human nature that we have to think about how to incorporate policymaking. But it's hard, because you can't presume that the policymakers are brighter than the rest of the people. I'm not going to have an answer for this question, I'm just going to pose that as actually a very hard thing if you want a financial system that's robust to bubbles.

Two other quick points before Martin calls me here. So the first is, it's very important to recognize this is not purely a U.S. phenomena and U.S. crisis. Again, we're big, we're bad, we had the U.S. housing sector but if you look around, the emphasis appeared in credit markets appeared in many other countries. The U.S. was hardly alone in having a housing bubble. All right, if you look at the United Kingdom, you'll at Spain, you'll look at a whole host of other countries went through similar booms and busts. And so when you are looking for root causes it should be something that isn't purely American in nature.

And then similarly on the leverage side, we are hardly the only country that had over-leveraged financial institutions. Glenn's chart had UBS, Deutsche Bank, other folks on there. Think about Iceland.

Again, the over-leveraging was again something, not all countries did it. Right? Canada didn't. So there is something to learn from that. But, again, we shouldn't look for purely U.S.-based explanations for what happened.

And then just quickly on the budget situation. Right? Everyone in this room knew two years ago that the long-run budget situation for the United States looked just incredibly scary. Right? As time passes, all of the entitlement challenges of Social Security, Medicare, and Medicaid get closer in time. In a perfect world we would have been saving in advance for that.

In practical what we did over several years was roughly keep the debt to GDP ratio constant, obviously it went up somewhat in the last eight years. But then we've gotten this enormous whammy where we have basically three big things that have made the financial situation worse. Okay.

So the first is that we have had a much weaker economy, as a result the revenue trajectory we have going forward is lower and deficits will be higher. And then the second is we have two species of policy response. We have policy response to the financial crisis, which is very expensive in driving up the debt. And we have the policy response of the economic crisis, stimulus and related things that are driving up the debt.

And so the transformation in the U.S. fiscal posture over the last two years is just both dramatic and scary. And the best way to illustrate that is to look at the CBO analysis of the President's budget proposal recently. Right. CBO looked at that, round out the numbers, and what they have is a scenario in which the U.S. goes from a publically held debt of roughly 40 percent of GDP in 2008 to roughly 80 percent, actually slightly more when you get to the end of the window in 2019.

That's just incredibly scary. That's a period where we should be preparing for the challenges of the future of all the programs and instead we are doubling the size of the debt relative to the size of our economy and we're on a trajectory where basically the incremental interest is accumulating so rapidly that you have deficits as far as the eye can see.

And so, you know, we need to kind of pull out all of the stops and prevent the Great Depression from happening, which is not what I expect. Well, I don't expect the Great Depression; I do expect us to do everything necessary to avoid that. But at some point when we begin to get on the flat part of the U and the up part of the U, we're going to face dramatically, very challenging budget issues that are going to be, well, very hard to address.

MR. BAILY: Thank you Don. Doug.

MR. ELLIOTT: Thank you. First of all it's an honor to follow Glenn and a very distinguished panel. There's the tour de force presentation and a great set of comments, so there is a million things that I could talk about but I'm going to keep this really narrow.

First is, let me just underline from my own point of view, it's really important that we treat this as something that requires strong action. One of the things that I note that neither Glenn nor Carmen pointed out, but which scares me the most is the average of the severe financial crises, the average decline in the economy is 9 percentage points. The consensus right now is it will be about 3. You can find pessimists at 4 and 5 percent. But even the pessimists think we'll do substantially better than that average case.

Which means it's really important that we do what we can to avoid going into that.

Second, thing I'd just like to underline is certainly out in the Midwest where I am originally from as well. One of the things that is not well understood is why does the banking industry need any kind of special help compared to any other industry? And I think what is difficult to explain many times, is that the financial industry and particularly banks is the transmission mechanism by which we move money from people who save to where it's needed.

Money is the main resource that we allocate in our society. Well, perhaps it's up there with labor, but any event, it's a main resource and having that done effectively is very important to the economy actually functioning the way we need it to function. So that's why when as Carmen has shown, you have severe financial crisis that creates or exacerbates a recession. It's so much worse than just a normal recession.

So going to what Martin was talking about. It's important that we don't limit the nature of our response unnecessarily. So moving forward. What is Administration and the regulators who are working hand-in-hand, what are the main things they're doing?

They've got four pillars. First and probably most importantly, they have been doing things to recapitalize the banking system so that we don’t hopefully have major insolvencies and so that the banks that survive will be in a position to make a large enough volume of loans. In aid of that, the second pillar is to try to remove or neutralize the effect of the toxic assets that are sitting on the balance sheets of many of these financial institutions.

The third thing is, and this was also referenced, is much of lending in the last few years –- it depends on how you measure it, but something like 40 percent of lending was actually done by the shadow banking sector mostly through securitization. I don’t recall seeing a chart, probably it’s one of the slides we forced Glenn to pull, but if you look at the level of securitization now compared to a couple of years ago, it’s virtually vanished.

So what we wish we had was a strong enough banking sector that it could have stepped forward and lent substantially more and just held it on its books. Instead we haven’t been in that position, so the third pillar is to have the Federal Reserve with some help from the Treasury Department step up to basically provide substantial amounts of loans to help restart the securitization market. And then fourth, because housing clearly is a critical part of this, there are the efforts that are being made to mitigate the problem of foreclosures on mortgages. So those are the four things that are being done.

Interestingly, there are three things that aren't being done. There are pros and cons of them, but a key thing that is true about all three is they'd require a larger commitment from Congress. And I think that's a key factor of why they are not being done.

The first is nationalization. There are those who feel that some of our largest banks are in so much trouble, that the government does need to step in and say you are effectively insolvent, as we do with other insolvent banks we're taking you over, restructure you and as we can get you back out there.

I'm personally leery of doing this except as a last resort for reasons I've written about extensively. But it could be we're going to have to do it and a problem we have now is there's no money to do it. We've largely used up the TARP money that's been authorized. We could maybe do one, but part of the problem is if you do one large nationalization, it's going to be difficult to stop at that point without taking out some others.

A second thing that's been proposed is a so-called good bank, bad bank where the government basically would take on much of the toxic assets. You need a lot of money to buy the toxic assets even if you hope to get most of it back over time. Again, we don't have enough TARP money to do that.

And the third thing that's been discussed and one of my favorite options, is to allow the bank to keep the toxic assets if they really do believe in them but force them to buy guarantees from government so that we know that the value won't drop more than maybe another 10, 20 percent whatever the cutoff is that we need. But again, that takes a large level of financial commitment.

So I would just want to emphasize the point that Martin made. Well, let me put it maybe another way, which is we're in a really deep hole. Every solution we face is ugly. We're going to have to show political courage here, either now or later. It will be more effective if we show it now. And one thing that would help is if the government had greater committed resources at this point, because as you can clearly see the choices they're making are heavily constrained by the $700 billion of TARP minus the very large amounts that have already been committed.

It's an artificial constraint and I think it's one that's harmful. So I will leave it at that.

MR. BAILY: Thank you. Well, I think there is a fair amount of agreement. I don't want to exaggerate it but this is going to require more resources.

Let me just point to a couple of things that came out of this. Glenn mentioned and other people mentioned, Don, that part of the reason we got into this is because banks borrow short and lend long. And so one question I have for people is, isn't that what banks do? Isn't that what banks always do? Do we want to stop them from doing that? I'm not quite sure of the implication of that point.

And then a second issue that came up that I wonder if I could get a response to, Canada didn't have the problems. On the other hand any study of Canada done a couple years ago would tell you that this was a lazy oligopoly. It was profitable. It was not innovative. Even though I think Canada invented the Gaussian copula that got us into so much trouble, but they didn't use them that much.

So do we really want to turn the clock back so that have the kind of lazy oligopolies that we used to have in many country rather than a dynamic, innovative financial sector? So let me just throw those questions back to the panel.

Does anybody want to take them on?

MR. ELLIOTT: Real quickly. I only raised the Canada example as just evidence that regulators can do their job, not anymore than that with clearly one or more dynamic system and a more innovative system and we want prudent innovation. But I just simply advanced it for the proposition that regulators if properly motivated and instructed can actually do something--

MR. BAILY: Do you think the regulators did it right in Canada?

MR. ELLIOTT: Well, let me--

MR. BAILY: To have this persistence, underperforming sector in certain senses?

MR. ELLIOTT: Well, Canada was stuck with five banks basically, historically, for a long time. And at least the one good thing about having a limited number of banks and this sort of is a counter-argument to the excessive concentration point.

If you only have a few eggs in the basket you can watch the eggs pretty carefully. And so they were able to do that.

Secondly, just on the borrow short and lending long, I think Don would agree with this, too. Of course, we want to continue that, it's just that when they were lending long and they were lending stupidly.

MR. BAILY: But that's the key issue; right?

MR. ELLIOTT: Yeah.

MR. BAILY: It's the quality of the portfolio.

MR. MARRON: It was the quality, but there was also the whole shadow banking system transparency issue about it. Which is, for those of you who lived through this, for me an incredibly painful period where every week or two we learned about a new acronym and it was structured investment vehicles, auction-rate securities, asset-backed commercial paper. All of which were these incredibly complicated things, which when you looked under the hood they were all basically structures largely off balance sheet to, you know, borrow short and lend long, that didn't have any sort of oversight or transparency, even the corporate management.

I mean, I felt I was under the misperception that I was a financially sophisticated guy when I went into this and then, you know, learned about all of these structures that I had never heard of. I did take a little solace when I talked to the senior management of financial firms and discovered many of them knew nothing about these as well. And I think that really exacerbated the challenge.

MR. BAILY: Glenn, yeah, please.

MR. HUTCHINS: I think an answer to your question and a bit of commentary. One is that the banks, the short-term lending most banks have had historically has been deposits. In other words, the classic capitalization of a bank has been the short-term deposits and then a longer term financing for the capital structure of the balance sheet.

And I think the thing that was relatively new is that they went into the short-term markets. That's a relatively new phenomena. But remember in the '30s we discovered that bank deposits were short-term financing, too and we solved that problem. So I think that's one thing I would say.

But the other thing, so that's kind of the answer to your question is that the bank model does not necessarily mean it has to be short-term financing and hasn't always been that way. That was a relatively new phenomena in this market episode.

The other thing that I would point to you though, it's an interesting is that, you know, you saw the commercial paper market is also accessed by investment-grade U.S. corporations and a number of very large businesses finance themselves that way and they are investing in assets at a much longer term. They are called plant, property, and equipment than banks that might just be financial instruments that could actually be traded, you know, in liquid markets.

The big issue right now, I think, facing us, one of the next things we're going to have to deal with in the future is that a lot of the Fed and Treasury actions so far has focused on the mortgage markets and the other politically attractive markets like student loans and small business loans and whatnot. And the corporate sector which has longer term financing is beginning to face maturities and redemptions of their own. And other than addressing the very short-term markets, which the biggest companies couldn't operate about, we also have this other piece.

So the corporate loan market is the, and by the way you know people say the start-up companies are where the new jobs are, but all the existing jobs are in existing businesses. And I think that's a big market that we haven't addressed. I think CMBS is the next one to come, I think bob pointed that out and the one after that is the corporate loan market.

MR. LITAN: Yeah.

MR. BAILY: We've got Tony Downs in the audience, one of the world's leading experts on real estate.

MR. DOWNS: Well, I would like to point out that the banks were for a long time borrowing short and lending long and holding the mortgages. But in this episode the switched to securitization, which means they don't hold the mortgages. They divide them into -- they put them into a pool. Make tranches out of the pool, sell the tranches and they no longer have any skin in the game. They can either use their Reserve requirements that they were holding against those securities to start another round of loans.

So that was a tremendous difference in the way we financed housing in this cycle than what has happened in the past. And that was made possible by deregulating the banks in part so they could that. And so they could sell securities and I think that gave the incentive to the bankers who no longer cared what happened to the loans after they sold them to somebody else since they had no part of them.

And one of the things that we have to change in re-regulating is to make sure the people who securitize things have some skin in the game by holding on a lot of those securities and keeping them on their books. But that was tremendous difference that caused the irresponsibility of the banks that wasn't present before we had that system.

MR. BAILY: Well, both Bob and I, we've written together on the need to have a certain amount of skin in the game. Now going back to the old days where you just had a Savings and Loan that lent locally and then went broke when the local region collapsed. That model didn't work so well either, so think we've got to find a compromise because securitization is a great invention. It's just if it completely takes the incentives away to check the quality of the loans.

MR. TALBOTT: Martin.

MR. BAILY: Yes.

MR. TALBOTT: If I could, I have a point that kind of touches on what several people have said including the question Frank mentioned earlier.

As it has already been confessed, I am a former investment banker so I am coming at things from that perspective. One of the things that has really struck me is a major cause that hasn't gotten as much attention of the financial crisis is the markets were working really well. And so what happened was people in the financial industry and the real estate industry and all of the related industries grew to believe that they could do increasingly complicated things.

And in complete reliance on the market to operate in the way it does when you don't have a crisis and lost track of the fact that markets have periodic crises in which case you are in real trouble if you assume they are going to work.

MR. BAILY: Right. That's a little bit what Don was saying earlier, is that you make things safer and people push out the (inaudible).

MR. TALBOTT: Yeah.

MR. BAILY: Yes, question.

MR. KUROWSKI: Yes, I'm Per Kurowski, from *New Rules of Global Finance*.

Brief questions. June 2004, the G10 and Ministers endorsed and signed the Basel regulations that authorized banks to leverage themselves 62.5 times to 1 as long as the corporate borrower was a AAA rating. 62.5 to 1. And this was officially authorized and the world did not react to that. That is, we're not talking about blames, but we are talking about trying to understand what is wrong in trying to raise your hands when we let things happen. 62.5 to 1. 1.6 percent of capital for each 100 borrowed. This authorized by the Basel Committee. Signed by the G10 countries. It's mind-boggling.

The question I wanted also to ask is we are now facing so much of the premises on the whole thing that the American consumer, having been over many years, the consumer of last resort in the world will, and is able to turn around and present himself as the taxpayer of last resort.

How much credibility can we give to such a hypothesis? I have very big doubts that the American consumer really wants to raise their hand and come up and be the taxpayers of the last resort for the world.

Thank you.

MR. BAILY: Well, I think that's what Bob Litan was saying, so I don't know, maybe in a short treasury or something.

PANELIST: A lot of people are doing it.

MR. BAILY: Anyone else want to respond to that question?

MR. ELLIOTT: Well, I guess the one thing I would say, in the short run they're not being asked to be the taxpayers for the world, because in the short run we're going to run into gigantic deficits and kind of “the ask them” is coming out a few years hence.

MR. BAILY: Belle Sawhill.

MS. SAWHILL: I loved Bob Litan’s three possible options for getting out of the tremendous debt we’re going to have. One is another crisis because the foreigners stop lending to us and second was monitorization, and the third was, what is the third? Oh yeah, restructuring entitlements.

And he didn’t think that taxes could be part of that solution given what he sees from Kansas City and the tea parties and having been to 45 cities or so in this country as a part of the Fiscal Wake Up Tour. I have a lot of sympathy with that view because we hear the same thing that you are hearing in Kansas City, which is there’s this tremendous hostility towards government spending and raising taxes to pay for it.

However, I do think there is some merit to the value-added tax idea, which you rightly pointed out I think is usually part of the conventional conversation about this. And it occurs to me that it does something Martin that I think you didn’t want to address, which is maybe that taxes are going to have to go beyond just the rich if we are going to deal with this long-term. I mean, you were sort of talking short-term.

And further more, the important thing about value-added tax is that it would help us to restructure and reset, going back to I guess

Glenn's theme, from a really over-leveraged economy to one that consumes less and saves more and if we can't get this debt under control quickly, which we won't be able to do, better to be paying for it with our own savings rather than the savings of foreigners.

So I just want to challenge you or Don or Martin or anybody else who wants to speak to that issue.

MR. MARRON: Look, I mean, I -– Bill and I are longtime friends and I certainly agree with you that VAT has got a lot of merit. I think if we every get a VAT it will be on a revenue neutral basis and we'll reduce the income tax.

I don't see it as a supplemental source of revenue. That's just my own personal view, just based on the politics that I see.

MR. BAILY: I agree with you Belle. We're going to have to raise taxes more broadly, but I pity the politician.

SPEAKER: I have to say that one way or another it's more taxes. The inflation is a tax if we go that route. That's a fact. It's a road in your savings, so you're being taxed. If it doesn't go to the route of inflation it will be another form of tax.

If you look at the historical experience, unless you are willing to default and restructure your debts which at this moment we're not contemplating, the way that debts have been dealt with has been painfully, using the example of Canada. Canada had a serious debt problem that they've managed to tackle by cutting back on expenditures but also by raising taxes.

One way or another, I have resigned myself that we're in for tax increases.

MR. BAILY: Yes.

SPEAKER: Zho Chen (inaudible) correspondent.

Could anybody say clear and simply where did those lost money went? And why President Obama want GM restructured, but not bank.

Dr. (Inaudible) just tell us that clean up bank is very most fundamental and important. Thank you.

MR. BAILY: Where did the money go? Well, I'm not sure we had it in the first place. We overpriced assets and then they fell in value.

PANELIST: Yeah, we had a massive flight from equities and houses into cash. And the result of that is a tremendous drop in the value of real estate and equities. That's basically what happened.

MR. BAILY: It's still the same house, just not worth--

PANELIST: It's still the same house, right. Just a massive flight to cash. Somebody else take the GM question.

MR. BAILY: Frank.

SPEAKER: Just two points of clarification because I think it's very important in the ongoing discussion on this borrowing short and lending long. I think you will find every financial crisis is based on some form of borrowing short and lending long. We just call them innovations each time we do it.

But there are two aspects of borrowing short and lending long and I think they have to be distinguished. One is the danger of getting a mismatch, where the short-term rates rise higher than long-term rates. We didn't have that this time. We've seen that before.

The other aspect of borrowing short and lending long has to do with access to the market. When you borrow short and if you don't have an alternative access to the market, you end up with the inability to finance your balance sheet. That's not an interest rate problem, that's a fundamental problem that goes to your capital structure.

In the past if you were issuing commercial paper, we thought it was a very efficient market and working because of the underlying credit of the issuer. But in fact when I was an investment banker all commercial paper was backed up by a line from a bank so that if for some reason you lost market access it was converted into a bank loan. And because banks could always go to the Fed, it was never a fear of the loss of market access.

But now what we have seen in the recent years, particularly with the asset-back commercial paper, a falling away of the bank lines where the only way you have to finance yourself is to have market access. This was the fundamental problem of allowing investment banks to leverage up more. That when investment banks lost access to the market we did not have bank lines to back it up; they immediately had no capital structure.

And that is the new thing. I think that we need to make sure that that remains in the discussion. Market access is a totally separate issue from the issue of whether or not you get upside down. The other point of clarification and this goes to Tony Downs point.

It actually would have been much better if the banks had securitized and had not kept any of the risk. But what they did was they securitized and then they went out and bought securities and put them on their balance sheets. And so if you look at the major losses that have been suffered by financial institutions, it was from their actual ownership of the asset, ownership of the securitized entity.

In fact, even the entities that you thought were just securitizers like Countrywide, they had an enormous number of asset-backed securities on their balance sheet, which caused them to become insolvent.

So the process of securitization does not cleanse you, you always have to say and who is now holding the bag? And quite often the securitizer's left holding the bag. Indeed, they were holding the worst securities because they couldn't sell them to anyone else, even though the rating agencies had assumed in all of their models there would be a market test. Oh, who is going to buy the B piece? But when you see a securitizer holding the B piece, run. Because that means that nobody who is independent has assessed the risk and the securitizers by definition don't have the capital to carry that kind of risk.

PANELIST: As Glenn pointed out Frank, $400 billion of those securities were bought by the SIVs, which ended up back on the bank balance sheet. So it wasn't just the banks, it was the SIVs that were buying them, too.

SPEAKER: They were the banks.

PANELIST: I know that. That's when we found out they were the banks, yes.

MR. BAILY: Tony wants to make a comment and then I think we'll close.

MR. DOWNS: One of the effects of deleveraging is it reduces the capacity of the banking system or the financial system generally to make loans. And if you are going to drop from 62 to 1 to 50 percent loans or whatever you coverage ratio is, 10 percent. The whole capacity of the banking system to make loans is going to shrink tremendously and has shrunk. And that's one of the reasons why they are not making loans, is they don't have the capacity to make those loans.

And I think many people have not recognized that's an inescapable result of deleveraging.

MR. BAILY: The banks in the United States did have 61. They had not much more than 10 to 1, the investment banks got up to about 30, but Federal Reserve Banks--

PANELILST: No, no.

MR. DOWNS: A lot of the off-balance sheet subsidiaries of banks had very high leverages, and they were owned by the banks that just weren't reported on their balance sheets.

MR. BAILY: All right. One final quick comment.

MR. KUROWSKI: Very brief observation. The problem with the Basel regulation was that they risk-weighed the assets.

PANELIST: Right.

MR. KUROWSKI: So when the bank has $500 in AAA assets, they only take it at 20 percent. They only record it as 100. So when you see your 10 to 1, that is not a 10 to 1. The real one is way different.

MR. BAILY: Okay. Fair enough. All right on that note, thank you all for coming and thank you to the panel and to Glenn for a perfect presentation.

(Applause)

* * * * *

CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

/s/Carleton J. Anderson, III

Notary Public in and for the Commonwealth of Virginia
Commission No. 351998
Expires: November 30, 2012