INTERNATIONAL MONETARY FUND

RETHINKING MACRO POLICY III - AM SESSION

Washington, D.C.

Wednesday, April 15, 2015

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P R O C E E D I N G S

MS. LAGARDE: Good morning, to all of you. And thank you very much for the organizers of this conference. And I'm particularly thinking of those who are sitting in the front row, and I think it is co-organized by the IMF, with the leadership of Olivier Blanchard, Professor Rogoff, Professor Summers, and the Governor of the Central Bank of India, I think, are the co-brains behind this exercise.

It is the third conference on Rethinking Macro Policy, and clearly this conference is part of a much larger conversation that is ongoing, about how the global financial crisis has changed our views on macroeconomic policy. In order to collect thoughts, this conference takes place every two years, and it has generally led to provocative statements, points, views, ideas, and always very interesting outcome.

Keynes is often quoted as saying "When the facts change, I change my mind. What do you do madam, or sir?" There are actually doubts as to whether he really said so. But it does matter, because it's really intended to express the context in which those conferences are taking place.

At our first conference in 2011, the world was still reeling from the crisis. Policymakers and academics were just starting to outline the many ways the pre-crisis policy consensus had been shattered. Two years later, in 2013, the Euro crisis aftershock was fresh on everybody's mind. At the same time, now policies were being experimented with, and extensively debated. We had the sense of direction, but I'm not sure that we all knew exactly what the destination was.

Today, our focus is going to be on how much progress we have made since 2013, both in our practice and in our thinking. What are the areas in which we are reaching a new consensus? What are those areas in which we have, yet, to move forward?

These are questions on which each of you on the Panel, but each of you in the room as well have views, perspectives, and bring unique vantage points, because you either come from academia, or you are policymakers, or you are a combination of both. Or you are just very interested in those issues.

I will not attempt to draw any conclusion of the work that is going to done in the next couple of days. What I would like to do, as a very modest contribution to your thinking, is outline for you the three areas where I believe that the IMF has slightly changed in terms of its own perspectives, and has revisited its views, based on the tumultuous years that we have just been navigating together.

Let me start with fiscal policy. As you all at the outset of the crisis the IMF recommended a global fiscal expansion in order to avoid another Great Depression. It was this famous call for the 2 percent. And although the worst was avoided, the combination of large fiscal stimulus and a large fall in output as well, led to large increases so public debt in many countries. And attention shifted at that point to, how do we stabilize those debt ratios? And here our advice has evolved.

For countries not facing market pressures, not facing market pressures, and with credible medium-term adjustment plans, the Fund emphasized gradual deficit reduction, recognizing that fiscal multipliers were likely larger than previously thought.

Now, of course, many questions remain. Composition of the fiscal adjustment, desirable of safe levels of debt, and deciding on the appropriate degree of gradualism, which is, of course, a difficult issue, and those are still the questions. More recently, still in fiscal, the Fund has called for judicious increases in public investment, to provide a boost to growth in countries that have fiscal space, and that have large infrastructure gaps.

I would like to add that we've also recommended that these investment projects be carefully selected and efficiently managed in order to safeguard fiscal resources. But here is another area where our advice has evolved. Now, moving to capital flow management, which has also been an area of intense scrutiny in recent years.

The crisis reaffirmed that international capital flows can be very volatile. Emerging markets being particularly vulnerable, countries have experienced a wide range of responses, for its interventions, macro-prudential measures, and even in some cases, capital controls.

So the Fund here, has advocated a balanced approach, based on maintaining policy discipline during the inflow phase to ensure the economy is resilient when the outflows occur. Forex accumulation and macro-prudential measures can be applied, and even capital controls if nothing else works. But neither of these should be substitutes for macroeconomic adjustment if the latter is needed.

Each and every word matters in what I've just said, because these positions, as you can imagine, have been heavily debated within our own institution. Many questions remain, such as the best way to combine these tools and the extent and pace of capital account liberalization. I have to add on that particular point that we continue to discuss new ways of looking at those issues.

Last but not least, monetary policy going forward, and here there are more questions than we have answers, for the moment, which is the reason why this conference is going to be very productive I'm sure, and will help us.

One issue concerns the actual objective of monetary policy. Medium-term price stability must remain the primary objective. But the crisis assured that it is not a sufficient condition for macro stability. Additional objectives such as financial stability may play a great role than we have thought in the past. These additional objectives should be targeted with new instruments such as macro-prudential tools, for instance. But we still do not know exactly which tools, when to use them, and actual effects they produce, and we are still grabbling with how best to coordinate, monetary, macro and micro-prudential policies.

So as you can see, in all these areas there is a lot of thinking at work, and to continue to make progress, we will remain open to new ideas and perspectives, and we certainly don’t pretend that we have all the answers, which is really the reason why this conference, like the conference in 2011 and 2013 is key to help us evolve in our thinking, and hopefully will help you in considering various alternatives.

So, I'm going to stay for a little while. I have quite a lot of further demands on my time, but I want to stay a little while, to have the benefit of this excellent Panel that is going to debate now. So I'm going -- no, I'm not sitting with you. I want to see you from the room. Thank you very much.

(Applause)

MR. VOLCKER: Well, thank you, Managing Director, we will launch forward into the first of the groups this morning. You know, I've been away from the things that you are concerned with for some time. So, I particularly am delighted to have some chance to be with you, and observe what's going on.

I was struck right off the bat by Rethinking Macro Policy III, having been away, I was wondering what Macro Policy I was, and Macro Policy II was. And I'm told it had something to do with the fact, indirectly, that old-fashioned macro policy has its limitations, and we do have a financial market.

You know, my own personal philosopher, and old New York Yankee baseball player, named Yogi Berra, who is famous for saying, "Déjà vu all over again." And when I look at what's going on, I don’t think it's quite déjà vu all over again, it's a more intense, disturbance in the markets.

But another comment he made is my watchword, and he said, "You can observe quite a lot just by watching." And I've been watching this, and one thing I've been watching -- welcome, a dramatic introduction -- You know, macro policy, or macroeconomics has not been doing very well.

I do not recall a time when macroeconomists have actually projected a recession, and we've had lots of recessions, and we've had big ones, and they told you that something has been lacking, and I think it's now understood, and these models didn’t take enough account of financial markets, and the influence of financial markets which should be uncertain and volatile on the real economy.

So, this session, I suspect is meant to deal with -- help with that barracuda, and what's been going on, and my job is to introduce three experts in the area. Starting, we put you first in order, so I'm glad you finally arrived after all.

MR. ACHARYA: Finally, yes.

MR. VOLCKER: Acharya, who, as you know is a prominent Professor at the Stern School in New York, and before he was at Stern School in New York where he happened to get his PhD, he was at London Business School in London, where he spent part of his time, advising the Bank of England, and so he is a man right out of the financial community, so to speak, to help fill in this gap in finance thinking.

And I'll go on and just introduce the others, so we don’t get interrupted in the flow of the conversation. Admati has become a well-known figure, she is about as far away, in physical locations, from the financial markets as you can get, 3,000 miles away, off in the West Coast. But she is rather well-known for some strong views in the area of financial regulation, and particularly capital.

I was struck on the luncheon, Sunday was -- a grandson, a grandson of mine, a young man who will be spending his first year at a big Wall Street firm. And I asked what he was doing, and he says, we are working very hard to tell our clients about optimal capital structures. What occurred to me is Anat may have a different idea of what an optional capital structure in fact is. So we look forward to that.

And then we have Philipp Hildebrand who, I'm sure many of you already know, out of the financial markets, a son of financial markets, in Switzerland, in banks, caught up in the middle of the crisis with Swiss banks, and he's President of the Swiss Central Bank. Given his reaction to the crisis, he won the title of the Leading Central Banker in the world, particularly here, so I need say nothing more about his participation, other than he now is in a somewhat in part of the financial markets in Investor Management in BlackRock, so he brings that perspective.

So we can start with you, Viral. Tell us what's going on in the world, and the contrast between what's going on in Europe and United States.

MR. ACHARYA: That’s great. Thanks, Paul. Good afternoon, everyone. Sorry I'm late, 6:00 o'clock was cancelled but I've just made it in time. So, I wanted to talk about a comparison between the United States, Europe and Asia, in terms of the vulnerability of the financial sector as in these parts of the world.

So I think many of you know that -- and why we run this thing called Volatility Lab, VLAB. One thing we do there, is we've built sort of a thermometer for the health of the global financial sector. Like all thermometers it doesn’t tell you exactly what the health of the financial sector is, but I find it very useful to track it over time, compare it across firms, compare across different parts of the financial sector, because what it does well, is what a thermometer does, which is to show you interesting trends as a first diagnostic tool. And once it shows some interesting trends then like a clinician we go and investigate further as to what is really going on.

So, just a quick word on what exactly we are measuring, and I find it useful to talk in the context of that, because I think I want to be a little more precise as to what I mean by vulnerability of the financial sector. So what we do at this NYU VLAB site is essentially run a market-based stress test. So we are not regulators, we don't have the luxury of knowing the precise assets and balance sheets of the financial firms.

However, we, for the publicly-traded financial firms we can get a handle on what exposure do these stocks of the large publicly-traded financial firms have to a global market downturn. And the question we ask is rather simple, if there was a 40 percent global stock market correction, that is the kind of shock we witnessed during the Great Depression or the Great Recession over the next months, will the stock of a particularly financial firm have market equity left, in order for it to be deemed as safe by investors?

Now, how do we deem a financial firm is safe by investors, it's a very difficult question, so we are somewhat pragmatic on that part, we just say, let's look at what JPMorgan's capitalization was in fall of 2008. Well, let's look at what (inaudible) capitalization was in fall of 2008 and fall of 2011. This is not to say that these firms will remain safe forever, but at least they were safe at those points of time, and then we are going to subject all financial firms to the levels of capitalizations that these firms had in those stress situations in this future stress that we are talking about.

So, essentially we have -- we've come up with a measure of capital shortfall of a financial firm in case of a large shock over the next six months. It's a scenario like a stress test, of the magnitude that we had witnessed in the Great Depression and the Great Recession.

Okay. So whatever I'm going to talk about in terms of comparing the health of the financial sectors in the United States, Europe and Asia, is going to be in the context of this measure, and then some further diagnosis that we have undertaken using balance sheet analysis of financial sectors in these countries.

So let me start with the U.S., where perhaps there is progress on this front. And there's progress in the following sense, so if you look at this measure of the capital shortfall of the United States, publicly-traded financial sector, we get that in fall of 2008, Jan. of 2009, the capital shortfall in the sector was in the order $1 trillion in terms of market value of equity.

The financial sector in the U.S. needed about $1 trillion of capital, is our estimate based on these numbers. And I find that number interesting because usually the numbers that we get through this market-based stress test are deemed to be too high. But it seems that in fall of 2008, Jan. of 2009, these numbers actually look of the order of the TARP injection that was put in place for the United States financial sector.

And for me, that gives me some confidence that these numbers are not completely off the chart altogether. Now that number was at $1 trillion, it came down very steadily after the first regulatory stress test in the U.S., post crisis, which was the SCAB exercise, then several billion dollars, about $200 billion of private capital was raised on top of the $750 billion of capital that was injected into the U.S. financial sector. And more importantly, the stress test worked in the sense of having -- it seemed that the institutions that were deemed as weak by the market were actually the ones that were identified as being stressed in the U.S. stress test, they raised capital.

Not just them, but because that changed the overall levels of volatility in the United States to come down quite dramatically, even those institutions that were deemed to be safe in the stress test, actually raised a lot of capital, because it actually became a good time to raise capital for these firms. And since the annual stress tests, some measures through the Dodd-Frank Act, such as requiring that all the U.S. firms meet a simple leverage ratio, just assets to their book equity of not greater than about -- I think about 16, so 5.5 percent in terms of leverage ratio, of 16 in terms of assets to equity ratio.

All of these measures seem to have stabilized the U.S. financial sector, to the point where our current estimate is that if there was to be a big global market correction, the U.S. financial sector will actually need less than 200 billion of capital. And that's off the scale that our capital shortfall estimates are for the U.S. in January 2007.

So our estimate is that the U.S. has

actually come a long way as far as reducing the vulnerability of its financial sector is concerned, to a big macro shock, at least the we are measuring it through this 40 percent global market ratio.

Now, and so while the reform process in the U.S. might seem a bit here and there, maybe not perfect, we are concerned maybe it's politicized to an extent, at least in terms of this narrow perspective, or does the financial sector have enough capital to deal with the future shock. It seems the reforms have actually succeeded in my view.

Now this is not say that other reforms such as fiscal reforms, the fact that U.S. has greater capacity to deal with housing sector problems than other parts of the world, because of the agencies, and so on, it's possible all of these thing have contributed, but in a nutshell, my sense is that the capital situation of the U.S. banks looks pretty good.

Now, let's switch attention to Europe where I would say, in my opinion, there's a lot of confusion about what should be done and whether they really solve the problem of under-capitalization of the financial sector. So for Europe, it seems that it just didn’t have one crisis, it has had two crises as per our measure, because both in fall of 2008, early 2009 and in fall of 2011, our estimates for the whole European financial sector is that it needed about, between 1 to $2 trillion of capital injections.

But you know, this is not surprising because all put together, Europe is actually a larger GDP base than the United States. So if our estimate for U.S. was of the order of $1 trillion, it's not too surprising that the estimates for Europe as a whole were actually much, much greater. And what's interesting is that while the number comes down a bit from Jan. of 2009, it never really comes down as much as it did for the U.S.

And in fact, it starts picking up sharply from end of 2010 until fall of 2011. Since then there is a steady decline, but even now the capital shortfall estimates for Europe are much higher than they were in January 2007. They are actually halfway between Jan 2007 and fall of 2008, it sort of looks like you are kind of still at the Bear Sterns kind of moment.

Now, of course the trend is right, so things have been stabilizing since fall of 2011, especially since the ECB measures have been put in place. But the reason why I still think it is -- there's a lot of confusion in Europe is because the stress tests in Europe in my opinion, in spite of, you know, all the best efforts of the central bankers there, simply haven't done the job.

And I think the confusion is that in Europe there is too much -- Europe has too much wedded to the Basel regulatory risk rates, and they have the problem that these risk rates simply don’t change over time, they are extremely static, there is everything about the financial crisis, is the fact that the risk of some asset class has actually changed over time.

Something that you thought was stable in the system was well capitalized to deal with, is no longer safe, and the system is no longer well capitalized to deal with that risk. So you can take residential mortgages, you can take mortgage bonds; you can take the sovereign periphery sovereign debt. The risk rates on many of these asset classes have simply not changed.

There is the additional problem which is that for many large banks, a lot of the capital calculations in stress tests are based on internal risk rates, because they are not in the standardized system, they are calculating their own risk rates, and I think this is a -- there a lot of room for gaming here, so many large banks in big countries in Europe look about one-fourth in terms of risk-rated assets, compared to what their total balance sheet size is.

And unlike United States, Europe is not subjecting the system to a simple leverage ratio. It's not saying that no one can have assets to equity that are higher than say, 16, or 5.5 percent that is required by the Dodd-Frank. Now all of this, what this does, is that bank in Europe in every stress test, look fantastic in terms of regulatory capital requirements, but we have essentially asked of banks for very little capital in Europe until now.

Now, therefore what this has done is that the entire onus of reform is basically on the central bank, and the only way it can save the system is by propping up asset prices, at least that's sort of my way of thinking about it, which is that you can basically go be the lender of last resort, be the purchaser of last resort for everything that looks troubled, in the process the asset prices go up, so the banking system, that parts of the banking system that are owning these assets gradually start looking good to the market, because the Central Bank is actually giving a put option for all these assets.

Now, so in some sense the trend is right in Europe, but the reason why I still think it's confusion is because I think this is not going to lead to a path for real progress, real economic progress, which is on the same track as the United States. The reason being the following: which is that once you follow, once the Central Bank is forced to go down the path of propping up asset prices, it changes the incentives of the financial sector as to what they should be holding on their balance sheets.

They want to hold assets that they can readily pledge to the financial sector to the Central Bank in case there is any further shock or funding problem, and indirectly by not lending against the real assets, or not purchasing the real assets, the Central Bank has effectively given incentives to the financial sector to actually not end up loading heavily on those assets.

So what all data seems to suggest in Europe is that the real sector in Europe is actually getting crowded out in terms of lending because the financial sector prefers lending in terms of mortgages, and to the sovereigns because that’s the favored asset class for being pledged to the Central Bank at this point.

So it's possible the Central Bank, by being a really large purchaser of assets and large guarantor of assets, can actually prop up the system enough and create some sort of a virtual cycle, but I think the evidence seems that it's going very slowly as far as the real sector is concerned. So I think this confusion, in my view, they could have used the stress test more powerfully, as the large parts of the financial sector to raise capital, but I think they sort missed the boat, unfortunately, there.

Let me just talk very briefly about the last part which is the Asia -- sorry, I was going by the timing over there -- which is that in Asia you see a completely opposite cycle which is, Asia looks like what United States was in 2002, 2003, leveraging up dramatically, especially by loading up on debt in the financial sector. And I think the poster child here is, of course, China. If you look at the debt in the Chinese financial systems since fall of 2008, it looks dramatically high.

Under other measure the Chinese financial sector had absolutely no capital shortfall in fall of 2008, it was actually superbly positioned at that point of time. That’s no longer the case. The capital shortfall of the Chinese financial system looks now of the order of 6 percent of its GDP. And I think that slowing growth, slowing housing prices, slowing investments into the Chinese economy, it's not clear that this is easy problem that’s going to be managed.

So, my sense is China is a case of, perhaps, intentional confusion which is that they followed a case of just fiscally stimulating the economy through the state-owned banks to take on massive debts, massive debts on balance sheet, massive debts off balance sheet, but it's not clear whether there can be a safe landing here.

Now, it's still a small proportion of GDP relative to say, some of the countries that got into trouble. These are state-owned banks, so if they want to clean up the mess, and want to recapitalize the banking sector quickly, I think there is greater capacity to do this, than it is with the private financial sector, but I think it remains to be seen. But at least in terms of the raw numbers, China looks actually the most vulnerable and large part of the global financial sector at the present moment of time.

Let me just sum up. So if you'll compare the United States, Europe and China, it's very clear that one has to pay attention to the leverage or the capitalization of the financial sector, it's also very clear that you will be careful about how you are measuring these things, you can't be too wedded to the regulatory risk rates, especially if they remain static for a very long amount of time, and they are no longer reflecting the market risk of the assets.

And the last point is that we have an intentional, sometimes a suggested policy of getting leverage into the financial sector, to prop up growth, I think we are to be very cautious about this as the Chinese tale seems to suggest. And let me stop there. Thank you.

MR. VOLCKER: Thank you very much. I was going to accuse you of being very optimistic when you started out, but you've corrected that impression pretty effectively. When you talked, a big emphasis on capital requirements, I want to turn to Anat, which is the Queen of capital requirements.

MS. ADMATI: Thank you. I really appreciate being here, in fact it touched on all the big words here, macro, progress, confusion, and this session titled Systemic Risk and Regulation. So, systemic risk, start with that. What is that?

I'm going to agree with Viral, of course, that leverage is very important. I'm going to agree with him that risk rates are problematic. I will not agree though with the approach of just having enough of some kind of a scarcity, and maybe it's because I come from Silicon Valley, my standards for how to take risks are different, with what kind of money to take risks.

So I come at it a little bit differently, but let's start to unpack the issues. System risk is a sort of risk to the system, and that means that either the real economy had a shock that affects everybody in the system, or that this system affects the real economy or as we've seen that the system has within it certain dynamics that have nothing to do with the usual macro shocks but that can affect the macro economy.

Now financial -- the systemic risk is about fragility, it's about the fragility of the system and it's fundamentally about the various mechanisms that make individual institutions and then the private system fragile, and these include various -- a whole number of contagion mechanisms, all of which we saw in the crisis or just very briefly.

We have a system with a very long chain of intermediation. We have a system in which lots and lots of contracts, debt contracts are passed along, which creates contractual fragilities right away, just because at distress or default we can have counterparties, so that’s immediate. Then we have beyond, the indebtedness, we have the use of short-term debt, excessive use of that or very, very use of that, and a very opaque system in which information contagion means that we start trying to infer from the weakness of one institution over the whole system which, again, because of the vulnerability of the debt, can create problems.

So I'm sure I'm saying things that everybody knows here, but just to wrap that up, in terms of the real economy, difficulties in the financial systems can create credit crunches for the rest of economy and we care about that.

Now, going a level deeper why is the system so fragile? Well, the bottom line answer is going to be because the people in it really want it that way, and they get away with it, is really the answer but let's unpack that a little bit more. So you have high leveraged individual institutions, and what ends up happening is that a lot of the exposures to risks end up being correlated in very, very complicated ways sometimes the way in which, for example, the key example would be AIG insuring mortgage risks, and by doing so much of their credit risks for the institutions that are insured with it.

So, in other words, you have correlations of the underlying assets creating the risk with spilling into counterparty kinds of risks, and these are very complicated correlations that we don’t quite have good measures of, but they create a lot of system fragility.

Now, why is the system like that? Here, I will have to go back to our understanding of leverage which I, myself, am still learning about. Let me just say, and I do want to focus on leverage, we talk about high -- in macro-prudential we talk about household leverage, and that’s obviously important because it can impact the real economy when there are significant overhangs. So there is an issue there, but I do want to narrow in on the high leverage on the corporate side of the financial institutions, because that’s where we can make the most difference. That is where we, sort of affecting the lenders' indebtedness is where the difference can be made.

And this indebtedness is really important for the fragility of the system. In fact, it's the key to every single mechanism of systemic risk that I described. In other words, it starts with the high leverage of the individual institution, and it spills over in everything that happens that’s fragile. High leverage exacerbate, runs exacerbate, higher sales exacerbate, the leveraging multiples exacerbate, and suspicions, and information contagion, everything that happens.

Now macro economics, we do not have a model that appropriately captures what we must incorporate in these models. Our models fail to have the key ingredients, the biggest, most important first order effects. We saw these models fail, we saw the calibrations fail of all DSGE Models so far, and in all the data that was used. And I'll tell you why I think that it's, because I've tried to read those models.

I've not seen any one of them that actually does -- make the correct kind of assumptions. Sometimes they make assumptions that are counter factual in the basic things, or just almost logically not sensible. But the problem goes beyond that, even in where I come from academically, which is basically contract in corporate financing governance, even there, our understanding of the issues of leverage as it connects with financial institutions is not complete.

Now, in banking, in macro, some of the very basic things are not understood. For example, it's not well understood what a what a celebrated results, Modigliani and Miller actually says, it does not say that it doesn’t matter how companies fund, it does not say that, all it says is that the fact that some investors bear more risks than other, is not by itself, a reason that certain funding mix is preferred over others. If that was the case, then we wouldn’t find other companies in my part of the world being so stupid as to use so little debt in their funding, and thrive on equity. So, clearly, that’s fallacious reasoning.

Now it's all about frictions, and I know about frictions. My co-authors and I, including Martin Hellwig, Paul Pfleiderer and Peter M. DeMarzo, have probably more than a century of thinking about contracting about frictions, so I'm not -- the question is what's the friction and how do they play out and for whom? That’s the question.

So let me just give you a glimpse of what we are actually still immersed in trying to understand, which is the actual dynamics of leverage in corporations, and how it applies to banks, very importantly. Now, corporations can fund all investors -- all investments with all kinds of money, the fact that banks or other institutions to start with some leverage is to be put into place later, but all corporations can have their access to their retained earnings and to markets the same as other corporations, so that’s just there, okay.

They have a business model, they can raise money for it, they should just tell the investor what it is, and be less opaque about it, and they’ll get money for it at appropriate prices. Here is the key observation, and this one is not understood enough, high leverage is incredibly inefficient, it's privately inefficient for corporations, which is part of the reasons we don’t see much of it, or as much of it, despite a very distorted tax subsidy to that.

It distorts decisions, and it can have collateral damage in the case of the economy. If all investors could commit in advance to a capital structure it would not look like this, and what happens is the creditors end up being powerless in the decisions, decisions made on behalf of shareholders and managers, do not maximize the total value of the firm. And it's importantly, this is about, not just about investment decisions, but it's about the leverage of decisions themselves.

Leverage has a ratchet, a sort of irreversibility and an addiction to it, and what we have in the financial system is a leverage ratchet or addiction that’s fed with guarantees and subsidies, and therefore intensified at the levels that we have it. And so there are powerful forces within the industry to maximize leverage and to resist any attempt by any means of reducing debt leverage. And if you give them a ratio, they’ll also choose how to reduce leverage, and this is what we are studying right now.

So I don’t have time to go over that, but let me just say, the following. We are regulating leverage, and I can talk about other regulations. I think that that’s where the most bang for the buck we can get, much more than liquidity regulations which are very problematic, not dependable, depend on markets that won't be there when you need them and are actually holding the assets, you know, and distorting.

Risk rates are very problematic alternative to equity are extremely problematic, (inaudible) and cocoas, and everything else that’s not equity is not going to help us enough. It's better but I don’t see why we go there. There is no scarcity of equity, everybody has access to equity. And so, the standards that we have just having just enough is not enough to be healthy. No corporation lives like that, no corporations choose to live like that, because markets give them the cues.

What's wrong in the financial markets, is that they are not getting the right cues from markets,

markets are not working, the credit markets, depositors are now giving covenants or other restrictions that prevent banks from going to these high-leverage levels. Everybody else who faces markets won't go there without any regulation, and that's where the problem is. We need to correct that, the regulation must correct that in some ways. It replaces markets, it replaces the ability to commit, so we need better regulations, we need simpler regulations, we need less dependence on risk rates, and I will flag dramatically a couple other things.

We need to rethink what has encouraged and enables the problem, especially with wholesale funding which is exemption from bankruptcy and Safe Harbor Laws. These are for repos and derivatives. These have been making a joke out of every notion of default and bankruptcy, we must make sure the creditors care about that, because if we think about the economics of it, which I have, if you start with deposits, which are unsecured debt, you can use the assets for collateral, and everybody is okay.

And you can ratchet up the debt, you can shorten the maturity, every creditor is fine, and there is nothing that we know about capital structure that works any more. We end up with institutions and a system that’s too big to fail, and it can become too big to save, it's highly alarming.

So I really -- and one more market that needs attention, great attention from one of us, and which makes a mess out of all measures of book value, market value and everything is a derivative to markets. These markets are incredibly opaque, and we must get a better handle on them. I am disappointed that, you know, because I don’t think that clearing houses, necessarily, are the key they might concentrate -- risk themselves.

And I don’t know that they are the -- potentially what they call the mother of systemic institution. So I'm not sure that oftentimes when we pass the risk around, we actually handle it better, so we really have to be very careful about that. I totally share concerns about risk weights and how they distort including preventing business lending and distorting the business models of banks to just focus on managing the risk weights, managing the models, there's lots of evidence that that happens.

So, I think we should reexamine the tax code, we reexamine, we should reexamine the bankruptcy code, we should, certainly, while we are trying to get out hand on the systemic risk, which is a very complicated concept, we must be prudent. There is absolutely nothing I ever heard in six years of thinking about it, that would tell me one reason, why it helps the economy if banks make payouts to their shareholders. This is equity that’s perfectly good for lending or for backing up their liabilities.

We must, just force these institutions to live by markets. And markets mean equity markets. If we think that passing subsidies to the real economy should pass through banks it's a crazy way to think about subsidies, because they are basically subsidized hedge funds that are really reckless and can really become lawless, and often seem to be lawless, and often seem to be lawless.

And so the whole system becomes bloated and inefficient, and what I can see here, is that relative to all the sectors in the economy, the financial sector is a very bloated, inefficient and unhealthy despite developments that could make it leaner, and more efficient. And the reason for this is only that it lives for itself, and we let it and we should not tolerate it, is my view. So, I'm going to stop here.

MR. VOLCKER: Thank you for being suitably provocative. We expect now, we'll go to the man who has to live with some of these regulations, and difficulties.

MR. HILDEBRAND: Thank you, Paul. And I want to thank the MD and Olivier for the invitation to participate here today. There was a time when I was seen to be radical on some of these regulatory issues, clearly things have moved on. We were asked to sort of answer the question, where we stand on systemic risk and financial regulation, and I will end on a cautiously optimistic note -- begin on a cautiously optimistic note, and end on an optimistically cautious note, I suppose.

You know, I do think that regulation has gone a long way towards taming, some degree, of systemic risks in banks. The Basel III, FSP agenda, has clearly help bring about a global banking system that is much more resilient to bankruptcy and liquidity risks.

If you look at both the quantity and the quality aspects of capital buffers, I would say today we probably have capital buffers in the world's most important banks that are at least six times, if not more, what they were pre-crisis. We have living wills and bail-inable capital on top of that, one argue how effective they will be but they should certainly help, to some degree, to further contain the too big to fail problem.

And I think, very importantly, notwithstanding some of the issues we heard earlier that key supervisors everywhere, are now showing proactiveness when it comes to stress test which, in my view, is key to having a dynamic view of risk in the banking system as opposed to static ones.

Equally importantly, and I think this is often not yet sufficiently appreciated, investors are clearly continuing to push, and I would emphasize the "continuing" here, this is by no means the end; they are continuing to push for further changes and frankly further risk reduction in the business models of the global banks. I think, you know, all we need to do is read the newspapers, look at share prices, and you can kind of see that almost every day.

So, certainly, banks have not become risk free, they never will be, but I struggle somewhat at this stage to see further major banking regulation initiatives that would be critical right now. Personally, and here is sort of my radicalism is still alive, to some extent I still feel that it's more ambitious and potentially, much more ambitious capital standards, and less of everything else would have frankly been a more effective and certainly a much simpler way to respond to the crisis from a practical perspective. This, however, is now a moot point.

And so, therefore, what I would say today is that the priority should now be on holding the line and not roll back these improvements, and of course, they have the courage to implement the crisis provisions now available, if and when the time comes. So I think, in my mind it's sensible for the regulatory focus now to have shifted to systemic liquidity risks, and systemic risks from non-banks, including asset managers. So, given the previous two speakers, I thought I would focus for the rest of my comments, on these two.

The question is essentially -- has financial regulation, created a new systemic risk in the form of liquidity scarcity. Now, here, my short answer would be no. A number of recent market episodes have of course shown, that even in some of the world's most liquid markets, i.e. the U.S. Treasury market, prices can swing widely, and bid-ask spreads can widen enormously, possibly suggesting a lack of liquidity.

Conventional wisdom would have it that such developments are very worrying, number one, and number two, that they are the unforeseen and unfortunate result of the regulatory tightening imposed on banks who can no longer afford the now much higher cost of market making. This is a sort of echo you hear, whenever you meet with bankers.

I was recently at a BIS Conference, and that was the sort of tender from almost every banker that this is all due because this is all due to regulations. It seems to me that both of these contentions, (a) that they are worrying, these development, and (b) that it's an unforeseen and unfortunately result of regulatory tightening imposed on banks. It seems to me that both of these contentions are highly suspect.

First of all, in all these episodes that we've seen in the past year or so, the bulk of the sharp price deviation was actually corrected within days, and frankly without any trace of lasting misalignment, or indeed market malfunction. Second, we have hopefully learned from the pre-crisis years, that ultra low volatility breeds excessive risk taking.

This, to me, is one of the sort of clearly Minksy lessons, if you like, that we should all have taken away from the crisis. So higher volatility should therefore be welcome if it serves as a reminder that market prices can and do fluctuate, that said, it is true, and this open for dispute, you can look at the numbers, it is very much true, that banks have cut their dealer inventory significantly in response to new capital requirements and changes in their business models.

The data is readily available. I think if we were to generalize we could probably say that we've seen a reduction in the order of magnitude of about 20 percent of dealer inventory in the global banking system. Now this cut has been heavily skewed towards corporate bonds, and this creates a sort of bifurcation in a sense, in the marketplace, which you can see, again, quite easily.

What is much less clear, in my mind, is that the reduced dealer inventory is, in fact, the driver of these large price limits, in response to unexpected news. Rather, one would expect it to lead to reduced liquidity all the time, not just when you have unexpected news items that hit the wire. This was recently pointed out by Markus Brunnermeier in an excellent, I thought, a very good presentation on market liquidity. I think he gave it at Stanford.

But if we look at indicators, such as transaction volumes, or bid-ask spreads, we really find very little evidence that something has changed at all times in terms of liquidity. So, most likely I would suggest what is to blame for these wild price swings, is the combination of an extensive search for yield, from asset owners who find themselves forced by their liabilities or by the mandates, to respond to the persistent, highly unconventional monetary policy stance, and the impact it has on the entire yield curve.

This, in turn, leads to crowded trades, typically in higher-risk positions. When you combine this with pro-cyclical bank risk management models in which volatility can lead to capital shocks and fire sales, you certainly have a credible explanation for what we have witnessed on several occasions during the past year.

And by the way, the data in the just-released GFSR of the IMF in the chapter on this, showed very clearly in my mind that the increase in herding has occurred pretty much in all markets, across markets essentially over the last five years, and this would lend credibility to this hypothesis.

In summary, the new regulations aimed at banks and making banks safer have effectively curtailed what one might think of as a sort of liquidity illusion caused by intensive market making by banks. This means that they liquidity risk that was previously borne by banks, must now, in part be borne by other market participants. With liquidity premium currently highly compressed, because of unconventional monetary policy all over the world, there is likely underestimation by market participants of the liquidity risks they actually face.

So, if they have not made necessary adjustments in their liquidity management practices, by the time monetary policy normalizes, we would certainly be in, or we could expect to be in for repeated situations of potential extreme volatility along the lines of what we've seen over the past year. Incidentally, this is an -- I think and underappreciated channel through which highly accommodating monetary policy, or unconventional monetary policy, may fuel financial instability.

So it's not by fueling bubbles, which is sort of a typical narrative that we think of when we talk about this topic of monetary policy and financial stability, it's not by way of fueling bubbles, but by creating a liquidity illusion that could catch many unprepared when it suddenly dissipates.

Against this backdrop some are asking, will other market players with deep pockets, i.e. asset managers step in and start to, kind of, make markets. This is the question I get asked all the time. And I expect the answer to that question is no, and frankly it would be the wrong thing to do if asset managers were to get into this business.

Our objective, collectively, it seems to be, cannot be to recreate the liquidity illusion that existed to pre-Basel III. Rather, the entire market and its plumbing need to evolve, and all market participants need to adjust to a world when liquidity cannot be taken for granted and priced accordingly. And here, I think, there is a lot of confusion, particularly when I listen to discussions with bankers, in terms of whether what we are seeing here, it's a sort of whether you use a static analysis to understand this, or think of it as a dynamic process, where the entire system and the market structures have to adapt to a new world.

So this leads me to the question of whether large asset managers are a source of systemic risk. Now, in a nutshell, you will see my answer is no, this may not entirely surprise you, given my current employment, but I want to add a little bit of data, and elaborate on this a bit. And to do that, I'll use numbers that make specific reference to BlackRock, so I want to emphasize that the broad story would actually be very much the same, if you did this in terms of other large asset managers all over the world.

At the outset, I think it's very important to make a clear distinction between asset management entities and activities or products. And as I will explain, it seems to me the risks reside predominantly in the latter, in the product for the activities and not in the actually asset managers.

The bulk of global financial assets are managed by asset owners, it's a very important point that often gets overlooked. Not by asset management companies, this may surprise you, it's slightly counterintuitive because you always read about the big asset managers, but the bulk of all assets are managed by the asset owners.

And asset management companies themselves, to a very significant extent, frankly, do what the owners tell them to do. Asset management entities themselves pose minimal credit and counterparty risk. They have, typically, tiny balance sheets, certainly many orders of magnitude smaller than those of banks, and these balance sheets do not embed any significant leverage.

And even if a major asset management were to go under, whether struck by bankruptcy or by lightening, or some other scenario, counterparty risk would actually be very limited, because the asset manager of the company doesn’t hold the assets of managers, they are held by the custodians. Moreover, and asset management company does not trade securities on its own account, there is no such thing as prop trading with asset management companies, but it only manages securities as a fiduciary on behalf of clients.

Now, a very important question in the context of the report by the Fund, which just came out, it's a question of whether asset management companies, or asset managers can be a source of hurting, or otherwise cause big swings in valuations, the big focus at the moment on this discussion on system risk.

And here, I think size needs to be put into perspective. If you take the sort of, often-mentioned $4.7 trillion of assets under management at BlackRock, it's important to point out that this represents only a fraction, about roughly 3 percent of the universe of global financial assets, and it's only about 7 percent of the amount managed by the largest 500 asset managers globally.

If you look at those $4.7 trillion, their split between 108, roughly, 110, independent investment strategies, now certainly some of the individual fund's positions, may be large in certain markets, but their exposure limits, the internal ones, and importantly stemming from investment mandates given to us by our clients, by our asset owners.

Concentrated exposures also curtailed by way of counterparty rules, imposed by the trading platforms, so I don’t -- looking at the data, I don’t really think, or it's certainly hard to make a case that there's a sort of a large fish in a small pond effect here. Moreover, and this is often not sufficiently appreciated, asset allocations within each fund of a large asset management, such as BlackRock, or any other ones, are typically quite sticky, at lease when measured at the asset class level.

Now, this is because in our case if you look at the data, 60 percent of the total assets under management are actively -- are passively managed. In other words, they are not subject at all to any kind of discretionary decisions by any portfolio managers at BlackRock, Instead they simply track an index which, you know, is actually -- actually the results if you think about it in countercyclical investment decisions, as long as the index doesn't change.

Obviously one of the benchmark changes that can become procyclical, but as long as the benchmark stays the same, prices of securities fall, and index manager actually has to buy into that, in order to continue to meet the index.

Of the remaining activity, or of the remaining actively-managed funds at BlackRock, the overwhelming majority is subject to investment mandates, imposed by asset owners, and requiring relatively fixed associations to give in asset classes. So portfolio management's decision could certainly move the prices of individuals, or even groups of securities, but they couldn’t really destabilize entire asset classes, which is presumably what we are talking about when we refer to a system risk.

Now, we can certainly think, and this is where it becomes more cautious, we can certainly think of extreme cases, where a fund, or several funds with a large asset management company would be forced to sell significant holdings very quickly. Typically this could happen in the event of very large redemptions driven by client demands. And these are, of course possible, in open end funds.

Here, and all we can do really is look at history. We have data going back about 20 years, we've done a lot of this internally. Olivier Wyman and Morgan Stanley have recently done a very good study on this, and the data has now been effectively corroborated by the IMF. Namely, that redemptions, on average, have not exceeded about 5 to 6 percent over the last 20 years, including during the Great Financial Crisis. And of course --

MR. VOLCKER: (Inaudible), wrap up.

MR. HILDEBRAND: Yeah. I'm almost done. And importantly, I think, clients, asset owners can and do switch assets as asset managers without any sale needing to occur at all. We've seen this with PIMCO recently, this is quite a common practice, they are simply called the custodian and change the manager.

So I'm sum, I don’t really see how non-leveraged asset managers, even very large ones, constitute a source of systemic liquidity risks, but we need to be aware that there are certainly possible risks from open-ended funds to promise generous liquidity to their client while being invested in less liquid assets.

This, I think, is where we need to focus on. The fact that they have not materialized historically, despite many episodes of market stress, is comforting, but it shouldn’t breed complacency, because one of the things that we see clearly as the scale of these funds, relative to market increases, continuously, not least driven by the search for yield. And as noted earlier, underlying liquidity conditions are changing by becoming more demanding.

This is, I think, where we need to pay attention moving forward and focus on stress testing these funds, and making sure that we don’t start promising liquidity to terms that are not commensurate with the underlying assets in individual funds.

MR. VOLCKER: Thank you, Philipp. We have approximately a-half-an-hour left for discussion, I'd be happy to encourage any discussion among members of the Panel. But I can't resist all this emphasis on capital; so, one small anecdote.

When I became President of the Federal Reserve Bank of New York in 1976, I was visited by the Chairman of the largest bank in United States. He since deceased, so I can say his names was Walter Wriston, a leading American banker, to explain to the neophyte President of the Federal Reserve Bank of New York, why Citibank needed no capital.

He says, we always make money, why do we need any capital. And that was appropriate policy for banking generally. We've gone a long ways from that conception, of no capital. In fact, that bank has been in more trouble repeatedly in the last 30 years than any other bank, but that’s beside the point.

You have emphasized capital, all of you, in one way or another. But it's mostly focused on banks, banks are big and important, what do you say about reserve relevant for capital requirement for non-banks? A lot of leverage going on in non-banks in the world, repos, security lending, God knows what's happening with derivatives. What do you have to say about capital requirements outside the banking system?

Briefly, so we can let --

MR. ACHARYA: So, I always get asked this question of why not more capital than just enough capital for the stress scenario, but one reason why I feel that the strategies of pushing for too much capital may not work, it's going to lead to tremendous regulatory arbitrage in the system. I think if we push the levels of capital on the banking system to be very high, maybe so high, that even more than a great depression, or great recession scenario, like double that scenario is actually well covered.

I think there are other parts of the system where leverage can be provided, and I think we'll just --

MR. VOLCKER: You think what?

MR. ACHARYA: There are other parts of the system where leverage will be offered for doing financial intermediation which is not in the regulated banking space. I think we just -- My sense is, by pushing too hard beyond the systemic risk problem, we transform the problem to somewhere else, and the trouble with that transition will be that it's going to happen very slowly.

That shadow banking doesn’t spring up, sort of, overnight, as you know, suddenly several trillion of assets just move, and it happens very, very slowly, it happens without much knowledge of the regulators. It happens in the form of new institutions, new world markets. It takes a while to come to grips to it.

And, you know, while regulators can try their best to keep an eye for these things, I think it may be -- in my opinion, it's prudent to recognize that the real issue, that we are trying to solve a systemic risk, and as long as the system is sort of reasonably well-guarded against that in terms of capital buffers, there are some unintended consequences of pushing beyond that, because you just end up transferring the problem elsewhere.

Now, some other mechanisms might work. You could say, no loan to value ratios that exceed 80 percent, now that’s a product-level leverage restriction and that works well. But I think it's going to be a little harder to do that on all dimensions, because we just don’t know how to design the margins properly for every single derivative contract that is out there.

MR. VOLCKER: Do you agree with that?

MR. HILDEBRAND: No.

MS. ADMATI: No. I'm very anxious to speak to this issue. Shadow banking is a very unfortunate term. And let's just remember, shadow banking was created from many years of regulatory arbitrage starting with money market funds in the '70s, and all through SPVs and all of that, under the watchful eyes of the regulators, and in order to confuse the regulators.

Now, my answer is -- and that was under previous regulations, so why would we tighten anything, why wouldn’t we just give up. I mean, there's tax arbitrage, why do we tax? I mean, you know, we need to enforce regulation anyway; we might as well give up. So, the notion that we should not regulate somehow too much because they’ll go away, I'll unpack that in two ways; first of all I don’t need to regulate everybody. Let the hedge funds bloom, as long as they don’t become too (inaudible) and are systemic, you know, asset managers, people who do not impact others and they are default, that’s fine, that’s markets.

So I don’t have particular with the shadow-banking system, it's fine. What's not fine, is the fact that most of the most dangerous things in the shadow-banking system is directly related to the regulated entities, and it's, literally, follow the money, entirely. So the most dangerous SPVs, and (inaudible) and such have shown that, the ones with almost no backing at all, had liquidity backstops from regulated banks. The money market funds or sponsors are bailing them out all the time.

So basically the risk is just put away somewhere and the regulators are not looking. So the analogy would be that you say, oh, I can't regulate against -- you know, I can't have laws against robbery because cops only have, you know, walking the lighted streets. You give the cops flashlights and you send them to the alleys to look for the robbers.

I mean, the argument is sort of upside down, we must enforce. The problem is enforcement. Okay. We must look at where risk might be building up. If every institution is telling you that their risk is in AIG, then there must be a lot of risk and they are all taking credit risks for AIG, so why was it that CDS is backed by AAA Insurance Company, were somehow gone, and it was all okay.

When, all of a sudden, whoopsie, it's all in AIG, and we've got to bail out AIG, so that’s systemic risk for you, the notion that you have to watch the system anyway, and you do with light and heavy regulation the same. So the notion that we can't regulate because somehow it will go away is, to my mind, completely not (inaudible) point.

MR. VOLCKER: A brief comment, Philipp, on this?

MR. HILDEBRAND: You know, I would simply say that it's not true, first of all, that banks had no capital before the crisis. If you look at it historically, it's very clear that capital levels have kind of eroded steadily, you know, there were two big chumps, one is after the introduction of deposit insurance, which is what you would expect, and then the other big chump was in 1996, when we introduced the market risk amendment under Basel I, which eliminated capital requirements for the trading books basically.

So I think it's important to know that by the time we got 2007, we were at a absolutely low point, in terms of capital. I always remember the UBS number which scared the hell out of me, 1.1 to balance sheet, basically. You know, so virtually no capital left.

But I think that's important, so in a way, what we've done, and this is slightly glib, but I see -- that they are in the audience, and would probably agree in some ways, frankly what we've done, if you wanted to put it very simple was sort of recreating the system pre-1996. So I think that’s important.

Now in terms of, you know, issues in the non-banking system, I would look for three things.

Do you have maturity transformation? Do you have liquidity mismatch, the point I made at the end, which I think is one area, where you do want to look at asset management, and do you have leverage. And when you have those three things, you know, we should at it very carefully, and I think if you look -- read the GFSR, that’s essentially the strategy, the FSB, I think, that’s essentially the strategy. If you don’t have those things, I wouldn’t be particularly worried about it.

But I continue to think that in the system we live today, the banking system continues to be the primary source of leverages. It's no longer the only one; we've certainly seen that with some of the deviations of the business models, in the insurance sector during the crisis. But, you know, it remains the primary source of leverage, majority transformation, and potentially it's liquidity mismatch, although, as I mentioned that’s something where you'll want to look at other sectors as well.

So I would take the functional approach, and look at the non-banking system through those three lenses. Where do you have those things happening? And that's where you want to pay attention.

MS. ADMATI: Somebody you all know told me that he -- that he --

MR. VOLCKER: Anything that you want to talk to each other about?

MS. ADMATI: -- that he asked a roomful of bankers, what's the difference between a hedge fund and a bank? And the answer from the bankers, was the banks are much more highly leveraged, because they can, and that's --

MR. VOLCKER: I think the time -- I want to try and open up the conversation, and want to have -- Who out here has a burning question?

MS. ADMATI: There's somebody there.

QUESTIONER: Professor Admati, I have a question for you. You said that enforcement is the key, but we have very strong incentives in the system, in favor of leverage. So, what's your view on the feasibility of removing the subsidies on that, in terms of tax deductibility? But also, what's the feasibility of imposing more personal liabilities? To some extent leverage, of course, comes from the fact that we have modern corporations that are based on limited liability but, you know, in this modern system how feasible for these two fundamental biases to be removed?

MS. ADMATI: This is an excellent question. I think to the extent that we are creating more of a gap between what's privately optimal, and what's socially optimal. Things like subsidizing the wrong kind of conduct, which is the thing that increase systemic risk, which is kind of crazy through tax code. And you touch on liabilities. Indeed, capital is about the liability of the corporation, and we have limited liability corporations operating with very little loss absorption, and very little liability.

Who makes the decisions for these? Corporations -- some manager, supposedly on behalf on behalf of shareholders, but even there, I don’t think they serve the shareholders that well, at least not the diversified shareholders. So personal liability would be very important, I think if we could get that, but it's very difficult to -- I mean so there are attempts to do governance, you know, kind of the compensation regulation, but those are very fraught, because the question is sort of how do you use, sort of flow back, or how do you tie it what -- to what do you tie that liability?

You want to club, if you want to defer compensation, if you want to do these things, but still incentives for, you know, to maximize stock prices, or already kind of problematic for this industry, because most of the balance sheet is sheet is creditors. So you somehow have to align the incentives with sort of the public incentives, and that’s difficult.

Certainly with respect to wrongdoings, and criminal contact, or fraud, or whatever, you know, we have a big problem with corporations more generally, with personal accountability is lacking.

MR. VOLCKER: Any other comments? That's all right.

MR. ACHARYA: I think that if I can just add one thing. I think one thing that's very hard with changing the guarantees of the tax (inaudible), and I'm sort of a bit (inaudible) that we need to fix this problem, it's that it's hard for a country to do it unilaterally. I think it's the same problem with raising capital, since the financial crisis, the momentum shifted towards more capital and we've managed to get it up.

But a lot of the race to the bottom, in regulation in tax codes, in tax deductibility of leverage, it all, ultimately, comes from the fact that we have multinational companies, they will just shift their debt issuances to other parts of the world, so I think this response of the financial sector to sort of a very crammed down type of regulation has to be factored in, in my opinion. Now, of course it means that we need to globally harmonize these policies more, otherwise they won't necessarily succeed.

QUESTIONER: I have a question on the European risks, I think you could actually ask -- actually make the point that the risks are even larger than what was said here. I've spent the last eight years as a Ministry of Finance being important to setting rates of the restructures, and I have two problems what we have done. One is the bail-inable bonds, and the other is how we apply competitiveness rules, competition rules.

What the U.S. have done, is basically a kind of soft version of the Nordic banking restructuring, and recapitalizing banks and then get the fund back. What we did in Sweden back in the '90s was recapitalize them, but we have better (inaudible) to haircuts, and then we kept holding these banks for 20 years, and then we sold them for a great profit. I actually privatized Nordia and made quite a lot of money out of that 20 years data.

The problem is that when you have bail-inable bonds the difference is that if one bank run into the trouble the contagious at risk is pretty obvious that the risk of the other banks has actually been increased. If the state takes over and recapitalize the banks, the risk for the other banks have decreased because you have a credible owner that that can restructure the bank.

With the bail-inable system the risk can escalate in the system, so good banks become bad banks. The second problem with bail-inable bonds is that if you restructure a bank from a taxpayer's perspective it's the whole population that bears the risk. So in this environment with no yield the bail-inable bonds are quite -- they are likely to be owned by the pension funds; which means that you concentrate the risk to maybe a third of the population; which means that the macro impact might be increased and also you have some distribution effects.

The good point with that is that it's quite unlikely that the system would ever be applied, so given that it's the pensioners that will be at the long end of the stick, it's quite likely that the system would never be applied, and that’s probably good.

The second problem is that the competition rules are now applied so when you take over a bank you have to restructure it in a way that its market strength is decreasing, so it becomes less profitable. And when I was sitting in the ECOFIN Council and one of my colleagues told me that he was now starting to sell banks, I asked him, have you -- are you not making -- I actually put it more brutal, I would say, are you not making a big mistake here, because I mean, you should keep these banks and resell them when the market has come back.

The state is determined, so we can make use of that. But then the competition rule says that you have to set it off the five years. So then you sit with the losses, so I would only argue that there are some things you say, that might make the European system even more risky than we say. It's not only that it's low capital risk, it's also a capital structure with a lower ability to deal with the crisis.

MR. VOLCKER: A comment that -- I'll ask other people making comments to questions, make them as brief as possible so we can more in. But what comments do you have in reaction to this?

MR. ACHARYA: I think to -- I'm not quite aware on the competition aspects you mentioned, but I think I tend to agree with the first aspect, but I think one has to keep the following thing in mind, which is that, it's not clear that just lending the government balance sheet to the banking sector has worked well in all parts of the world. I think sometimes there is just no fiscal capacity to actually provide to the financial sector. I think Ireland was a prime example of this.

So, I think to the extent that some private solutions like bail-inable debt are being attempted. I think they seem worthy, in my opinion, of consideration, because both capital and bail-inable debt in one way or the other, are attempts to created private insurance for the creditors, rather than have just everything being provided publicly. So given that the other person has not recapitalized through straight equity injections in a big way, I prefer that there is at least some bail-inable debt.

Now, of course, if given a choice, I would rather that they would have recapitalized the banking system dramatically, like the U.S. did, but that didn't happen.

MR. HILDEBRAND: I would perhaps add, you know, let's not forget that the bail-inable piece is not everything. Right? It's a sort of add-on essentially, so we have increased proper capital, but first I agree that to some extent it was probably the sociality of this would be, everybody knew we really should have a bit more capital, but we couldn't get it done, so let's do some bail-inable capital on top.

You know, the good news about bail-inable capital, it creates the right incentives for management. The risk associated with it are those that you pointed, certainly I wouldn't be comfortable if that's all we had, but that's not the case. On the positive side I would say, in Europe you have more movement towards changing the business model than you have here in the U.S. So I actually think the sort of societal pressure, in a sense, in Europe, is pushing the banks probably further towards a fairly fundamental change in the business model of the banks.

You know, there may be one or two holdouts at the end, but it seems to me there is probably more pressure for that in Europe than in the U.S. which probably should lead to, from a business model perspective, a slightly safer bank. So, you know, as long as the bail-inable piece is an add-on and doesn’t start to be seen as a sort of in view of proper capital, I would say we can live with these risks that you pointed out and should be glad that it's there.

MR. VOLCKER: The gentleman on the aisle?

QUESTIONER: It seems to me that the debate up to has revolved around the controversy, whether there should be more regulation or not. But is the fragility of the system related only to the inadequacy of the rules, because it may be, and this is Mark

Carney emphasized several times, is that it's also about the culture of banking. It may be that there has been something terribly with the way banking has been evolving culturally.

How can that be changed? I mean you can impose more regulations, you can have levied ratio, change that should be safe for banks, but it's not about the safety of the banks at the end of the day, it's about the safety of the economy, of the real economy. The purpose should not be to create safer banks, it's to have a more solid, less fragile economy.

MR. ACHARYA: Yeah. But I think there is a tight linkage between the explicit rules under which banks work in the culture that evolves, so I don’t think the two are sort of completely independent of each other. So, take the example of all the leverage-seeking prior to the crisis, I think the real constraint that even some of the more prudent management had was that through leverage seeking the return on earnings for equity, which is often a measure used by votes to us, as how the management is doing.

But it's phenomenally high for some banks, and many bank managers, Chief Risk Officers who wanted to actually lean against the wind of this, really had to sort of, shut down. So, now you might say that this really was a sign that the culture in the financial sector was going down. But I think the root of the fact that somebody will create those returns on earnings with high leverage and risk, was the fact that the rules are actually very weak.

So I think there is an interesting interplay which is that good regulation, if it is designed to address systemic in the right way, can actually alter the culture of risk taking in the financial sector.

MS. ADMATI: I want to respond to a couple of the questions, and also this one. First of all with respect to the comment about bail-inable debt, let's face it, somebody has to bear the risk. So you have to worry about, you know, who owns the bail-inable, or who owns the equity for the, or there may be a pension fund.

Collectively, somebody is going to bear the risk, the question is, whether those that get the upside the risk are of bearing enough, so that goes to the personal liability maybe. The fact of the matter is, they don’t, and again, the culture is such that upside is great, and downside is somebody else's problem, including shareholders potentially, et cetera. The idea of more capital is, first of all, meant to move the governance problem into the balance sheet of the company, and then you would have the shareholders, needing to govern. Bankers potentially, et cetera.

The idea of more capital is, first of all meant to move the governance problem into the balance sheet of the company, and then you'd have the shareholders needing to govern. Bankers have convinced shareholders somehow that return, per se, unadjusted for risk is somehow a measure, and shareholders have suffered as a result, so that’s the problem of educating investors, or for that matter, the (inaudible) of the largest institutions, that sometimes with -- that are not governing.

So fundamentally you have a corporate governance problem, in all of this and I just want to make one last comment about, you know, the international corporation and once again, be talking about this differently. Somebody has got to bear the cost, and the question is, whoever sits with some control over something in the system, whether they are regulator in one country and they can't control what other people are doing, they've got to worry about their own constituency, and that means the public constituency not the banker constituency,

And they can protect those people including by controlling everybody who comes into their countries. There's so much any one person can do, but everybody focusing on their own thing, would help the system more than this race to the bottom. So maybe you could get a race to the top, but then maybe you could just do what you need to do, despite what other people are doing. That's my view on the level playing of the champions and all of that. It didn’t help Ireland or Iceland, that their banks were successful.

MR. HILDEBRAND: Just on this culture point, I think it's very, very important. You know, the thing that annoyed me most in the run-up to the crisis, or even earlier on, was this relentless focus on rate of return on equity without any differentiation of whether it's risk-adjusted or not. And that of course, came as a result of essentially not having to hold any capital, and I think you are absolutely right to say that the culture problem exists in and of itself, but it cannot be separated entirely from the incentivization, you know, provided by regulation.

Principally, in my opinion, through the completely, sort of, flaw in capital rules that were in place prior to the crisis, when you have the notion that you can get any kind of rate of return on equity without having to really worry about risk. If you go back to those statements of the CEOs back, prior to 2007, it's as if, you know, it's just a risk-adjusted lens doesn’t exist.

And so I think by moving on the capital piece you change the incentives in a way that then opens the path towards a cultural change, and on top of that, this is the point I made earlier, I think you're seeing certainly in Europe, and I see it here as well, you are also continuing to see a separate push towards the leaders of these banks becoming much more stewards again, than sort of leverage players -- and I think that is the right path forward. But I suspect that in the absence of a significant change through the CAPO rules, it would be a very tough -- very difficult to assume that we could get an independent cultural change without the incentivizations of capital, so that's why in my personal view we should have done more capital, less than everything else. The worst thing we could do now, which is why I'm hesitant to sort of embrace new initiatives is to just pile and pile and pile on new things and start to roll back the key which in my mind remains the capital regime.

MR. VOLCKER: One concise question, and hopefully concise answers too.

MS. ADMATI: He talks fast.

SPEAKER: I want to raise another issue of systemic risk, connected to leverage, and that is that most leverage is connected to collateral. And one of the lessons of the crisis is that when you can leverage something more, it increases the price of the thing that collateralizes it. So leverage on housing went way up, housing prices went way up, leverage on education has gone way up, as the governments make it easier to borrow to go to school, and tuitions have gone way up. Sovereign back debt leverage has gone way up, the central bank has made it easier to use sovereign debt as collateral, and sovereign debt prices have gone way up. So one of the keys I think of systemic risks is the effect on leverage and the government role on permitting and not permitting leverage on the price and fragility of crucial collateral.

A:: Completely agree, it's basically the distortion that happens through the credit channel, to kind of create these credit fuelled bubbles. And obviously again in my part of the world in Silicon Valley we had an internet bubble, and because there wasn't leverage and there wasn't credit as much, the harm was not as large. So by restricting leverage, you might constrain the ability of leverage to create fuel bubbles.

MR. VOLCKER: Just to say one thing on the collateral, I think it's very interesting, and I think it ties to the liquidity risk issue which is that a lot of collateralized lending works well until the assets are sufficiently liquid. But at the point at which the assets lose their liquidity you now need a parent balance sheet to honor the credit which has been taken against the specific collateral. Now what has happened with all the safe-harbor and bankruptcy exemption laws is that you've actually prevented that mechanism from coming in place at the time the asset loses liquidity. So if a money market fund is lending in the form of a repo against some asset, because it's bankruptcy exempt, they can just go seize the collateral and the dynamic of individual money market funds doing this means sort of a very bad outcome in the end in terms of fire sales. But if it was not bankruptcy exempt, then now you have a parent balance sheet that can actually potentially file for bankruptcy or go into some prepackaged arrangement where these repo claims and other things can be settled.

So my sense is a lot of the rule making in the financial sector has been geared towards creating a ton of collateralized debt against anything that we can commoditize, let's make it bankruptcy exempt and let's allow short term debt to be created against it. But I think it misses the point that the day that asset loses liquidity you need the parent's capital to come in and bag the creditors, and by making it bankruptcy exempt we completely eliminate this mechanism all together.

MR. VOLCKER: Let me claim the privilege of the chairman to make two minutes of comments which follow along what you've said. But I was surprised at the attitude which I think I heard from the panel that the banking -- take care of the banking system and the rest of the market can take of itself. I'm exaggerating a little bit. I used to be the world leading proponent in my own mind of that view. Take care of the banking system, it is protected and it's regulated and maximize the freedom of the rest of the market. I don't believe that for a minute anymore, the growth and credit -- this may be more an American problem than a European problem, the growth in credit in the last 20 years has been outside the banking system. Since the crisis there's been a big decline in the shadow banking system, it isn't fully realized, of major proportions. Still 70 percent of the credit in the American financial system is outside the banking system. And a lot of it is being leveraged to an extent that didn't exist before.

A:: Lehman Brothers.

MR. VOLCKER: Now what do we do about that? I'm just going to make a little -- it's a tough subject. It gets into the question of how you regulate. I happen to be sponsoring a little initiative on how to regulate. We're going to have a little announcement in a few days about the revision of the American regulatory system, because you can't deal with this problem, in my view, in the context of an unreformed American financial system, which has been a problem for decades. Nothing has been done about it and it is time in my view to do something about it. But it's based in part on the premise -- if we only had to worry about banks we wouldn't have to worry about the system, but we got to do a lot more worrying these days it seems to me, about developments outside the banking system. And just look, where did the crisis come from? Sub-prime mortgages. That originated outside the banking system. Where did the derivative problem arise? Outside the banking system, and there's a lot more going on outside the banking system that raises questions. So I want to thank the panelists and thank the audience and make way for people who are going to tell us what to do.

(applause)

MR. FISCHER: I'd like to welcome you to this session on macro prudential policy tools. We have a terrific panel, with Bob Rubin, Hyun Shin, and Paul Tucker. And a lot of questions to be answered, one of the first is what do we mean when we talk about macro prudential policy tools and macro prudential policy in general. More generally we're talking about the norm bank intermediation and whether that also is part of the place where you need to use macro prudential policy tools.

We have Bob Rubin as the first speaker, Bob as you all know spent some while at Goldman Sachs and ended as chairman of the board. He was the first director of the National Economic Council, and then became Secretary of the Treasury, during which time he had a little hand in helping manage several crises. For a while I thought that was the end of the crisis period because I left the IMF, Bob left the treasury and there were no more crises, but then the United States obliged by producing another crisis, so we're all back in the same business again. Since leaving the Treasury Bob has become Co-chair of the Council for Foreign Relations, works there, also has some commercial interests and he's also been actively involved in the Hamilton Project which focuses on economic research and how to create, I quote, a growing economy that benefits more Americans.

Hyun Shin was a professor of economics for many years at the LSE and then at Princeton, his research has focused on financial institutions and also on risk and financial stability issues. He's held advisory positions at the Bank of England and the New York Fed, and was a key architect of the macro prudential policies that Korea enacted, starting in 2010, which aimed to build resilience against external financial shocks by moderating the pro-cyclicality of the banking sector. And he is now an economic advisor and head of research at the BIS.

Paul Tucker had a long and successful career at the Bank of England, ending as deputy governor from 2009 and 2013, and played a major part in dealing with the results of the financial crisis during that period. He had a position on the monetary policy committee for a long time, and near the end of his tenure at the Bank of England settled on the newly minted financial policy committee even before it actually was embedded in legislation. And in this role he and his colleagues were charged with removing or reducing systemic risks with a view to protecting and enhancing the resilience of the U.K. financial system.

In the discussion today, I hope we'll be hearing how to define macro prudential policy how those policies ought to be implemented. Secondly, how important the non-bank, or sharer banking sector in the economy is and how that complicates macro prudential policies. And thirdly, a very difficult issue which is still on everyone's agenda and hasn't really advanced very much, which is the interaction between monetary policy and macro prudential policy, where monetary policy is understood to be interest rate policy in that case and the question is should you ever -- can you get away with always using whatever you call macro prudential policy to deal with financial stability issues, leaving the interest rates for more macro issues and that question hasn't been answered yet, but it's on many people's agenda. The procedures are that each speaker will have up to a quarter of an hour and will then move onto allowing some discussion among the panel, and at 11:45 we'll open the floor to questions and answers with the audience. You are invited to follow this event on Twitter -- #Macro2015 (laughter). I don't know what all this means but -- (laughter) apparently you should involve your friends and the press and everyone else in this event by sending them commentaries on what's happening. Bob would you like to start please.

MR. RUBIN: Yes, okay. Thank you Stan. Before I do start, I remember the first time I ever met Stan. I had just gotten to the White House and

Larry Summers I knew quite well, and we were facing some sort of problem and he said there's this fellow Stan Fischer and I said who's he? And he said that he's an economist's economist, every economist looks towards Stan as kind of his -- well I guess maybe Larry didn't so much -- (laughter) but almost all economists look towards Stan as their mentor and their source of wisdom. Whether that is right or not, I don't know but I've known Stan for a very long time and it's been an extraordinary experience and he's often been right and sometimes -- what's the converse of being right? In any event.

MR. FISCHER: It's the converse of listening to the echoes of that era for some time.

MR. RUBIN: In any event, thank you for the kind introduction Stan. You have a panel of people, not me, but others, who are deeply experienced with central bank matters, and I was asked to add to that from the views of a practitioner and I developed those views, as Stan mentioned, in my many years at Goldman Sachs where I had responsibility for all the trading and arbitrage operations. Then my time in government, my time at City, and my current activities where I consult with a number of investment funds and I also remain involved in the national policy dialogue. In that context I'm going to discuss three issues.

The possibility that we are now experiencing market excesses, the likelihood of future market and financial destabilization, and systemic risk in shadow banking and then I'll get to the question -- at least in my view, whether macro prudential risk, and systemic risk should be a consideration of the central bank. There are other issues that I would very much like to have discussed, because I think they really are important, and they are very much in my mind, but will not in interest of time. But I'm just going to list a few of them, simply because I said, I think they really are important, I think that all of us should be thinking about them in a central bank context.

These include the monetary policy risks, in having expanded the Fed balance sheet so greatly and I wish we could say that elsewhere in the world as well. The fallacy in my view of the argument -- that those risks can be alleviated by increasing interest rates and excess reserves, or by using reverse repos -- I think of that as sort of the magic wand approach to try and deal with these risks, the substantial limitations of at least in my view, of the ability of sophisticated econometric models to predict future economic market conditions or policy response. And what is to me a really daunting and usually consequential and deeply troubling question, which is on one hand you have dysfunctional governments in the United States, Japan, and the Eurozone with respect to fiscal and structural issues. And on the other hand you have the central banks engaged in expansive monetary policy, and the question is where does that combination lead with respect to currencies, with respect to financial conditions, and with respect to the economic conditions. Having said that let me turn to my three focal points, starting with excesses. I think we would all agree that there has been a substantial reaching for yield up the risk curve because of the low interest rates on treasuries, in my view at least, those low interest rates are predominantly a function of a whole multiple of factors, with QE2 and QE3 playing a relatively small role.

Whether that view was right or not, with respect to causation however, is relatively irrelevant. And even if I am right and I was standing that view -- I do think that QE2 and even more QE3 has contributed substantially to the reaching for yield. Because I believe what it's done is created a comfort in the markets and the financial arena that the Fed would and could keep interest rates down. I don't have a personal view as to whether we now have excesses or not. But that certainly is a realistic possibility when you look at the U.S. stock market, which is near all-time highs. You look at covenanted light and now non-covenanted lending. The vast increase of fixed income ETFs. The yields on the sovereign debt of the troubled European countries which to me at least they are relatively inexplicable on a risk adjusted basis, and a great deal else. And if there are excesses, then ultimately they will fall of their own weight, albeit an unpredictable time.

But even if the markets are not broadly in excess at the present time, and as I said I don’t have an opinion on that one way or the other. They will be periodically in the future, again with timing unpredictable. In my view, markets are a psychological phenomenon, and in the long run they are a function of greed and fear rooted in human nature. While over the long run -- reflecting in some reasonable fashion -- fundamentals.

Market based finance systems over the centuries as all of you know have always experienced periodic excesses on the upside, and then overshooting on the down side. And I don't see any reason to think that all of human history with respect to financial markets should change now. Thus I think there's a high likelihood of periodic market and financial destabilization, at unpredictable times in the future.

Moreover, financial destabilization really by definition will come almost surely from unpredictable places. I remember in 1970 Goldman Sachs was almost put out of business by the failure bankruptcy of Penn Central. So we put in place a whole bunch of systems to prevent that from happening again. And I remember one of our then senior partners, John White, had said, we protected ourselves against the next Penn Central, but the problem is the next crisis will come from an unexpected place. And they always do. And indeed, they, at least in my adult experience involved with markets and so forth, have come continuously from unexpected places. Because if they were expected, then presumably markets would have adjusted and you wouldn't have had the crisis.

I don't believe that regulation could ever succeed in preventing excesses. And therefore significant market and financial cyclicality, as long as we have a market based system. But I do believe that regulation can and should try to produce the probability of excesses, the severity of excesses, and the market and economic effects of downturns when they occur. And a good example of doing this is to constrain leverage on financial institutions.

The reforms put in place in the United States in response to the financial crisis including the measure with respect to derivatives, the consumer protection agency, now increased capital requirements, seem to me to have been sound for the most part, and sensible, and presumably have accomplished the requisite provision of safety with regard to banks. Other than the unresolved question, or at least in my opinion, unresolved question, but very important question of too big to fail. And in my view at least, nothing that's been done or proposed has solved the too big to fail issue under stressed conditions. That is to say when there is systemic risk or systemic risk materializing in the markets.

Most recently, as Stan said, attention has turned to shadow banking and so will my remarks. The shadow banking systems we know, we all know has long existed but now many functions of traditional banks and investment banks are rapidly and substantially moving towards shadow banking, in part because of the increased constraints on banks and because of the dramatic changes in technology. For example, market making, an activity that I spent much of my adult life being engaged in -- and therefore market liquidity has always been greatly facilitated by market makers creating for profit structures built around the positions that they have absorbed in their market making activity. With proprietary trading now barred from banks and the difficulties in distinguishing between market making and proprietary trading, bank, market making, and market liquidity have declined substantially. And both market making and now in a more insipient way, the provision of capital for primary issue, really in the context of a primary issuance -- are moving rapidly to other platforms, including hedge funds broadly defined. Similarly, the increase in capital requirements has deterred various kinds of small and medium lending by banks. And this regulatory constraint, plus the capacity that these new technologies have given for both evaluating credit and for interacting with borrowers have resulted in a very substantial increase and I think this will continue to increase at a rapid rate, of small and medium sized lending by private equity firms and by special institutions set up for that purpose.

More broadly, the shadow banking world involves a vast array of institutions, asset classes, and activities. And as I've already said, it is growing very rapidly. I believe that this presents an enormous potential for systemic risk. Let me just mention three examples. If excess is developed in financial assets, sooner or later the prices of these assets will, as I said earlier, fall of their own weight. And then hedge funds, and other asset managers who are sensitive to short run performance are likely to begin selling the positions that are destabilizing in the market. And furthermore, not only will there be a run on those assets, but in order to raise liquidity, they will also be selling good assets. And what you could have is a set of negative feedback loops that could trigger very serious market duress and that of course would then feed back into the economy. Another example is the vast increase in size of the ETFs, fixed income ETFs. They promise as you know instant liquidity, but their assets are very often assets that would be difficult to sell under stress conditions without taking large haircuts. And the result is that if we do have market stress then you could have dumping into markets and again, negative feedback loops and all the problems and vicious cycles that that could create. And finally I have derivatives as my third example. I think the measures that were contained in Dodd Frank were useful, but I think they didn't go nearly far enough. When you have conditions of great stress, then the correlations and derivatives as again, all or most of you know, the correlations go to unexpected places. And the participants in the derivatives world, can have multiples of the risk that they expected to have and very different kinds of risk than they expected to have. And that in turn can lead to serious economic and market duress. And it can also lead to unexpected counter-parting failures. I published a book in November 2003, and what I said in that book, a view that I held for a long time, going back to my days actually at Goldman Sachs, was that derivatives posed very serious issues for our financial system. And that the effective way to deal with that was to increase capital requirements and increase margin requirements, we reduce their usage, and we provide a cushion and it would provide better protection against systemic risk. And it is still my view that that's what is needed if we're going to get to the heart of the risk posed by derivatives.

I could go on and probably, well you could go on, about the different kinds of systemic risk involved with shadow banking. But is also worth noting that this is not only a question of what is taking place within our borders, the United States in this case, but because of the interconnection of markets around the world, what's happening elsewhere.

One regulatory answer put forth to the systemic risks, is to have macro prudential regulation with regard to shadow banking. Seems to me however there currently is very little reality to that concept, there is work going on in the shadow banking regulatory area, but it is a very large measure as far as I can see. This is a challenge that still needs to be met. I believe that meeting this challenge involves three hugely complex and time consuming challenges.

Number one -- creating a comprehensive catalog of the shadow banking world, including asset classes, types of organizations, and types of activities. To the best of my knowledge, at least nobody has done that in any comprehensive way. Moreover, doing so will involve a lot of ambiguities and uncertainties. Two -- developing a menu of tools to address the possible systemic risks posed by the shadow banking world. At best these tools are going to be imperfect given the complexities of shadowing banking, and also given the enormous complexities of market reaction to policy. In the context of regulation I would probably focus particularly on activities, because you can certainly have sound institutions that have within them. Derivatives activities or ETFs, money markets or whatever, that are unsound. And whose difficulties then create systemic risk, because they feed over it into other parts of the financial systems. So I would focus very heavily on the activities aspect of shadow banking.

Three -- devising a plan for effective implementation and coordination of macro prudential regulation once the first two challenges are met. This third problem, or this third challenge, is a very real problem in the United States given our large number of regulatory institutions and FSOC's limited powers. And it becomes even more complicated when you consider the potential feedback into our system of shadow banking risks elsewhere in the globe. In theory the office of financial research has the treasury department as a power to undertake these studies, but my strong impression would be, that they have -- so far at least, not nearly the capacity to accomplish that, and therefore it requires a co-operative endeavor across the government, very much including the Fed which probably is the best endowed in terms of capacity. Having said that -- and that's something that FSOC could attempt to coordinate, but I would have a strong that that's easy to say and in our system at the present time -- very hard to do.

I think it's going to take a long time to put in place an effective regulatory system with respect to shadow banking, but what you could do is you could take each of the three components that I mentioned earlier, you could divide them into subsets and then beginning again dealing with these issues one at a time. And I at least think, that probably the first one I'd deal with is derivatives. And I would do it as I said a moment ago, with capital charges and margins.

But even if you have a strong and comprehensive program, given the uncertainty and complexities of the psychology of markets, and the psychology of response to policy, the white swath of shadow banking, and the enormous complexities with respect to designing tools and how they are going to interact with markets as well as the inevitability of unperceived developments, I believe that contrary I guess, to the views of some, that the Fed should take systemic risk into consideration in monetary policy decisions, even though excesses and bubbles aren't possible, at least in my view -- impossible to identify with confidence except ex-post.

That doesn't mean the formal criteria should be changed, for Fed action, that is to say monetary policy action, from the two current existing at least in the United States system which is full employment and combatting inflation, but I do think that systemic risk should be a consideration in the Fed's deliberations.

Let me make one final observation, all judgments relating to markets and financial systems are obviously about probabilities, though as Stan once said to me when we were talking about this, while every thoughtful decision maker knows that, probably very few, and this was Stan's observation, have deeply internalized that probabilistic mindset.

I also believe that all judgments with respect to probabilities regarding markets and economic conditions should have attached to them, a very high level of uncertainty. Thus if we're going to create strong regulatory protection, and we're going to have a sensible ability to measure costs versus benefits, I think there should be substantial allowance made for uncertainty, and for the probably relatively high likelihood that at some point conditions will vary from the most likely projected possibilities and even possibly from the full range of possibilities. To bring all that together, I believe that effective regulation with respect to shadow banking is imperatively important, I think it is hugely complex, and I think that we need to put our processes together to move forward with far greater rapidity than we are at the present time. Thank you. (applause)

MR. FISCHER: Well with your usual precision, Bob, you were precisely five seconds over time, Hyun please.

MR. SHIN: Unlike the other speakers, I have a couple of slides, there we are. It's really very good to back at this event. When we first got the invitation from Olivier, the subtitle was Down in the Trenches. But it's changed to Progress or Confusion. I think we're making progress, but I think the change of subtitle reflects some deeper debate. The title of this session is Gathering Evidence, so let me talk about some of the evidence, but at the same time let me also offer some broader reflection, especially with respect to the monetary policy dimension.

So the key aim of macro prudential policy, I think, is to moderate the pro-cyclicality of the financial system. And it does that by intervening in the intermediation process. So it operates on the asset side, the liability side, and also on the leverage. So for example both of the policies would act on the demand for credit, and for macro prudential policies like, loan to value ratio caps, or debt service to income caps. They are trying to reallocate consumption spending over time by restricting credit, to restrict borrowing.

Monetary policy also has something similar in that if you rate interest rates that also encourages the reallocation -- it encourages the postponing of consumption, but if you want, you want to bring the consumption forward, you would then lower rates. So, it's similar in that respect. They both operate on the leverage and on the funding side, so thereby the supply of credit because we know that tools like the counter cyclical capital requirement or leverage caps operate directly on the leverage but so does monetary policy -- the risk taking channels of monetary policy. Policy is about limiting risk taking, of which leverage would be a very important part, and the funding cost is pretty obvious.

Now, although there are similarities, I think there are two very important differences. The first difference is that, with macro prudential policy, these are policies that are aimed at particular sectors, or particular practices. Now in a way, these policies haunt back to the credit policies that were actually in place even in the advanced economy, up to the 1970s. Whereas -- those were both intended to allocate credit to favorite sectors as well as to restrain credit. But there is a lot in common between those old policies and what the newfangled macro prudential policies are trying to be. So it's really old wine in new bottles; there's nothing really very new about these macro prudential policies.

The downside is that unlike monetary policy, it's easy to circumvent, or can be circumvented with enough effort, and without -- with enough ingenuity. The strength of monetary policy is that it has very broad impact, and it's very difficult to circumvent. But on the other hand, if you think about that, that also is a weakness of monetary policy, because it is very exposed to external conditions. So as well as reaching every part of the domestic financial system, it's also affecting, and is affected by global conditions. So one way to say this is, and my colleague Jaime Caruana will expand on this in tomorrow morning's session-- currencies are global, but monetary policy is territorial, or rather the mandated domain of monetary policy is territorial. And I think a very topical irrelevant question right now is to what extent you can -- so is it sufficient for having autonomy of domestic policies, that you have floating exchange rates. If you just let your currency float and do not intervene, is that sufficient for having full levers of control of the domestic economy? And some recent work by Elaine Ray has shed some light on this. And I think the preliminary evidence is that at least qualitatively the answer is no. That even if you let your currency float, you don't have full control.

Whether you actually look at the theory or not, if we just look at what the central banks have actually done -- so in the sense that actions speak louder than words, then I think certainly central banks believe that it is not sufficient. So what this chart shows you is the comparison between the average policy rates, on the right panel we have a set of emerging markets, the left hand panel, is a larger sample including some advanced economies, and the red line is the average policy rate as implemented by these economies. And the blue line is the average Taylor rule rate. And the gray bands indicate upper and lower bounds depending on which particular version of the Taylor rule you actually use.

And in both charts you see that there is a very large gap between the blue line and the red line -- since about 2003. So what this suggests is that, and of course we could argue about this for a very long time, but what this suggests at least at first blush, is that the central banks are behaving as if their monetary policy is constrained from external conditions. So if you like the -- it seems that they feel constrained to follow the stance of monetary policy by major central banks because of possible impact, probably because of the possibly impact on the exchange rate. This has always been the case since -- well I suppose this has always been the case. It was strong from 2003, but this is a topic of course which has now become very topical, especially in Europe and Asia. Now so -- oh, let me go back. So if we then ask, well how should we use monetary -- how should we use macro prudential policy, in a way, this is a context when monetary policy is constrained from external condition, the macro prudential policies could potentially come into its own. Because the weakness of macro prudential policy around was precisely that, it was limited, it was very parochial, but on the other hand it is less affected by these global conditions, and if you look at that left hand chart, one way you could try and use macro prudential policies is to try to lean against these global conditions. And so operating on the non-core liabilities, as Stan mentioned the Korean case, operating on the non-core liabilities would be a way to try and lean against the expansion of that grey bubble, by trying to compensate for this, for the external conditions -- if you like. So that's one way that macro prudential policy, could, because of its very limited impact, because of its very limited focus, could become quite useful.

Now, saying that it's useful doesn't mean how you should actually use it. One, I think very important issue, which also Bob mentioned is how you should use macro prudential policy in concert with monetary policies. Should you use them as it were, pulling together as complements, or should you use them as substitutes? As to what -- that's to say, you keep one loose, but you tighten the other one as compensation. I think some recent discussions have tried to push the substitutes line, and the idea is that, well we have to keep monetary policy loose, but because of financial stability risks, we have to lean against financial stability risks, and therefore we have loose monetary policy, but tighter macro prudential policy. So that's one view.

The other view is that, if you think about the way these things work, there is a tension here, because both sets of policies are operating on the intermediation system. And by having loose monetary policy and tighter macro prudential policy, what you're saying to firms and households in effect is, borrow more -- oh and by the way, borrow less. You're telling them to borrow more and at the same time are telling them to borrow less. So there's a tension there to say the least, and there's been some very good work here at the IMF, in the litigious department and this work has been led by (inaudible) and his co-authors there -- they've looked at how these macro prudential policies should work in theory and also they've actually got a very comprehensive database of these policies. And what they find is at least in the theory it depends on the shock, but more often than not you would use them as complements rather than as substitutes, although it depends on the nature of the shock.

And some work that I've done with Bruno and Shin, we actually go and look at what central banks and policy makers actually did. What did they actually do in respect to what the theory says? And what we find is that there is a moderate positive correlation between these two sets of policy. In other words they tend to be moderately complements if you like. They tend to pull together rather than pull in opposite directions and it, I think reflects very much this line of thinking. And although up to now we've had a lot of theory, what we're seeing now, partly thanks to Stein, and in our paper, we're also using some -- a very comprehensive database that my colleague (inaudible) organized, it's on the BIS webpage. Based on those public databases, there is a now a very active literature on empirically trying to characterize how these two sets of policies have been used. And I'm just coming from an event from Mexico, actually Guillermo (inaudible) was on my flight, where we had a paper from the Fed on this precise issue. And there I think that paper also based on the databases that the IMF and the BIS have organized find firstly that these things do seem to have an effect, and quantitatively, they're actually pretty big and using them together magnifies the impact.

Now, what about all the other things we've been speaking about? This is, if you like, very much based on the experience of the previous crisis. So if you look at that diagram on the left hand side, it is about leverage, it is about maturity mismatch, about complexity, about runs. And it would be fair to say that's where most of the policy focus has been since the crisis. And I would also include the shadow bank initiatives under that. But as we've heard this morning, both in the first session and also in Bob's presentation, the nature of financial intermediation is also changing and if you like, the market players are also changing. I think one thing that we have learned is that we have to be constantly updating our understanding of who the marginal players are, and what they do and how they do things. And so we've talked about reaching for yield and asset managers and the GFSR chapter on asset managers has caused -- has attracted a lot of attention.

But let's not also forget the long term investors that are chasing disappearing yields. Not only are they -- well I suppose this is a form of chasing yields, but about those investors that are chasing disappearing yields and this is so we're very very current. So this is a scatter chart of the duration of assets and duration of liabilities of insurance companies in the E.U., and the vertical axis is the duration of liabilities. The horizontal axis is the duration of the assets. Anything above that dotted line means that the insurers in that country have longer liabilities duration, relative to the asset duration. And if you're marking to market and whether it's through regulation or whether it's through incentives to be a good manager and be prudent and so on, matching duration is hard wired into many of the financial players. And when you have duration mismatches like this, and you can see that Germany stands out, as the country that has the largest duration mismatch between assets and liabilities, when you have these very large duration mismatches, and because duration is a linear function, what it means is that when interest rates go down, both asset duration and liabilities duration extend but of course the liabilities duration, because it is larger in the first hand, is running away from you faster. And if you are trying to match duration, what you are forced to do is go out and buy longer term assets.

Now if this sets off a market reaction whereby the lower the yields get, the more I chase long dated bonds, which means that the yields go down even further, and if that's the case, this will only serve to lengthen liabilities duration further. It's like a dog chasing its tail. If you run faster, the tail will run faster from you as well. Now I checked before I came Stan. The German ten year yield is at 13 basis points this morning. German 30 year yield, 30 year, is 53 basis points. And the Swiss 10 year yield is negative, as you know, and it's minus 14 basis points, for 10 year yield in Switzerland. Now these are unprecedented numbers now. If you run any kind of asset pricing model on this, and decompose the yields in terms of how much of it is due to the actuarial expected path of short term rates, and how much of it is the risk premium, the term premium in this case, any reasonable model will now show very very deeply negative term premiums. You are now paying to bear risk. Now this feels a little bit funny because this is a form of risk premium and risk premium is very very negative, which means that there seems to be a huge appetite for risk taking. But if you look at other measures of risk premium, like let's say the spreads on high yield corporate bonds or the volatile premium in equity prices, they are not at all-time lows, in fact because of the old price decline, high yield spreads have gone up rather than down.

So we're getting mixed messages and I think this raises a very important issue for us, which is, are we sure we're actually reading the right thing from the prices? The prices are outcomes, they're not beliefs. If we know the people are behaving like this, then the outcomes may actually be -- so one way to pose this question is, are the negative term premiums a sign of great exuberance? Or is it a sign of distress? And I think this is, I think, a very important question for us. Because if you believe that people are being forced to buy these things, then it's not exuberance that's driving the term premium to negative, but it's actually distress.

We are, I think the -- this reminds me of the poem by Stevie Smith, which is not waving but drowning. I think this is one where we need to look further. We need to look at the mechanisms, and what's going on here possibly is not to so with -- this would not be amenable to the macro prudential tools that we have used in the past, or are even contemplating, let alone actually implementing. And it is very difficult to see how, what kind of tools you would actually use. The worry here is that just as yields have been possibly driven down by amplification forces on the way down, if those amplification forces are still there, then they could easily well operate in reverse once these things spring back up. The lower the term premium goes negative, I think we can be sure that the shot will be the eventual rebound when these things do turn around.

So I would just finish with, and I'm not as good as Bob but uh, I'm going to finish early, I think what this shows is it that macro prudential policy is not about any specific -- oh I'm actually over time. (laughter) Okay.

MR. FISCHER: Thank you but I think you're in the negative basis -- (laughter)

MR. SHIN: Okay, let me just finish, so this is not about specific tool kits and engineering, I think it's about a frame of mind and perspective. Let me finish there. (applause)

MR. FISCHER: Okay, Paul Tucker, please.

MR. TUCKER: Thank you, Stan. And thank you Olivier for inviting me. I'm going to say something about what I think macro prudential policy is. I'm going to define it and say something about the design of macro prudential institutions, and the way I'm going to set it up, the United States does not have a macro prudential institution and nor does the Euro area. The E.U. kind of does.

So by macro prudential policy, I mean something quite specific and I think it's important, Olivier, that your organization, the BIS and the Financial Stability Board do actually bring some consensus around in this, because it's often used as a synonym for financial stability policy. And we don't need two words for one thing, so by macro prudential policy, I mean dynamically adjusting regulatory parameters to maintain, or expect to maintain a desired degree of resilience in the financial system.

Now that's a slight echo of Stan reading out the U.K.'s objective, and of course that's not a complete accident. By which I don't mean I'm reading out U.K. policy, I'm not. So this is not the same as trying to fine tune the credit cycle. It's not quite the same gloss that Hyun was putting on it just now. And it doesn't, it kind of bypasses Jeremy Stein's suggestion that monetary policy should be the preferred instrument because it gets into all the cracks. There are two problems with that for me. First of all monetary policy does not get into all of the cracks. It would get into all of the cracks under autarchy, capital controls with all the transactions within the economy denominated in the local currency. It does not get into all the cracks if you can borrow from abroad in a foreign currency, and it seems to me that the gets into all the cracks metaphor must seem pretty odd to a number of emerging economies. And actually to economies in the continent of Europe as well, where there has been Euro borrowing because it's cheap. And I don't doubt in the U.K. if ever, the Bank of England used interest rate policy to do more than trying to achieve an inflation target that British businesses and British households would eventually borrow in Euros if they thought was a cheaper thing to do.

So my focus is less on managing the credit cycle, which I think is far too ambitious a goal. And rather more on trying to sustain a desired degree of resilience in the system. And behind that lies the thought that the rather appalling thing about these vicious credit cycles is that when the bust comes does the ceiling come down? And we should have -- it's an ambitious enough goal to try and get policy makers to prevent the ceiling collapsing in the future. So how should we think about dynamic adjustment -- state contingent dynamic adjustment, of regulatory parameters in order to sustain a desired degree of systemic resilience? So there are two things going on here implicitly, which I think over time need to become explicit.

First of all, society has a desired degree of systemic resilience. Does it want to avoid a big crisis once every million years, a thousand years, 150 years? Seems that 70 years is more than the public is prepared to bear, but I doubt whether society wants to rule out a crisis for the next five million years. So that's a normative point. The second thing is how risky is the world, if you like, abstractly, what's the underlying stochastic process?

When one thinks about how financial markets and the financial system works, you can think of the underlying risk processes as moving between three broad modes -- normal, exuberant, and depressed. So if that's right, then the first question is, should we calibrate our base regulatory requirements -- minimum capital requirements, minimum marginal requirements, et cetera, to exuberant states of the world? And the argument against doing so is essentially ignorance and uncertainty, in that we don't know enough that if we calibrate our regulatory requirements against the most vicious exuberant states of the world, we don't know what that would do to the supply of credit and to the supply of other financial services. That's a key moment in the argument, and so I'm posing a kind of prudent approach to policy where our ignorance makes us step back from calibrating to exuberant states of the world. That may be a mistaken move, but it's also what was done.

But if we calibrate to a normal underlying risk process, then we know, and this we do know, that the calibration of our regulatory requirements is insufficient when we move into highly exuberant mode. What we then need to do is temporarily change our capital requirements, or marginal requirements, or haircut requirements or what they are in order to sustain the desired degree of resilience. So to be clear this is not changing the goal posts, the goal posts stay fixed, the desired degree is systemic resilience. I don't know whether this metaphor will work for you but just as in monetary policy, the interest rate is tweaked around in order to keep the short term real rate in line with estimates of the short run equilibrium real rate. So this is moving around the capital requirement to keep it in line with some ideal capital requirement necessary to deliver the desired degree of resilience.

Now, from that, quite a lot flows for the design of a macro prudential regime. In the first place, this isn't just about banking supervision. It's not just about maintaining the stability of the banking system, and I don't need to elaborate on what

Bob and Hyun have said. Regulatory arbitrage is endemic, finance is a shape shifter. If you concentrate on regulating banking only, then the systemic risks are going to turn up in the shadow banking or somewhere else in the system. So the scope needs to be broad. So this isn't just about bank supervision, it's also about securities regulation, and it also means it's not just about writing rules. I don't mean writing rules in a lawyer sense, rather than an economist's sense. It's about exercising discretion.

The second thing to be said is, this is plainly a problem of credible commitment, because tweaking, dynamically adjusting the regulatory parameters, is something that might be unpopular. If the tools are in the hands of politicians, they may decline to tweak them because the boom makes people feel good, more likely to get them re-elected. So this of course makes the case for macro prudential regime of the kind I'm defining being in the hands of an independent institution, not necessarily a central bank, but possibly a central bank. But a few things flow from that.

First of all, and of course this echoes Stan's work on monetary policy a few decades ago, the goals should not be in the hands of the independent unelected policy makers themselves. The goals should be decided by the people's elected representatives, and that's not going to be easy to do, because it amounts to asking politicians, so what is your tolerance for a crisis? And technocrats need to find a way of having that debate with the people and the politicians if these regimes are to be legitimate.

It also means, certainly in my own belief, is that if you delegate a policy area to an independent institution, insulated from day to day politics, I don't think society should delegate to them, first order distributional choices. Now I mean choices. I don't mean that these policies can't have distributional effects, because the effects might be foreseen by the politicians who are doing the delegating. That's fine.

Now a concrete version of this is, is it okay for these independent unelected people to tweak around loan to value ratios? When I was in office, my view and Mervin King's view was, not sure, that's probably going a bit too far. I thought of, and John Connor from the Bank of England is in the audience, I thought that you guys found a very neat solution to this 12 months ago, not one that I was part of at all -- they put a limit on the percentage of a bank's portfolio that could be accounted for by very high LTV mortgages. So they didn't ban the writing of LTV mortgages, they just focused of what the resilience of the banking system required. There's a lot to be said about that. Are these instruments, are they too distributional; should they not be in the hands of unelected people? That if we, if we don't debate that in advance, it is going to come back to bite this policy arena.

Now flipping finally to central banks, what does it mean for them? So clearly central banks are reasonable institutions to have these powers, but it then makes them multi-mission institutions. And we have known for decades, both in theory and even more in practice, that there's a problem with institutions having multiple missions, because they have incentives to focus on the single mission that is more salient and more observable for the outside world. So how on Earth are these institutions, central banks, to handle multiple missions? I think there are few things. First of all, I think that if a central bank has macro prudential responsibilities and monetary policy responsibilities -- it should have separate committees. It could have overlapping membership, but I think on each one, there should be a majority of members who are on that committee only.

Now this is what was done in the U.K. and there's a micro committee as well, and people would ask me -- why have you got these three committees and I would always say, so that at each meeting, there is a majority of people in the room that will make sure it's a serious meeting. That however preoccupied the people that are on two or three committees are with other things, they will actually have to step up to the plate, because there's a bunch of people in the committee room who're doing that thing, and only doing that thing.

The second is that they will need to make policy systematic, and a precondition for that is being transparent. A problem that has plagued supervision and regulation is that not only the out turn is difficult to judge, the outputs are sometimes impossible to observe. I think stress testing potentially completely changes that. I think the political economy significance of stress testing is that it's done once a year, it's highly public, the scenario is public, the results are public, politicians can have the Fed into congress, the Bank of England into Westminster, Mario into the European Parliament and say this scenario seemed a bit silly, too strong, too weak, the results seem implausible given the scenario, and of course that would be informed by masses of debate around the stress tests, in the way that monetary policy decisions are surrounded by debate. Central banks should be in the business of encouraging debate about their stress tests and should have thick skins in terms of the criticisms that they need to get in order to build these regimes over the next couple of decades because that is how long it will take.

A final reflection on where this fits with, not just monetary policy in the way Stan framed it, but actually the balance sheet policies of the banks, because it's not just whether the central banks should use their interest rates, it's whether they should be using their balance sheets to intervene in particular markets, essentially to subsidize the flow of credit to some sectors rather than to others. And I will simply say that I would rather use regulatory tools than to use balance sheet tools, because I think if anything that is even more fraught with difficulty. Thank you very much. (applause)

MR. FISCHER: Well we've had three extremely interesting presentations, and I will start by asking, whether any of you wants to raise questions or make comments on what your colleagues on this panel have said, and if not, we'll move on. But just to ask one question of Paul. Paul you wouldn't have intervened to save the commercial paper market in 2008?

MR. TUCKER: Well there's a hole -- so it's a very crude comment at the end, I think there's a distinction between intervening in markets in the kind of upswing where other tools are available and intervening in emergencies. I think there's a very deep issue here, which is -- there's a distinction in kind between if you like credible commitment systematic institutions, systematic policy, and emergency policy. The whole point about emergencies is that you need complete flexibility to do what is right. And the deep question is, who should have that flexibility? Should it be, should the big decisions be in the hands of elected people or in the hands unelected people? So my answer to your question is that that was a fine thing to do, provided it was agreed with politicians, or it was precooked that you would do -- that the central bank would do that in certain conditions. I think in this country there's far too much debate about how awful it is that Federal Reserve will have to get the treasury secretary's permission in certain circumstances. If the Federal Reserve was going beyond the mandate it has been given, it seems to me that it's a positively good thing that somebody who is democratically elected should be involved.

MR. FISCHER: Thanks Bob.

MR. RUBIN: Now I have a question, what should -- and I apologize for not remembering, what should it be referred to, exuberance versus desperation? The problem as it seems to me is, how do you know when you're in a period of exuberance? I mean I ran trading desks for years and if I could have figured that out, I wouldn't -- without being disrespectful, I wouldn't be here with you all, I'd be in the Bahamas or I'd be someplace like that right now. So I think that the concept is a nice one. I remember when Alan Greenspan, and we all remember this, referred to the stock market as being in a period of irrational exuberance, it went up after -- I think it went down for a little bit, then I think it went up and never came back down to a level which he thought was irrational exuberance. So I think that sounds good conceptually, but is not practically applicable perhaps.

MR. TUCKER: So I'll respond in two ways, sorry (laughter), sorry, sorry. Even better, you'll be doing the responding, I won't be, I'll be writing an essay.

MR. SHIN: Of course, it's very hard to tell, whether it's irrational or not. But I think what's interesting is that we do see these divergences. So at least when you're trying to pronounce upon this, you have everything moving together. So the VICS would be very low, it goes below ten, I would say, and then the credit spreads tighten, and asset prices go up and you ask well, is this a bubble? Is this actually sustainable?

At least they all move together. What's interesting now, to the extent that the term premium is a measure of risk premium, which it is, these deeply negative term premiums showing risk taking of tremendous proportions, you're basically saying -- I don't care about this risk and I'm in fact willing to pay to bear this risk. And yet, we don't see the similar extent of unprecedented risk taking in other areas, in other markets, so there's something else going on. And I think this is where and my long term co-author, he runs these models for the New York Fed, and those models, the model we have at the BIS, these are all showing term premium, not only negative, but deeply deeply negative. And this I think is very unusual.

MR. FISCHER: Paul do you want to come back to that?

MR. TUCKER: I would just add, I think one needs to give a certain amount of weight to anecdotal alongside that. So three quotes, as best I remember them, two from Wall Street, one from the city of London and the run up to the prices. First one, this is completely out of control. The second one, conditions are absolutely crazy, people will write any business what so ever. Third one, from the city of London, I asked how will this come to an end, or something like that. And this person said, it will carry on into it smashes into the buffers. And this is all in the Bank of England's files somewhere and will come out in 20 years' time, and there will be scores of such things. And there will be similar things, like I suspect in the New York Fed and elsewhere. Now I certainly don't believe that one can place complete weight on anecdote. And these weren't desk traders, these were people with responsibility of a half the firm. But when one puts it against the kind of work that research departments produce, you can at least take that question to policy makers and make them think about whether they should do something. And this is where stress tests can help because you can then apply the stress test in a really -- I don't think anecdote will tell you the answer, but it might prompt you to dig deeper into something or to frame the scenario that you apply even in an off cycle stress test. So it's -- there will be type one and type two errors of course, but I don't think -- the people that were most concerned about the latest crisis before it happened weren't in the official sector. They were in the private sector.

MR. RUBIN: Yeah but Paul, I kind of remember that period pretty well, there were precious few of them. And that's why the endowments were down and money managers were down, and yeah they were -- a lot of people saw excesses, I can remember doing that in my speeches myself, but I think very few people saw the possibility of a mega crisis of the type that we experienced, because if they had seen it, then we wouldn't have had it. I remember, if you look at the Fed transcripts of 2008, the Chairman if I remember correctly was quoted as saying that we will have some kind of relatively normal cyclical downturn, but of course we didn't, we had -- so I think these things are kind of hard to -- I don't think many people identify them in advance.

MR. TUCKER: Well this is an interesting question as to whether the dynamics would have been the same independent of various official actions that were taken. I'm thinking of Lehman Brothers.

MR. FISCHER: Well it's a good question, I've unfortunately it seems been not keeping time very well. (laughter) So we've got -- the first hand that went up well before he was allowed to raise it was (inaudible) (laughter) He wanted to spark the action from the floor. Over here in the front please.

SPEAKER: Thank you Stan, on this issue of using monetary policy for financial stability purposes and I guess all three panelists talked about -- Paul brought up this argument of Jeremy Stein's that the interest rate gets towards the cracks. Paul questioned that, but let me take Jeremy Stein's argument as given -- I mean I think that this may be the best argument for using monetary policy for financial stability purposes. When you think about it though, I think you must admit that a modest policy rate increase would barely cover the bottom of those cracks, in order to fill those cracks you would have to raise the policy rate so much that you would end up killing the economy. And when you think further about this, you realize that you must actually, if you're going to use monetary policy for this purpose you must make some kind of cost benefit analysis. I mean the cost of tighter policy is higher unemployment and lower inflation in the next few years. The benefits might be less debt, maybe a smaller probability of a crisis, maybe a less deep crisis. But you have to weigh the benefits against the costs. I've actually done that for the Swedish case, using numbers estimated by the RICS bank and by (inaudible) -- and it turns out when you do this, almost back of the envelope calculation, the benefits end up being about 0.4 percent of the costs, meaning that the costs are about 250 times the benefits, just using these easily available numbers. I don't say that this is the last word on the topic, but I think it points to the importance of making cost benefit analysis, when you are going to use monetary policy for such a purpose.

And I wish several people, other people, would do similar cost benefits analysis and see whether my numbers stand up or not.

MR. FISCHER: Thanks, and presumably that's going to be published somewhere -- oh yeah, it's on your website, okay. Could you bring the mike down here?

SPEAKER: Thank you Stan. I have an even bigger question to ask in the sense of -- when we are talking about assessing macro prudential policies, or even monetary policy, I think we sometimes tend to forget that the problems may lie totally elsewhere. So I'm thinking about maybe the bigger problem in this economy is a fiscal problem or a structural problem such as bad legacy assets. So when we talk about monetary or macro prudential policies not being effective, sure they're not going to be because they are not substitutes for fiscal or structural policies. And so maybe we're just barking up the wrong tree and coming to the wrong conclusions. And I just want to alert you that we've done a lot of studying -- I'm at the IMF, looking at emerging markets and it was really interesting, we had a big seminar just last week comparing effectiveness of macro prudential policies across emerging markets and we just hit upon the conclusion that a country like Poland where we found macro prudential policies were very very effective was indeed the country which had the best macro policies. So let me stop there. I'd like to hear your views on that.

MR. FISCHER: Okay, we'll come back I'll keep a record of these questions. There's somebody right at the back? Over there. Could you identify yourself please.

SPEAKER: Hello, Luis (inaudible), from the Ministry of Finance in Mexico. Professor Shin, I would like to go off on a little tangent and go back to your introduction about macro prudential policy and monetary policy being used as complements. And you mentioned the tension where in using them as complements, and then you went a little bit into the example in which monetary policy was relaxing and macro prudential was going the other direction. Do you think the tensions are any different? Greater or smaller if the opposite was the case -- when you have monetary policy tightening and macro prudential policy as understood as your old wine in new bottles definition. Thank you.

MR. FISCHER: One more, that's Anat Admati over there.

SPEAKER: I want to go back to derivatives which was mentioned, and also contest the notion that if the participants knew then we wouldn't have a crisis because contrast that with, we must dance until the music stops and any other reports about what actually went on at UBS or all these other institutions in terms of what they know and what they were doing. My question is, how would we get any understanding of the interconnectedness with the poor disclosures that we have right now? We have hollow assets and subsidiaries, we got all kinds of problems just knowing what's going on. Shouldn't we pay attention to just getting information out?

MR. FISCHER: Okay we'll turn to the panel for this round of questions. The first one was -- when are the problems that are faced in the financial sector best suited by some policies which are not necessarily directly financial, or more generally are they a reflection of something else that's going on and very hard to deal with, through financial policies? Second, the question to Hyun about complementarity and substitutability of macro and macro prudential. And finally this question about well, how will we ever know, given the data that we have and -- by the way there was just, since Hyun is too modest to say so, but he could have said it without praising himself, the BIS was very consistent on arguing -- no official institution argued that we were heading for a crisis, they were arguing that for a very long time, to the point where people thought they were getting tiresome.

Shall we go in alphabetical order again? Bob?

MR. RUBIN: On all three of them? Why don't we do reverse alphabetical order? (laughter)

MR. FISCHER: Well we can do the three questions and take the --

MR. SHIN: I think this is an unusual ordering, but it's the one where we start in the middle. I think this comment on Lars, Lars and I have had these debates for a long time, since, ever since our Princeton days. And actually you're sitting next to Tobias Adrianne and Tobias and I wrote this paper for the 2008 Jackson Hole conference where we addressed exactly this question. I don't think it's right to say that you have to raise rates very high in order to arrest the bubble. I think that logic hinges on thinking of the equity market as the relevant benchmark, and so now you have to raise the cost. If you have leverage players, in particular who are going to be affected by the cost of funding and the cost of leverage, then even a tiny touch on the rudder is going to have a massive effect. And we saw that during the taper tantrum -- there wasn't even a policy action, there was just a hint of a possible future action way down the road but still there was a very very strong reaction. I think the way we think about that question I think is -- so the premise that you have to raise rates a very long way in order to have any purchase on the economy I think is, I think I would question that. On Mexico, and this is not just Mexico, I think this is something that is and we'll see it for the Spring meetings, and this is something that effects a large number of emerging markets.

I think the answer to your question, and your question was should we be using monetary policy in a tighter way while we ease other credit policies, I think that's what you had in mind. I think the answer depends on where are we on the global -- which phase are we in the global liquidity cycle? If we're in the up phase, if we're in the expansionary phase, then that probably is not going to be that good of an idea. I think that's trying to arrest the bubble in the midst of very ample global liquidity using monetary policy, monetary policy alone I think is going to be I think fairly treacherous, whereas now I think it's -- I think this is a very very different environment, when global liquidity is waning, then by all means. I think the only thing one should worry about is if you raise rates too much, it may actually have an adverse impact. If you destroy a banking system by raising it to astronomical levels, then clearly that may exacerbate the crisis and just invite further attacks. So I think it's a matter of degree, but I think right now whether the banking sector is less, at least directly involved, by all means I think now -- if interest rate policy is consonant with your inflation objective and other macro objective, then by all means.

MR. FISCHER: Thanks, Paul take whichever of the three questions, or all, that you wish to take.

MR. TUCKER: On the question of effectiveness, so overstating it slightly, I think you've got the wrong question the way I am framing it. So the way you framed it was, so which is more affective of these macro prudential tools and monetary policy tools of managing the path of credit and consumption and output and so on. And the way I'm framing it is, it's much more straightforward in a sense, if you make the banking system have double its equity. And I mean double its equity, not Harvard's leverage. Then it will be twice as res -- and I mean tangible common equity, then it will be twice as resilient at the end as before. And the question you have to ask is, while in the process of that, what will it do to credit supply and other things, but when people say oh, macro prudential might not be effective, I mean I've been involved in decisions where banks were made, forced, to raise equity that they didn't want to raise, and afterwards, they were stronger and the system was safer, and the reason I'm stressing this in the way I set it up, is that there is a real danger in this debate about macro prudential policy -- get stuck in an area of uncertainty that can't be resolved for decades, until people have conducted experiments all over the place, whereas, the way I've framed it, there are things that people can do now and probably should.

MR. FISCHER: We're now going to take more questions from the audience and Bob Rubin is going to comment on what Paul Tucker said or on the questions.

MR. RUBIN: No, I'll respond to the questions, in reverse alphabetical order, now it's me. (laughter) Yeah I think we do think we do need more information, but I think information is complex too, because derivatives are complex and simply having ports of the specifics of transactions, it's going to be very difficult I think for regulators to understand what the risk exposures are from derivative books. Some day you know we'll figure it out. Somebody made the comment here, and I think you did, and I said this in my opening remarks, on what I wouldn't discuss but I actually think is very important. I actually wrote an Op Ed about this, I think for the Wall Street Journal or some place, I think we've become totally dependent on what central banks can do, and yet that isn't going to solve all the problems with our economies. We need political systems that can deal with fiscal and structural matters and we don't have them. I think this interesting question Paul raised of, if you have, on the one hand you're going to limit lending if you become more restrictive, and on the other hand, you do want to have protection against systemic risk. And who should make that decision, should it be elected officials or should it be the appointed people? I don't think that's a very simple question. I mean as elected officials, I think unfortunately what you said, Paul, better than I did. They tend not to always have the most objective balance in the world.

And then stress tests -- I don't know if I'm right about this Stan, but I think the stress tests that the ECB conducted, I'm told, at least were very serious with one caveat. I think they marked the sovereign debt in market, didn't they? If they did, then it seems to me given the risks and the sovereign debt, that raises a lot of questions about the validity of the stress tests. If I'm right about that, about the marking of the market. And I think they did.

MR. FISCHER: The marking to the market --

MR. RUBIN: No, marked at the market. You know, I'm a Spanish bank owner, I own a bunch of Spanish debt, sovereign debt and they just marked it whatever the price was. Now if they'd sung something different that would have sent a terrible signal and it would have been deeply upsetting to markets. I don't think they had a choice, but I think it does raise some questions about how useful those stress tests were, if I'm right about what I just said. Which I kinda think I am.

MR. FISCHER: Well, I'm still not quite sure what macro prudential policy is, but Olivier wants us to move on I think. Seems to be the message I'm getting, so thank you all very much for coming, and particularly thank you, the three members of the panel for a really thought provoking set of presentations and for your answers to questions. Any announcements from the organizers? Thanks, Bob, that was very good.

MR. FISCHER: It was fun.

SPEAKER: Hi sorry, just a quick announcement, for those of you that received a lunch invitation, the lunch will be at the Listner Auditorium, which is just across the street. And for the rest of the attendees, there will be a brunch upstairs. And we will reconvene at 1:40. Thanks.

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