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THE LEVERAGE RATIO AND BANK CAPITAL REQUIREMENTS

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PARTICIPANTS:

Welcome:

DOUGLAS ELLIOTT,
Fellow, The Brookings Institution

PANEL 1: THE ROLE OF DIFFERENT BANK CAPITAL REQUIREMENTS:

Moderator:

MARTIN BAILY
Senior Fellow and Bernard L. Schwartz Chair in
Economic Policy Development, The Brookings Institution

Panelists:

MICHAEL GIBSON
Director, Banking Supervision and Regulation
The Federal Reserve Board

CHARLES TAYLOR
Deputy Comptroller for Capital and Regulatory
Policy, Office of the Comptroller of the Currency

DOUGLAS ELLIOTT
Fellow, The Brookings Institution

PANEL 2: CALCULATING THE LEVERAGE RATIO AND SETTING A MINIMUM:

Moderator:

DOUGLAS ELLIOTT
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Panelists:

DARRELL DUFFIE
Dean Witter Distinguished Professor of Finance
Graduate School of Business, Stanford University

TIMOTHY G. LYONS
Head of Strategy, Morgan Stanley

MARCUS STANLEY
Policy Director, Americans for Financial Reform

DEBORAH TOENNIES
Managing Director, JPMorgan Chase & Co.

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P R O C E E D I N G S

MR. ELLIOTT: Good morning, everyone. If you could start sitting down, I think we'll start in a minute or two. So, here's your last chance at the muffins there.

Good morning again, everyone, and thank you for responding so promptly to my request. It's a better crowd than usual in terms of that, and thank you all for coming here this morning.

I'm Doug Elliott. I'm here in the Economic Studies Program at Brookings, and it's my pleasure to welcome you today to our event on the leverage ratio and other bank capital requirements.

As you know, banks play a critical role in our economy, so it's important that they continue to function even in adverse circumstances, and one of the ways we ensure this is by requiring that they have substantial amounts of capital.

In essence, capital is money that is first in line to cover losses and which is provided by parties that the public has no reason to protect. Usually the shareholders are the bank. The first loss coverage, in turn, shields depositors and others whom we do care about.

There are several alternative ways to determine how much capital a bank needs. Our event will focus on the pros and cons of these different techniques with particular emphasis on the role of the leverage

ratio. In simplest terms, this is the ratio of capital to total assets in a bank. But it ends up being significantly more complex in practice, as you'll hear over the course of the day.

We have two panels today. The first will discuss the key conceptual issues surrounding bank capital requirements, and the second will focus specifically on the leverage ratio and will dive into some of the crucial technical issues on this requirement.

The first panel will be chaired by Martin Baily, who's my colleague here at Brookings in the Economic Studies Program. He runs the initiative on business and public policy, in which I also work, and he's well known to most of you, but for any of you who are new to town, he has been, among other things, the chair of the President's Council of Economic Advisors under Bill Clinton. As with all the participants, his full bio is available up front.

So, let me turn over to Martin, and I'll let him introduce the first panel.

MR. BAILY: Thank you, and I'd like to add my welcome to Doug. I think this is going to be a really helpful discussion today, and I'm looking forward to it and to moderating this first panel.

So, I'm going to go in order of the presentations that will be made, so our first speaker will be Mike Gibson. He's the director of the

Banking Supervision and Regulation Section at the Federal Reserve Bank here in D.C. So, a very important person to be talking to us today. He was educated at Stanford and at MIT, and he's taught both at the Booth School at the University of Chicago and at Princeton. So, we're very pleased to have Michael here.

A second panelist will be Charles Taylor. Charles was named Deputy Controller for Capital and Regulatory Policy at the OCC, and he oversees the formulation of OCC policy on bank capital issues, including developing policies and regulations to implement revisions to the Basel capital account. Before joining OCC, most immediately he was the project director for the Pew Charitable Trust Project on Financial Reform, which I know about since I was the co-chair of that and worked closely with Charles. And I don't know if he's here yet -- he's running a little bit late -- but he was a great director of that project, and he's done a number of other very distinguished including working at the Group of 30. He's trained in economics, business administration, and mathematics.

The third panel member should not need an introduction, since he's just been introducing himself, is Doug Elliott. Doug was an investment banker for many years. He started his own think tank called Coffee, and over the last few years he's been at Brookings and over a short period of time has accumulated a really impressive body of work on

financial regulatory issues.

So, let's get started, and I'm going to give the podium over to Mike Gibson.

MR. GIBSON: Thank you for the invitation to speak today, and it's a pleasure to be here. I'd just like to start with the usual disclaimer that I'm only speaking on behalf of myself and not the official position of the Federal Reserve Board.

So, the topic today is the role of different bank capital requirements, and it's a subject I spend a lot of time thinking about in my job and also as an economist trained in banking and finance. So, I'm happy to talk about that. And, really, my remarks are going to have two halves. In the first half I'm going to try to put the leverage ratio in context and address the broader topic that we're here to talk about. But I think there's another issue that's underlying a lot of the debate about bank capital requirements and the leverage ratio, which is the risk-weighted asset variability that we observe across banks and how hard it is to explain some of that. So, I'm going to spend the second half of my 10 minutes talking about that, because I think it's actually a more relevant and fundamental debate that we need to be having.

So, what is the role of the leverage ratio in bank capital requirements? The leverage ratio has a really important role, I would

argue, in bank capital requirements. Its role is as a backstop to risk-based capital, and one of the important pieces of the Basel III international agreement was adding an international leverage ratio, which had never been part of the Basel capital agreements before. There had only been the risk-based ratio. So, we should really celebrate the wisdom of the Basel committee and the G20 in adding a leverage ratio to the Basel III package in part because international consistency in capital requirements is very valuable. We've worked hard over many years to achieve that through the Basel Committee. It takes a lot of effort, but I believe that it's worth the effort to have international consistency and that having the Basel leverage ratio as part of the Basel III internationally agreed package is very valuable and important.

So, the role of different bank capital requirements -- I believe that it's the combination of a risk-based capital ratio and a leverage ratio that works better than either one by itself. In particular, the combination of the two reduces the ability of banks to game the system, so it's easier to game one constraint than two; and the leverage ratio has another value, which is that it counterbalances the tendency, which is inherent in banking and financial markets for leverage to rise in a boom and fall in a recession. And as banks ramp up leverage in a boom and cut back and decrease leverage in a recession that amplifies the credit cycle and amplifies the

business cycle. This is what we refer to as procyclicality, and it's a bad thing. So, the leverage ratio can help counteract that.

In the combination of the two, it makes sense for the risk-based ratio to be the binding ratio and the leverage ratio to be a backstop. If the leverage ratio were the binding ratio, that would create a perverse incentive for banks to take on more risk, because what the risk-based ratio does is it requires more capital for more risk, and that's what we want capital requirements to do that creates the right incentive.

So, you need a risk-based measure to have the right incentive for banks -- we as regulators certainly want banks to have the incentive to -- if they're going to take on more risk, at least they have to pay for it by holding more capital. And the risk-based ratio does that. The leverage ratio, as I said, is very important to control the leverage cycle and to reduce arbitrage opportunities, and it can do that if it's structured as a backstop.

So, that's the initial remarks I wanted to make on the role of the leverage ratios. It's a very important role. It's good that we've added a leverage ratio to Basel III, in my opinion, and we need a leverage ratio as a meaningful backstop.

So, why are we having a debate about the leverage ratio? I don't think many people would disagree with the structure that I've put out,

although we'll hear from many distinguished panelists today and maybe some of them will disagree. But I think the main reason why we're having a debate is because there's a large and growing body of evidence that shows that the current system of risk weights is not working.

So, what I think we should be spending some of our time today debating is the best response to the loss of confidence in risk weights. That's an open issue and one I think we really need to debate. I think the leverage ratio gets a lot of prominence as one of the possible answers to that question, so obviously if you've lost confidence in risk weights, then the leverage ratio is one solution to that, because it doesn't have any risk weights included in it. But I think there are some other still possible options to deal with the loss of confidence in risk weights, and I'd like to talk about some of those.

Before I do that, I thought it would be useful for me to summarize briefly some of the evidence that's out there that's undermined confidence in risk weights.

There have been studies by the Basel Committee and others that have shown that banks are assigning different risk weights to the same exposures, and the Basel Committee published a paper earlier this year that looked at large corporate loans that were held by -- the same loan held by different banks that found that they were assigning different

risk weights with different capital. We see that banks with similar business models and similar exposures are holding different amounts of capital, and it's hard to understand why that is, because banks aren't very transparent.

If you look at it the other way, you could say that we're observing that banks with different risks are not necessarily holding different amounts of capital, so it's another way of looking at it, which really brings home the fact that without confidence in risk weights, that really undermines the whole risk-weighted asset ratio.

If you read that Basel study on credit risk weights that I mentioned earlier, the summary take-away from that is that there is a range of uncertainty of around 2 to 3 percentage points around the typical risk-based capital ratio, and within that band we really can't say with any confidence what the difference is among banks within a 2 to 3 percentage band of risk-based capital ratios. We can't really say if the ranking of the risk-based capital ratio corresponds to the ranking of the risk.

This is a wide range of uncertainty, and it strikes many people as unacceptably wide, which is what generates the loss of confidence in risk weights, which is what generates a lot of the interest in the leverage ratio as an alternative.

So, there are two other alternatives that I'd like to talk about that I see as part of this debate on how do we respond to the loss of

confidence in risk weights. So, two alternatives: The first alternative is try to narrow the differences in risk weights with supervisory guidance and tweaking the rules that we've got. And what the Basel Committee has been doing with these studies that they've published, and many private analysts have published studies as well, is they've tried to characterize the differences in risk weights and what the drivers of the differences are. They've tackled certain asset classes, planning to do more asset classes, trying to build up a lot of evidence and understanding about what the differences in risk weights are and what the sources are.

Then, the next step in this strategy would be agree on what the most important sources of differences are, and then take some targeted measures to reduce those. And these could include things like floors on the results coming out of internal models or plugging in a parameter where currently -- just to use one example -- banks are free to set their own loss default parameters on certain corporate loans. Well, we could take away that freedom and we could say, look, just use 45 percent for everything. That's just an example. I'm not advocating that, but that's the sort of example that would be a targeted measure once you've identified what the most important drivers of risk-weight variability are.

And then going along with that would be more disclosure. So, more disclosure by banks could help explain what are causing the

differences in risk weights, and that could get people more comfortable again and regain the confidence in the risk weights that's been been lost.

So, leverage ratio as the binding ratio is one strategy in response to loss of confidence in risk weights. Using supervisory guidance and rule changes to narrow the differences is a second strategy. And there's a third strategy, which I would describe as reduce the use of internal models in regulatory capital in favor of standardized risk weights.

So, let me talk about that for a little bit. The variation that we see in the risk weights reflects the discretion that Basel II gave banks to use internal models to set their own capital requirements. And I think it's fair to say that with hindsight, Basel II seems to have given too much freedom to banks, and banks have used this freedom in some cases to game the system, change their models with the express purpose not of better measuring the risk but of reducing capital requirements.

Supervisors, in response, have been forced to devote a lot of resources to try to counter these regulatory capital arbitrage efforts, but that's a continual game of catch-up that the supervisors aren't likely to ever fully catch up, because the resources are very imbalanced between the supervisors and the banks. And even in the cases where banks have not consciously been gaming the system, the freedom that Basel II gave to use their own models allows banks to assign different risk weights to

the same exposures. I think it's fair to say the designers of Basel II expected that that would happen. And I think they all probably also expected that those differences would be small and distributed evenly across banks, which may have been an acceptable outcome, but I think the evidence that I mentioned earlier is showing that the differences are not small, and they're not evenly distributed across banks.

So, using standardized risk weights in place of some of the internal model-based risk weights would certainly make the risk weights and the capital ratios more comparable. It would restore a level playing field. It would have some other benefits as well. It would make regulatory capital simpler for the banks, supervisors, and outside analysts to understand and would also reduce the procyclicality that's one of the problematic parts of Basel II, which means that as banks set their own risk parameters over the cycle, they tend to be optimistic in a boom and pessimistic in the recession, and when capital requirements depend on internal models, that feeds right through into the capital requirements, which makes the capital procyclical as well.

So, that's the positive argument in favor of using standardized risk weights in place of internal models. Of course, the argument on the other side is that Basel II wanted to use banks' internal models to set regulatory capital to achieve the worthy goal of making

regulatory capital more risk sensitive, and using standardized risk weights would reduce risk sensitivity.

So, how do we think about that? Well, I think one thing that's different now than at the time when Basel II was being developed is that we have a tool that was not available at the time of Basel II, which is stress testing. So, we have supervisory stress tests, which effectively feed into capital buffers that banks are required to hold over the minimum. It's very risk sensitive. It uses granular data collected from large banks. It uses many supervisory models that are under the control of the supervisor to estimate the stress losses in revenues and capital ratios under a severely adverse macroeconomic scenario. And we require banks to do their own stress testing as part of our capital plan rule, and they have to incorporate their stress tests into their capital planning.

So, this third option that I'm outlining really involves trading bank internal models for stress testing as a way of having risk sensitivity as part of capital, and that would then reduce the problem with risk-weight comparability, and it would build in the stress testing.

Now, just to sum up, this debate is already going on within the Basel Committee. The Basel Committee put out a paper early this year on the balance between simplicity, comparability, and risk sensitivity in bank capital requirements, which is out for comment, and a number of

comments have been received. And I think the debate that we're having today on how to respond to the unacceptably high variation in risk-weighted assets is related to this debate about the balance between simplicity, comparability, and risk sensitivity, and it's related to the debate around the leverage ratio, which as I mentioned is one of at least three possible ways forward to address the lack of comparability in risk weights.

So, let me stop there and look forward to the questions later.

MR. ELLIOTT: Well, thank you for this opportunity to address this distinguished audience here at Brookings and on an important topic. Listening to Mike Gibson's comments, I think that, if not every single word, at least the great majority of the ideas that he's expressed, are the ones which I would share and I think give a context to how we are thinking about the leverage ratio in the Basel Committee, and I don't think I can improve on it. So, I'm going to be quite brief in my remarks.

First of all, I think the key idea here is one of getting balance between the leverage ratio and other ways of establishing capital standards, the risk-based capital standards, either the standardized approach where the modeling is under the control of the supervisors or the internal models approach where the modeling is under the control of the institutions but is supervised and vetted by the supervisors.

So, each of these approaches has disadvantages. The leverage approach obviously was what we had before 1986, before Basel I, and it has the disadvantage of being easy to arbitrage in the sense that banks can increase the return on their portfolios by taking on more risk for a given value of assets, and it does nothing to their capital charges. It also has the disadvantage, as Mike referred to that -- it doesn't allocate capital where the greatest risks are. The problem with the standardized approach is that it doesn't -- it's rough and ready. It will not be as precise in terms of risk weighting and identifying and allocating risks, particularly new and emerging risks, as internal models-based approaches. And to the extent that that's true, it has the same disadvantage as the leverage ratio. It's a crude measure of where the risks are, and consequently it will do a better job, with a bit of luck, of allocating capital to where the risks are. But it probably won't do as good a job as a well-run internal models-based approach.

I think that was the idea that empowered the Basel II effort, that if we could get large institutions to build their own models as well as possible, we would be doing things in the ideal way. The problem, of course, was that we observed that capital ratios declined where internal models were used. So, there was sort of a second kind of arbitrage that emerged. We had a model arbitrage, if you like, and I think it's possible to

look at this from a cynical point of view and say that this is something that the banks were involved in this were happy to do. But it's also possible to explain it as a rather natural process in the sense that a model would be approved by regulations. It would go into use for capital calculation. In a few months' time, a refinement to the model will be developed perhaps in response to some new feature of the part of the portfolio of the bank that it was covering, and it would be put forward for approval by the regulators, given careful scrutiny, and approved perhaps with some modifications. That process might happen two or three times.

Of course, unfortunately, the process is one where there's a selection bias, a natural selection bias. Anybody looking for refinements in a model will be looking for ways to refine it to reduce the capital charges rather than to increase them. So, it's not a malicious thing; it's just a natural process that you see over time. Models do have this tendency to, so to speak, create their own kind of arbitrage. I think that's why there is a great deal of tolerance and interest in the idea of giving more prominence to leverage in the Basel Committee at the moment.

The other reason, along with sort of counteracting that shortcoming of the risk-based approach, the internal models risk-based approach, is simplicity. It has a certain kind of simplicity. It's simple to explain, and it has a certain kind of comparability. You can measure and

see and compare leverage ratios very easily.

But of course it's not comparable if you have two banks with a similar sized asset base and one of them has a risky portfolio and the other does not. It's not comparable in the sense that it doesn't provide for a similar amount of capital for a similar amount of risk. So, leverage has a part to play, I think is where we're at. We're trying to decide exactly what part it should play in the future, but it has a part to play both in acting as sort of a belt-and-suspenders counterweight to the risk-based capital rules and also as part of our way of trying to think through ways to simplify and make more comparable the Basel capital rules.

So, I want to make a couple more points. All of that was a long way of saying I agree with Mike. I'll make a couple of very brief points about the evidence that we have and about sort of where we should be. A word of caution about where we should be heading. I agree with Mike that the evidence of variability, particularly the evidence generated this year by the Basel Committee studies on risk-weighted assets in the banking book and the trading book.

The two studies were -- each had two ways of looking at the problem. One was top down, based on public data; and one was bottoms up, looking on a hypothetical portfolio, which was given to a sample of banks and they were asked to calculate risk weights. The latter study had

the shortcoming that it was hypothetical. It wasn't the real portfolio. But the great strength that when they did their calculations there was no difference in the underlying risks of the portfolio that contributed to the observed variation in risk weights between banks. So, in other words, the observed variation could be attributed entirely to differences in modeling and differences in regulatory regime, regulatory discretions of one sort and another.

So, the variance we saw in both portfolios was remarkable similar. It was of the order of 2 to 3 percent. When capital standards are 10 percent or thereabouts, you're talking about a very significant amount of variation. It is a very worrisome level.

My point would be, though, that that's a sort of a first cut interpretation, and that really is saying where the extremes were -- the maximum and the minimum. So, you had a significant variation in impact across the portfolios. But when you took away one or two outlier institutions, the variation was considerably less, and if you were looking at variation below the mean or the median, it was less still, and I'm not sure that as a public policy matter we have to be too concerned with institutions that calculate their risk-weighted assets above the mean or the median. In other words, if they're more conservative than the mean, all well and good. It's the ones that are less conservative that are a source of anxiety.

After one has made those two adjustments, you can't exactly throw away the outliers on the bottom end of it. But you may ask yourself, quite reasonably, the question: Is the right way to deal with those outliers to change the way the capital standards work for everybody, or should you have an outlier approach? Should you engage with the individual institutions in question and have a regulatory dialogue with them and say, look, why are you so far from the norm? They may have good reasons, but you'd want to know what they are.

So, you're left with some level of variation, which is considerably less than the headline number. And my word of caution is that I don't think we want zero variation when it comes to risk-weight asset calculations. We would like there to be some diversity in the financial system in the way that risks are computed and thought about and capital is allocated, because we don't really know what implications uniformity would have for, let's say, (inaudible) behavior and for other aspects of vulnerability of the financial system to future shocks. It's generally not a bad thing in a large population to have some diversity. This is a very core element of our financial institutions, and if globally they all began to resemble one another in a sort of rote way, it might not be the best thing for the stability of the financial system in the future.

So, there is a challenge ahead for the Basel Committee, but

among other challenges in terms of trying to figure out how to reduce the risk-weighted asset variation -- among other challenges is the challenge of how far do you want to go? We shouldn't be driving it down to zero.

My last point I think touches on this question of how do you deal with the outliers and supervisory dialogue being an obvious way to go? When I joined the OCC two ago and started to engage on these issues, I was part of the regulatory community, but I sort of straddled the two communities -- so, the regulators who make up the rules and the supervisors who go out and talk to banks and try to get things to happen. I went to Basel for the first time, and it was the Basel Committee on Banking Supervision, and we didn't talk about supervision at all; we only talked about regulation. So, I came back waving the flag and saying, look, we've really got to do more on supervision and see if we can't do more to enhance standards of supervision internationally. And I think we're making progress on that score. We're beginning to think more systematically about how we manage against impact within the supervisory agencies. And perhaps we're just beginning to think about how we can increase the transparency of what we do in supervision.

The bottom line is that if you have a choice between a bank that has strong management and weak capital or weak management and strong capital, you're much better off living with the bank that has strong

management and weak capital, because the management will build the capital for you. They may have suffered some shock and there may be some historical explanation. And dealing with management issues, dealing with a variety of other issues to do it the way in which is the bank is organized and is run is the stuff of supervision. So, my point here is that capital standards are just one of the tools we have to help ensure the stability of the financial system.

I think this ties back to Mike's final point, too, that we need to give more thought to how we make the very best use of our newly developed capabilities for stress testing. Stress testing is vulnerable to criticism, because it involves subjective assumptions about scenarios and about the relationships between those scenarios and how banks; positions change. But, having said that, it has the great advantage of being something that the regulatory community has more control over. You can apply to cross the sectors, so it has useful implications for thinking about systemic shocks. And it's tail oriented where a lot of what the bank's do of course appropriately is not our oriented about accuracy I the tail; it's about accuracy in day-to-day management of the bank.

Thank you.

MR. TAYLOR: Good morning yet again.

We've heard from the previous two speakers about three

alternative ways of measuring capital: the leverage ratio, risk-based capital, and stress tests. One nuance I would add is the stress tests actually aren't a complete substitute in the sense that at the end of the stress period you want the banks to have some level of capital, and that level of capital is measured as some level of risk-based capital or as some leverage ratio. So, even if we move more toward stress tests, we still need to decide at the end of the stress test how we are going to measure adequacy.

Mike had alluded to the Basel Committee discussion paper that looked at and asked questions about risk sensitivity, simplicity, and comparability. It's an excellent paper if you've not seen it, because it points you toward the right issues. We know that we want to find the right balance between risk sensitivity -- you want that because, after all, fundamentally we want to know that capital levels reduce the probability of a bad outcome either individually or systemically down to an acceptable probability. That's fundamentally what you're trying to do with capital, so you want risk sensitivity in it. You want simplicity as much as you can possibly get it in this complex area, because things that aren't simple are more likely to be wrong or more likely to be misunderstood. So, all this equal, we definitely value simplicity. And comparability -- or I would prefer to call it transparency -- is also really important so that you can look from

the outside and actually understand what's going on.

So, we clearly want all three of those. And there are tradeoffs between them. I mean, to give a couple of examples, you could have a highly tailored detailed, very well done risk sensitivity analysis, but the very level of detail is likely to make it difficult to understand and difficult to compare across institutions. So, you'd fail in the other objectives. Flipping to the other end, a very simple test, like the simplest version of the leverage ratio where you take the capital and divide it by the assets on the balance sheet -- that's very simple. And it's pretty transparent. But it doesn't capture risk sensitivity at all, and almost everybody believes that you need to capture some things that the balance sheet doesn't capture in order to understand what's really happening. So, so far I don't think anybody would seriously argue with what I've just said.

I will venture an opinion, though, which is I personally believe risk sensitivity is the most important of these three objectives. We want all three. In the real world, it would be a mistake to pick just one. But if I had to pick just one, I'd rather have the risks captured so that in reality the capital levels reduce the probability of a problem to an appropriate level, even if nobody was quite sure that they did.

Now, again, in the real world it's not as simple as that. But if you view risk sensitivity as the primary goal, which I believe it should be

for capital, then you do head toward something like the Basel Committee approach or the approach of the U.S. regulators, which is to say let's try to make sure the risk-sensitive approach is at the core, and then let's figure out how to deal with the issues that can arise because of the problems of that approach. So, you use leverage ratio and stress tests to try to deal with those weaknesses.

Now, if we were to use just the leverage ratio, as there are some people who argue for, or if you use it in combination but in practice it's the binding constraint, it's the one that creates the highest capital requirement of the multiple requirements, you run into real problems. And they've been alluded to already, and I know the next panel will talk about them as well, so I won't go at great length.

But what the leverage ratio does is essentially ignore risk. It's equivalent to having a 100 percent risk waiting for everything, and that pushes banks to substitute high-risk assets for low-risk assets, which is generally the opposite direction of what we're trying to do with things like liquidity ratios and other measures. It's also not nearly as simple as is sometimes claimed. If the leverage ratio really were just -- you take the published balance sheet and do capital divided by assets, it would be incredibly simple. It would be one line. But everyone recognizes that there are off-balance sheet exposures and contingent exposures,

derivatives exposures, securities financing transaction exposures where the measure of your exposure is not fully captured on the balance sheet. So, you want to have additional -- you basically want to expand the denominator to account, to some extent, for those risks.

Well, once you start to do that, it gets complex. You're essentially modeling what level of risks exists with those what I'll call off-balance-sheet assets and liabilities.

As has been mentioned already, straight-leverage ratios are also quite easy to game. There are a lot of ways to change your level of risk without changing the total assets that you have.

So, I firmly believe we need a risk-sensitive measure at the core. But as has also been pointed out, risk-based measures that we have now have a number of flaws with them. Using the internal models whose credit risk lead to risk of gaming -- and also I'd emphasize just plain conceptual mistakes. Five years ago, or just before the crisis, if you had gotten all the smartest people in and gotten their disinterested view of the levels of risk that were out there, they would have been wrong. And to the extent that we rely on even that consensus, we can run into error. So, we need something to counteract that potential.

We also, as has been pointed out, need more transparency with the risk weights. We need better supervision to deal with the outliers

who shouldn't be outliers, and I think you may need, in some cases, to have minimum weights in certain detailed categories to avoid the possibility that you're just coming way too low.

Another whole issue is that sovereign debt on the whole is treated as riskless, and I think we're all aware now that it's not riskless. So, some way of dealing with that. And there are other issues as well.

Now, I believe as an appropriate response to this, we do want the leverage ratio to be more important than it was, and for me part of that is that I think we need a higher than 3 percent minimum leverage ratio. Three percent is what the Basel Committee initially had come out, thought they are giving some consideration of changing that. The U.S. proposals are for 5 and 3 percent, measured a little bit differently but higher than the three.

To the extent we do make the leverage ratio more important, it's also critical that we deal with some areas in which I think we mis-measured the exposures. There's something called the "current exposure measure" that is used for many of these off-balance-sheet-type exposures, and it's clear that that overstates the true risk quick, considerably for the large banks, and I've been told but have not had the opportunity to check that it can understate it for smaller banks. I don't know that one for sure.

Also, it's quite clear that we need to better handle the advantages of collateral and of netting, which I don't believe are captured as well as they should be at this moment.

Coming back to the stress test, I do believe there a potential role for stress tests larger than we've had them today. I think that could make a lot of sense and we really should explore it. But it's important to realize that as we use stress tests currently, they have a number of disadvantages. They're opaque. They're ad hoc. There's not necessarily a tremendous theory behind the choices that are made. They're high variable from year to year. And they lack international standards. Now, I think there are ways to deal with all those things, but we need to make sure we can do that.

So, in conclusion, I think we're largely on the right track. I think the people in Basel and the authorities in Washington are moving broadly in the right direction, but there are a lot of details that we do need to get right.

So, thank you.

MR. BAILY: Thank you. That was really helpful. The microphone you have in front of you, if you press "speak" to speak and "mute" when you're not speaking, that will make everything work smoothly.

Let me just get a quick judge of the number of questions. If

there aren't immediately questions, I'm going to ask some myself. I'll give the panel the opportunity to comment on each other's remarks, although, there seem to be a lot of agreement, so I'm not sure how much disagreement I can generate.

Yes, a question here.

There are microphones. Could you bring up a microphone?

Could you please identify yourself?

MR. BRODSKY: Marc Brodsky, retired physicist and CEO. Could you comment on when you do these risk-based measurements of any kind, bank size, and the too-big-to-fail syndrome, whether a bunch of smaller banks would overall reduce the risk for everybody and therefore change the risk-weighted assets?

MR. GIBSON: Well, the approach that we've taken so far has been to apply -- to set the risk weight -- set the standards for risk-weight calculations broadly, and then we let banks -- well, what we've done in the U.S. is we require internationally active banks to use the most advanced risk-weight methods and we allow other banks to opt into that. These are the internal model methods. And we let smaller banks use the standardized methods. So, there's some optionality in there that we've allowed.

That has not been the way that we've been trying to address

concerns about too-big-to-fail. One thing that we have done in the capital area or that we're planning to do is that in the Basel Committee we've agreed that there should be capital surcharges for the most systemically important banks, and, you know, we're going to follow through in the U.S. and implement the agreement that we've had in the Basel Committee to impose a surcharge of between 1 and 2½ percent extra risk-based capital on top of what's required for other banks. That's one of our -- that's the tool we've got within capital to address the concern about systemically important banks. So, it's not different risk weights; it's just you're seeing risk rates and more capital.

MR. BAILY: I'll just quickly add, I think your question is partly about imagine a world where you have one large bank or ten small ones, which is more stable? And it's partly about what happens not so much when you set the capital standards but what happens if a bank fails. Clearly, when there's one large one, that's it, and you have to think about how you resolve it in an orderly way. How difficult and challenging that is depends in part upon how contestable or how dominant its position is in any particular systemically important functions, like payments, like custodian, and in particular markets like the government bond market, let's say.

So, if you have a high level of contestability with large banks,

it may be easier to resolve than if you have a set of smaller banks, each one of which occupies a niche uniquely. It's very difficult to replace. So, it's not always the case that a resulting problem with a set of smaller banks will be less of a challenge from the point of view of systemic stability than resolving it with a large one.

The odds probably favor that, but it's not the whole story.

QUESTIONER: Good morning, (inaudible), IMF.

I have two questions, if I may. One is about the stress testing and the inputs of stress testing, because in my understanding stress testing is very much based on many of the parameters that are also the same parameters produced by banks in their internal models. And so I wonder whether a move toward renouncing to internal models could in a way jeopardize the same inputs that are used for stress testing.

The other question is about risk sensitivity and procyclicality, because I think that this is a question that has been there since the beginning of the reform with Basel II and it has never been, in my view, addressed completely. I think that if we want risk sensitivity and we intend risk sensitivity as a, you know, time series space, there must be procyclicality. So, I think that my point is what is the right balance between risk sensitivity and procyclicality, and so I wanted to hear your point of view on this.

Thanks.

MR. GIBSON: Yes, taking your second question about the risk sensitivity, I think in some ways what we would ideally like is some sort of across-the-cycle estimate of what the risks were, because we have the paradoxical situation, given how financial markets actually operate, that often when the risks appear to be lowest -- because we're all too complacent -- the risks are actually the highest. And at times when we've just had a bust, things look terrible, there's an overestimation of the level of risk, market levels, market measures of risk will be extremely high. But, in fact, the true risk is somewhat lower than that. If we could get some sort of across-the-cycle sensitivity for these institutions, which we do hope will survive through entire cycles -- I mean, there's no panacea here; it's just hard. But I think that might be helpful.

MR. BAILY: I'm going to impose a question of my own, and then I'll get back to someone who we just cut off.

So, the assumption -- everyone seemed to agree that risk-weighted assets, if you could do them right, with some stress testing involved, would be the right way to go but that somehow the leverage ratio is sort of good to have or good to have in reserve. And I'm not sure I'm understanding the logic here. I mean, do we want the leverage ratio to be binding or not? If we don't want it to be binding, then why do we have it

there in the first place?

This goes to the second panel, and I don't want to steal Darrell Duffie's (inaudible). I'm quite sympathetic to what he was saying, really, which is to get the risk weights right, do the stress testing to reveal the tales of the distribution if you can, and then use that. Why is the leverage ratio -- I mean, it just seems a cosmetic thing more than a substantive thing.

MR. GIBSON: I guess I'd say that maybe in an abstract, theoretical sense -- you're right, that if you could really determine the true risk weights and base everything on that, that would be the way to go. But I think in reality, we know the risk rates are always going to be imperfect. Each one individually is imperfect and has its limitations -- the risk weights, the stress testing, the leverage ratio. I think using all of them gives us a little bit more comfort that -- well, if we get one of them wrong, at least we've got -- like, if we get the risk-weights wrong, at least we've got the leverage ratio as a backstop. And, you know, we definitely soft in the crisis that there were some exposures that banks internally thought were very low risk, like Triple A rated Securitizations were mono-line financial guarantors, where internally the bank thought, this is not very risky. Yet it turned out to be very risky exposed, and those are the sorts of exposures that the leverage ratio helps with, because it says, well, if you

put an exposure on your balance sheet, you might think the risk weight is very low, but you also have to think about there's a leverage constraint as well.

MR. BAILY: I'd reinforce that and say that the essence of the problem is that nearly all of the risk analysis done in banks is done *ceteris paribus*. You assume that everything else in the banks' portfolio is stable; you analyze the dickens out of a particular portfolio and come up with a very precise model. But in systemically unstable situations, everything is not *ceteris paribus*. Things begin to interact, sometimes very quickly and sometimes very violently. And that again is a situation in which the risk-based approach may very well break down, and having a pair of suspenders on as well as a belt is a good idea.

MR. GIBSON: Yes, Martin, if I could add one other point on that, because I think it's possible we may have confused things slightly. I don't think any of us are arguing that you never want the leverage ratio to be binding. What we're arguing, I believe, is that in normal circumstances for most banks, you don't want it to be binding but that it would catch some outliers and that there may be points in time where you actually would want it to be binding because you're in exceptional circumstances.

MR. BAILY: Okay, let's -- there was a question here that got cut off by me in previous questioning.

Yes.

QUESTIONER: A sort of more practical version of the same thing. I think one of the major concerns of the industry at the moment is that the U.S. proposals for 5 and 6 percent leverage ratios will in fact become the binding ratios, especially if the Basel exposure measure is adopted in something like the version that's been proposed, which would give rise to all the inconveniences that Doug mentioned. I wonder if you would comment on where we're actually going with this.

MR. BAILY: May have some constraints, but --

MR. ELLIOTT: So, because we have a rulemaking proposal outstanding, I can't talk about the merits of different options, and we've received comments on that, so we're engaged in the process of looking at the comments. But just to explain what was in our proposal rather than to say where we might go with it. So, the initial Basel III agreement was for a 3 percent leverage ratio calculated on a denominator that includes some off-balance-sheet exposures, and the numerator is tier one capital. So, leverage ratio is 3 percent, tier one capital, to exposure measure that includes off-balance-sheet stuff. And in Basel III, the tier one risk-based capital ratio is 6 percent. So, we had 6 percent risk-based capital, 3 percent leverage ratio. And people seemed to think that was fine. No one was telling us, in 2010, at the time of Basel III or even when we did

our Basel III final rule in the U.S. that we were inadvertently making the leverage ratio the binding ratio.

So, now the risk-based capital ratio in Basel III with the buffer on top is for the systemically important banks, because they have that extra buffer that I talked about, it's going to between 9½ and 11, so let's say that's 10 or 11 percent, including the buffer. Our proposal in the U.S. was to add a buffer of 2 percent, which makes the total leverage ratio 5 percent. So, what we've got is 10 or 11 percent risk based, 5 percent leverage ratio, which seems roughly the same ratio as the 6 percent and 3 percent, so I don't understand exactly what the fear about the binding this is, except that, as you pointed out in your question, there are discussions underway within Basel, that maybe we should change the numbers ratio exposure measure. And some of those changes would increase it; some of those changes would decrease it. So, I guess from the perspective of worst case scenario analysis, if the Basel Committee adopted all the proposals that would increase the denominator and none of the ones that would decrease it, then obviously that would affect the calibration. But that's even more hypothetical and in the future than everything else we've been talking about.

MR. BAILY: (Inaudible), do you want to comment on that? Okay, next question. We should probably take one at the back now.

MR. ROLAND: Neil Roland, Demlex News, for Mike and Charles.

How do you see the interplay of the U.S. and Basel regulatory processes playing out?

MR. TAYLOR: Well, I'm relatively new at this game. I've only been with the OCC for two years, and I've been struck by how much interplay there is, and that in fact when I arrived we were thinking about what to about credit rating agency ratings and the fact that under Dodd-Frank we couldn't use them to set capital standards. And at that point in time we were, I think, charting new -- going through new territory here amongst the three federal banking agencies and trying to figure out what you could do, what sort of a framework you could develop to be reasonably risk sensitive if you didn't use credit ratings. And that was from anything that the Basel Committee was thinking about at the time. Over the last couple of years, we've seen a great deal more interest in Basel in thinking about how to minimize the dependence of the capital regime internationally on credit ratings. So, I think that's an example of where there's been a flow of ideas from the U.S. to Basel, and there are, of course -- obviously, as we were developing Basel, as we were developing Dodd-Frank here and as Basel III was being developed in Basel, there was a very lively exchange of ideas, although I think much of

the (inaudible) emphasizes the differences. If you were to draw up a sort of score card, I think you'd have to say that the similarities are far more pronounced than the differences overall. And that reflects the fact that there's this flow backward and forward.

MR. BAILY: All right, maybe one more question. There's one there or one up here.

MR. SANG: James Sang. I have a question about Mike's comment about 2 and 3 percent uncertainties in the estimates of risk weights. Banks exist -- we're talking about bigoted national banks, but even these bigoted national banks have local characteristics, and of course there are American apples and Japanese pears and stuff like that. Does that 2 and 3 percent include factoring in the differences in the local environments of the banks, or do you just take a particular U.S. portfolio as 2 to 3 percent and you can't compare the uncertainty (inaudible) in Japanese or Chinese bank?

MR. GIBSON: Let me just pile on the second. There's a question up here, on the aisle there. And then we'll get the final words form the panel.

MR. CHECCO: Yes, thank you very much. Larry Checco, Checco Communications.

Mr. Elliott talked about risk, simplicity, and transparency and

said that risk was probably the most important thing. I would wonder why transparency wouldn't trump risk in this. Why is it so difficult to make these banks transparent? I would think if you saw their books more clearly, we could assess their risk more accurately.

And that's it. Thank you.

MR. BAILY: Okay, so the last word starting with Charles.

MR. TAYLOR: I'll address the first question to do with pears and apples, apples and oranges, whatever it is that you're used to, and say that in the trading book case, it was a widely traded portfolio that was actually traded by the institutions that were covered by the sample -- so, that's pretty straightforward -- that was in the hypothetical portfolio exercise, the bottom-up exercise, so there may have been differences, national differences, in the way that risks were being assessed, but the fundamental risks associated with the portfolio elements were the same. So, that was the case in trading. It was pretty straightforward.

In the case of the banking book, it was more difficult. Again, it was listed securities low, low default probability securities that made up the portfolio that was shared amongst the banks. Some 3,000 names I think were used. The difficulty here was that no bank in the sample had loans outstanding or exposures to all 3,000 names. So, the methodology actually was to say, of a particular bank, let's look at a particular name that

you actually do make loans to and see which other banks in our sample make loans to that as well. So, name by name, the subset of banks that was in the sample, so to speak, changed. But every bank that was considered for a particular name did have an exposure to that particular -- and then you had to, so to speak, splice together of these somewhat different results, and it was quite a sophisticated statistical process to produce a kind of synthetic result as though all of the banks had been exposed to all the 3,000 names. But again, there was no way in which the differences in national or institutional risk management were going to color the results or detract from the comparability of the results.

MR. BAILY: Michael, do you have any last word?

MR. GIBSON: I guess, drawing on the last question and also kind of summing up what we've talked about, I think, Doug, you framed it well when you talked about the balance between simplicity, risk sensitivity, and either comparability or transparency. I think that is what we were debating here. I tried to, you know, lay out that I see -- at there are three possible ways we can go, and I think really what we should be doing is evaluating each of those three on how well did they do on simplicity, transparency, and risk sensitivity. And, as you already said, if you put a lot of weight on risk sensitivity, that's going to lead you in one direction; if you put a lot of weight on simplicity, then something like the

leverage ratio looks more appealing. And I think having that debate, and if we can become more explicit about what we're disagreeing about, which is really the importance of simplicity or the importance of risk sensitivity or how well the difference options do on the different dimensions, I think that's a good way to have the debate.

MR. ELLIOTT: Yeah, and on the same question, which is a good one, the reason for my bias is I would rather have a good measure that's a little hard to understand than a bad measure that everybody can understand and compare. And I think that for capital, our goal is to reduce the probability of a bad outcome to a level that we can live with. And that's inherently a risk-sensitive thing. So, I believe it's very important that our prime measure focus on the degree of risk, even if we end up making some sacrifice on the other goals. But I do believe all three goals are important, and the best system we can design to balance those would be the way to go. I don't want to minimize any of them, but there is some danger in being so focused on comparability that we sacrifice accuracy.

MR. BAILY: Well, thank you very much to our panel, and it's (inaudible) discussion and, you know, move to the second panel.

(Recess)

MR. ELLIOTT: Good morning again. Hopefully, you're not completely sick of me yet, because I am moderating this panel, and it is

indeed, my pleasure to moderate this second panel, which focus specifically on the leverage ratio. So, let me briefly introduce our panelists, and again, their full bios are available to you out front, if you haven't picked up a copy.

Our first panelist is Timothy Lyons. Tim is head of strategy for Morgan Stanley. He'll be followed by Darrell Duffie, who is the Dean Witter Distinguished Professor of Finance at the Graduate School of Business at Stanford. Darrell has kindly consented to get up early and to join us by video link, as you can see right up there, from California, through the miracle of technology.

We'll then turn to Marcus Stanley. Marcus is policy director for Americans for Financial Reform. And then, we'll conclude with Deborah Toennies, who is a managing director at JPMorgan Chase. And for completeness, let me mention that JPMorgan is a former employer of mine.

After the panelists finish their prepared remarks, I'll bring them back up here, and then unlike Martin, I will ask them a few questions of my own before turning it over to you in the audience for the remainder of the Q&A. So, Tim?

MR. LYONS: Okay, so first of all, thank you for inviting me here today. I appreciate the opportunity to address you on what I think we

all agree is a very important issue. I think that the panel that we just had was actually a terrific starting point for some of the discussion that I would like to quickly walk us through over the course of the next ten minutes or so.

You know, we have a view that, in addition to all of the theoretical underpinnings relating to the right way to think about the problem, which I think were you know, quite clearly laid out in the last panel, it's also important as policy makers consider various options, that they do so in the context of kind of the real facts and circumstances on the ground, so that as they consider our choices, which will have, you know, implications over a very long period of time, they can do so based on a, you know, fact—based understanding of what the implications of those choices really will be for the institutions that will be affected.

And so what I'd like to do over the course of the next couple of minutes is just quickly walk you through the results of a survey that was by the Global Financial Markets Association and TCH relating to the leverage ratio, and specifically, relating to what the mathematical impact of the ratio would be on the regulated institutions and what some of the behavioral responses might be.

So, over the course of the summer, the GFMA and TCH conducted a survey. They reached out to every U.S. banking institution

with more than $250 billion of assets, and they reached out the top five banking institutions in each of the major European and Asian country markets. Twenty-six institutions responded to the survey. Thirteen of those were in North America, 11 of those were in Europe, and 2 of those were in Japan.

The collective assets relating to those institutions were about $34 trillion, and about 18 of the 24 respondents were GSIBs. So, 10 of them weren't. So it has a mix that's you know, slightly skewed towards larger institutions, but it has some non-GSIBs in, as well. The data that was gathered, which I'm about to walk you through was as of Q2, the Q2 QIS for many of the institutions. For those where that data wasn't available, it was the prior quarter or the quarter before that.

The data was, you know, kind of two parts. The preponderance of the data came from information that so many of the banks had off the shelf relating to their QIS responses. But importantly, and in addition to that, GFMA and TCH requested further information as it relates to the impact on written CDS. And the reason that matters, of course, is because written CDS is treated differently under the proposed Basel rule than other forms of derivatives.

And so, a failure to capture a data specifically relating to that might have the effect of distorting the results. And so, it was very

important as you know, this survey was put together, that the survey data that we collected reflected the rule in its proposed form, including the treatment of CDS and other items, and didn't include any shortcuts. Now, the reason I wanted to point that out is that other surveys that had been put out recently, due to limitations of time is my understanding, failed to capture, for example, the impact of CDS.

And so, the results that I'm going to show you here may be somewhat different than you've seen before. We think that these results are substantively correct. And the reason that we think that they're the most substantively correct results is they actually capture the data as it would be measured under the Basel proposal. So, we asked a series of questions, or TCH and GFMA asked serious questions.

The first question was, if you just went out to that sample of large institutions, how many of those would, in fact, have a leverage ratio of 3 percent or higher? And based on the results of the surveys you'll see from the chart here, 46 percent of the surveyed institutions would have a leverage ratio under the revised proposal that would be less than 3 percent. This is assuming a fully phased—in proposal, as if all of the rules were fully phased in as of the time as of today.

The GSIBs in the survey were about 44 percent would fall below 3 percent. And then, there was now obviously a big variation

between the geographic markets where 73 percent of the European respondents would have a leverage ratio below 3 percent, and only 23 percent of North American respondents would have a ratio below 3 percent. Obviously, as the panel just discussed, there has been some contemplation of different ratios in the U.S., and I recognize that, and I think we all recognize that the definition of the exposure statistic and the percent that would be applied are not independent variables.

Those variables needs to be thought of together, but just for purposes of framing the math, the group ran a sensitivity to say if in the U.S., we took the Basel exposure statistic and evaluated at a 4 or 5 percent ratio, what would that imply? And what that would imply, for the survey, banks again, that responded to this survey is that 92 percent, for example, of U.S. banks using the Basel definition of exposure would fall below a 5 percent leverage ratio if in the U.S. environment, for some reason, it was decided that that was the appropriate percent to use.

The second question we asked, and this again, relates to some of the points that the panel was just discussing, was to what extent would leverage based capital as opposed to risk based capital become the binding constraint on banking capital? And so, for each of the institutions that participate in the survey, there were two calculations that were done. One was, what's the capital that will be necessary to meet the leveraged

calculation?

And the second was, for each institution individually, you're taking into account all of the buffers including institution specific SIFI buffers, how much risk space capital would they require? What the results implied or said was that for 54 percent of institutions that were part of this survey, leverage based capital and not risk—based capital would become the predominate driver of capital requirements for the institution. That again, is on a fully phased—in basis, and that's again, assuming a 3 percent ratio.

Again, there's the same variation that we saw before within Europe and the U.S. And again, the same pattern applies in the U.S. for higher ratios at 4 and 5 percent, the leverage ratio would become increasingly binding within the U.S. market.

Now, one of the obvious questions that gets raised is, to the extent that leverage-based capital as opposed to risk-based capital becomes the binding constraint, how much capital are we really talking about? And couldn't banks essentially accrete or raise capital to kind of meet that requirement? And so, the analysis that was done here, and I want to make sure you understand how it was calculated, was for purposes of this discussion, the risk—based capital requirements were assumed to have already been established.

Individual banks have a risk—squared assets. They have a capital requirement related to that based on their specific or institution specific ratios. For purposes of this analysis, we assume all banks have to carry that equity already. So, the question was, how much equity would banks have to raise in addition to their risk—based capital, even if they don't have that risk-based capital today in order to meet the requirements associated with this new ratio at 3 percent?

So, if you look in the lower left hand corner of this chart for all of the surveyed institutions, again, at a 3 percent ratio, there would be about an $80 billion capital gap that would be necessary for these institutions to raise in order to meet not their total capital gap, but the incremental capital need above and beyond their risk-based capital needs due to this ratio, if it were implemented in its current form.

Within the U.S. market, again, that number is actually fairly small, which isn't surprising, given the prior charts. But again, at higher percentages, at a 4 percent or a 5 percent, the you know, incremental capital required just to meet the incremental need of leverage—based capital could be $195 billion.

Now, recognize that this $195 billion on the right hand side of the page or the $80 billion on the left hand side of the page is in addition to the incremental capital that these firms already need to raise in

order to meet their risk-based minimums. So if you look again at all the survey banks collectively, that $80 billion in the green bar is in addition to the $122 billion in the blue bar that they already need, bringing that total up to about $200 billion. In the U.S. market, obviously, that would be you know, an equally large increase in required capital to meet the role if it were implemented in that form.

Now, the rule as it's currently contemplated in the plan, the plan for achieving compliance that I just described is assuming that all of the banks maintain their business activities exactly as they are today, and they just raise incremental equity. So, one question would be, what change in profitability would be necessary among those institutions, just to break even on the incremental capital that they required?

Last time I looked at this –- I think we look at it as of 2012, the average return on equity for the global GSIBs, I think, was about 4.5 percent. So, in a world where banking institutions probably have a cost of equity of about 10 percent, the average bank is earning about half of its cost of equity today. Now, under this rule, if banks chose to become compliant with this increased capital requirement by adding more equity, the question was, just to break even, just to get back to the 4.5 percent, how much more profitability would they need to generate?

Among the institutions that had to raise that capital across

the survey, they'd have to increase profitability either through increasing revenue or reducing expense by 17 percent, and in the U.S. market, again, on the right hand side, depending on the ratio, it's in the same ballpark.

Now, of course, the alternative to just increasing capital would be for banks to reduce their exposures, and in particular, for banks to reduce their exposures for the lowest risk weighted assets and lowest revenue generating assets. And so, the question was, by how much would banks have to reduce their exposure in order to become compliant if they chose to achieve compliance with the ratio, not by increasing equity, but rather, by reducing the denominator?

For the banks that were constrained by leverage under this new rule, so if you look under the left hand column under the numbers, order of magnitude for those individual institutions, they would have to reduce their exposure by about 17 percent. There's a range here for reasons I don't want to get into now, but we can talk about later.

So, the constrained banks would reduce their exposure, would need to reduce their exposure by about 17 percent. Across the whole pool of survey respondents, because of course, some banks weren't constrained, the reduction in industry—wide exposure would be about 6 percent. In the U.S., you see the same pattern that we saw

before.

Now, the reason this matters, and I know some of the other panelists I think, will talk about this in a minute, is the rule as it's contemplated in its current form is particularly punitive to low risk weight assets. And so, if banks were going to think about drawing back in their exposure and reducing their exposures to chief compliance with this new rule, once choice that they might make, if they went down the second path, is that they might skew that reduction and exposure towards asset categories where they have the biggest reduction in exposure and the smallest reduction in the firm's economics and revenue and profitability.

So, to give you some sense for what that might mean, if we took that same reduction exposure, and again, just assume that banks chose to become compliant with no change in equity, and we can debate what banks would behaviorally do, but for purposes of just explaining the order of magnitude, if we assume that they reduce their exposure by -- that they became compliant by reducing their exposure, and they targeted that entire reduction to the most impacted asset classes, this lays out the order of magnitude, reduction in market activity, that could occur if, for example, they applied it all to securities financing transactions.

So, if the way that the industry chose to become compliant was to reduce their exposure by, for example, focusing purely on

securities financing transactions, the aggregate amount of securities transaction activity in the market would fall in this case, by about 49 percent. On the other hand, if banks chose to become compliant only be reducing their off-balance sheet commitments, those would need to go down by 45 percent.

Now of course, the obvious concern is, first of all, obviously, no bank would necessarily achieve compliance by just reducing exposure. And presumably, banks wouldn't just target a single asset class. This would be a complex problem. But as you can see, just based on the order of magnitude of what's suggested here, it would likely be skewed towards these types of products, and even changes that would be profoundly smaller than these might have the affect of being very disruptive for the effective functioning of those markets.

And so, the thing, I think, that we want to leave you with is that as regulators consider not just the definition of the exposure metric, but also, the appropriate ratios, that it's very important to consider how banks would respond, and in particular, the implications to markets, so that as regulators make those choices, they're not being made in a theoretical vacuum, but are instead being made with an understanding for the potential knock on effects of those rules for the functioning of markets which are important to the economy.

MR. ELLIOTT: Thank you. So we'll bring Darrell up. We're just getting your slides up now, Darrell.

MR. DUFFIE: Thank you. Can you hear me okay?

MR. ELLIOTT: Yes, yes we can. You look good, too.

MR. DUFFIE: Thank you (Laughter).

MR. ELLIOTT: Okay. We've got the slides up. You can go ahead.

MR. DUFFIE: Okay, very good. Good morning, everyone. I wish I could join you in person, but I've got an eager class of PhD students for later this morning. So, I'll do the best I can from a distance, and please ask questions and I'll try to handle them from here. There's a bit of a time delay.

So, if you advance to the first slide, I'll set up my discussion. On the horizontal axis of this slide is the amount of safe assets that a bank might wish to have, and on the vertical axis is the amount of a risky asset. So, this is just for illustration. That blue triangle is the feasible set of choices under a risk weighted capital requirement, and the green lens area above is the set of -- mix of risky and safe assets that the bank might choose to be better than, you know -- it's the set that's at least as good as anything you can get on the blue line.

And the black dot is the point that the bank would choose

trading off the risk and return, and also, bearing in mind the constraint. And as has been said this morning, there's some problems with this approach, if you measure these risk weights naively or if they're distorted. And I'll get to what those kinds of distortions are, but basically, people are saying these risk weights are not that reliable. Let's add another constraint to beef this up. So, if you advance to the next slide, I'll show you what happens when you do that.

We're talking about adding in a leverage constraint which is a 45 degree line. It puts equal weight on both types of assets. And there's two possibilities. One is the leverage constraint is not binding, so it's not pushing that black dot anywhere, because it's too slack. So you could tighten up the leverage requirement, and if you go to the next slide -- you see what happens when (inaudible).

The bank shift has been (inaudible) just in the last few minutes to a mix of assets which is more weighted towards riskier assets. So the bank is now optimizing subject to a 45 degree line, locally, and the best it can do is basically add risky assets. There's no other shift that's possible in this situation. Now, could you go to the next slide, please?

Now, if you look at the mix of risky and safe assets that are being discussed in practice, the blue line is extremely flat. So this is a situation in which that shift from safe towards risky assets is going to be a

very dramatic reduction in safe assets and a proportionately large increase in risky assets. And you might say, well, this is what we had in mind. We want banks to have fewer assets. But what you're going to get is a distortion in the kinds of assets that banks are going to choose that we may regret, and that doesn't really serve a good purpose, as I will suggest on the next slide.

So here is the problem that I started with. The reason we don't trust the risk weighted asset capital requirement is that the risk weight should be, let's say according to that dash line, but for various reasons, we're under weighting certain types of riskier assets. And that can happen for a couple of reasons. The most obvious one is that banks use internal models or can categorize assets in a way that reduces the penalty for using risky assets. Sometimes this is euphemistically called risk weight optimization, particularly in Europe.

And the other problem, of course, is that the official sector has a very difficult time calling some of its sovereign bonds riskier than others. So we end up putting insufficient weight on the riskier bonds that the sovereign sector is supporting. So we get distortions, and the bank ends up getting a mix of risky and safe assets that's efficient from its own point of view, but has too much risk. Could you go to the next slide, please?

If you write down the equations for what the regulators would be doing, which I've done, you just end up shifting the risk weights that the bank would come up with on their own, or that the official sector might choose without any other considerations. You shift them so as to penalize the assets that are riskier, pushing that constraint line back down again. There's nothing in the math that suggests adding an additional constraint, and certainly, not one that has equal weights on safe and risky assets.

Pushing this blue line back in, forcing banks to have safer portfolios while considering the relative risk weights on them has a number of advantages. It also can correct for biases associated with uncertainty. So, even if the banks are completely naïve and don't try to do risk weight optimization or adjust their internal models for moral hazard, and even if the sovereign bonds are all correctly risk weighted, we're going to have some uncertainties.

And the math also suggests that when you're uncertain, you should increase the risk weights. So if there's a certain asset class where you're having difficulty measuring what the risk weights would be, just increase them. That's what the math suggests. There's no reason to add another constraint. Could you advance one slide, please?

So, let me summarize. First of all, there is no problem that anyone has written down for which the solution is to add a leverage

requirement constraint. In fact, I'm a little bit surprised that the debate has advanced so far that we're at the point of capital requirement implementation in Basel and in the U.S. without a single, as far as I've seen it, piece of analysis that suggests that adding a leverage requirement is a solution to some problem that makes sense. And it's not surprising that it isn't the solution. Why would you, when in down, simply throw up your hands and (inaudible). It's a very crude approach.

The approach that I suggested on the previous slide is, first of all, based on analysis, but secondly, it makes perfectly good common sense. It's simply to increase the risk weights from a naïve approach for riskier assets, and particularly for assets whose riskiness is more difficult to measure. So, I would put it back to you folks in Washington which make these decisions to either provide a better approach than adding a leveraged constraint, or if you think I'm wrong about this, to provide some kind of justification beyond simply the argument that we should add another constraint when in doubt, or this leverage requirement.

I hope that that will trigger some response from the audience. So, thanks very much, and I'll pass the baton to whoever is next.

MR. ELLIOTT: Darrell, thank you. We'll bring up Marcus Stanley next, and you'll be around for the panel at the end, and we'll take

questions then. Thank you.

MR. DUFFIE: Very good.

MR. STANLEY: All right. So I am sort of walking directly into Darrell's challenge here, I have to say, and I am not prepared with a mathematical model to disprove him, but I am prepared with a discussion, I think of why, looking at the disastrous experience of the financial crisis, we would be prepared to kind of put our hands up and say we have to create some limits on absolute leverage here.

And in thinking about this, I would ask you to keep in mind the example of a bank like Dexia, which was meeting all of its risk-based capital requirements and was leveraged 50 to 1 at the time that it was doing so. And not too surprisingly, over the next year or two after Dexia was in this position, being leveraged 50 to 1 and meeting successfully all of its risk-based capital requirements, it unraveled and collapsed rather spectacularly.

And the fundamental issue here is, I think, that high leverage amplifies profits, which is why banks like it so much, but it also amplifies the loss impact of errors in your risk model predictions. So, if we don't have much faith in the correctness of our risk models, then in some sense, we should want lower leverage so that banks can take some of the impact of that uncertainty without becoming insolvent.

And that's particularly so when risk modeling is exposed to arbitrage pressures. Now, when you look at the actual empirical experience with gross leverage ratios as opposed to the theoretical experience, there's almost been a cottage industry over the last couple of years in looking at the relationship between bank failure, risk weighted capital ratios and leverage ratios. And the consistent finding there is that gross leverage ratios predict bank failure when risk weighted capital ratios do not.

And there are at least seven separate empirical studies that I could find over the past four years that show this. And as I say, it seems to be somewhat of a cottage industry, so I'm not convinced that I've found them all, but those studies include the IMF, the Bank of England, researchers from the Wharton School, researchers from the OECD, et cetera.

And of course, Basel III has changed our risk modeling. It's added on, you know, some very complex attempts to adjust for counterparty credit risk and so on. But is the Basel III experience going to end up different over the long run? And do we really want to bet 10 trillion or more that it will be?

Now, when you think about calibrating a leverage ratio or the level of the leverage ratio, we've heard some discussion of the Basel

minimum leverage ratio of 3 percent. The Prudential regulators, when they put out the rule on the U.S. supplementary leverage ratio pointed out that essentially, all of the covered bank holding companies in 2006, right before the crisis, would have met or exceeded a that 3 percent leverage ratio, or at least been very close to it.

When you look at the 5 percent leverage ratio under the U.S. supplementary leverage ratio, that's about equivalent to the average total leverage for OECD countries over the past three decades; a leverage ratio that was associated with the probability of systemic crisis of 4.6 percent, which I think we can agree is unacceptably high. Sheila Bair has recommended an 8 percent leverage ratio, and one of the things the Prudential regulators did was calculate that an 8 percent leverage ratio would require banks to raise about $400 billion in additional capital by 2019; that is, over the next five years which is their phase-in period.

When you look just at the loss absorbency that Prudential regulators seems to feel is necessary in order to make their preferred approach to bank resolution work, the single point of entry approach to bank resolution, apparently, they believe that 15 to 20 percent loss absorbency at the holding company level is necessary to make resolution work. Now, they want to meet most of that through a subordinated debt requirement. But of course, that subordinated debt requirement would

convert to capital in case of a bank failure.

There are differences between subordinated debt and capital, most notably that effectively, it leverages up your return on equity, which I think is one reason that banks might prefer it. But in terms of the risks that you're asking investors to take, there are some real similarities there. And one thing –- this came up in the previous presentation on the difficulty of raising capital. These capital estimates in terms of raising additional capital, you put a number out there, 100, 200 billion, in this case, 400 billion, it's a large number.

But capital, all that we're talking about in raising capital is changing the contract terms of financial assets that investors are holding. There are over $200 trillion in global assets, in global financial assets right now. And the six largest U.S. banks that we're discussing in the U.S. hold about 5 percent of that global total. So they're major actors, obviously, in the global capital markets.

If those six banks can't get investors to commit equity to them, $400 billion in equity to them over the next five years, isn't that the failure of a market stress test that we should be concerned about? If it's not possible to get investors to make that kind of commitment, then how much faith do you really have in what the regulators are telling you about the safety of those banks?

In terms of cost benefit analyses, which is a way that Basel and other regulators have discussed calibrating these levels, the Basel cost benefit analysis is oriented toward capital in general. It's not oriented toward leverage. It's oriented toward the total amount of capital that the banks hold. But it's really, frankly, full of unrealistic assumptions.

There's no cost of under capitalization short of bank failure. It's kind of a one zero. We have a financial crisis or we don't. There's no benefit of going into an economic downturn fully capitalized, so that you don't end up in a situation where you're having to pull back during an economic downturn and increasing the depth of a recession. There's a required return on equity of 15 percent. There's no relationship between the market return on equity that's demanded and the level of capitalization of the banks.

This is at a time where we've seen people be able to sell convertible bonds at you know, 6, 7 percent interest rates in Europe. The full assumed increase in banks' funding costs based on that required return of equity is assumed to be passed directly on to borrowers in higher spreads. There are no efficiencies, no reductions in compensation at the bank.

There are other unrealistic assumptions, including that smaller banks don't pick up any of the lending from larger banks, if larger

banks increase their lending spreads. And this still appears to imply -- that cost benefit analysis still appears to imply capital levels, both leverage and risk—based that are higher than the current capital levels that are being demanded by U.S. regulators. And I think we need to question a little bit, just the general trade—off approach of these cost benefit analyses.

Historically, there doesn't seem to be that much of a relationship between overall bank leverage and lending spreads, when you just look at historical leverage ratios going back into the 19th century. And really, optimal credit growth, the level of credit growth that we really want to have is a macroeconomic question, it's not a bank accounting question. It's not always a good thing for banks to increase lending when it's cheap for them to do so.

And we've discussed this -- I would alter this a little bit, especially this first line here, that in terms of thinking about the denominator, I say don't let risk weighting sneak in through the back door. Well, Doug was correct to point out that as long as you have a derivatives book, there is going to be an element of risk weighting in your leverage ratios, because there are contingent obligations, and you've got to predict what they are in the future.

And I think that though there are ways that the standardized exposure metrics can be improved significantly for derivatives weighting in

terms of predicting the current -- well, predicting especially, the future exposures of derivatives. And I think that we should be skeptical of exposure netting, and I think also skeptical of taking into account capital -- sorry, taking into account collateral in reducing leverage ratios.

Netting sounds great, but it relies on a very complex kind of infrastructure of back office operations and legal procedures. We saw how that failed in tri-party repo during the crisis. It also more or less requires bankruptcy exemptions for things like derivatives, things like repo that have potentially significant costs for other borrowers who are subordinated in bankruptcy, and potential cost for the wider economy, because they're an implicit subsidy to these markets.

And netting also requires significant assumptions about what exposures are going to be in the future. Maybe you can net right now, but things can change very quickly in these markets. They can change in terms of the correlation between different exposures you have that might respond differently in a crisis period, and they can change just in terms of someone shutting down or removing one side of that supposedly netted obligation. And that can happen quite quickly. It can happen more quickly than you can raise capital. So, thank you. I think we have one more.

MS. TOENNIES: First, I'd like to also thank the Brookings Institution for the opportunity to speak with you today on this very

important topic of the leverage ratio. I think we all learned from the crisis that the system was in need of reform and that banks were in need of more capital. There's no argument there.

What is at risk here, though, is changing the dynamic of how banks structure themselves, make decisions and do their business that has real implications to the overall economy and to the safety and soundness of banking. What I'd like to walk through with you this morning, quickly, is five potential adverse consequences of an increased leverage ratio that as Tim indicated, would become a binding constraint for more than half of the global banks. And then, finally leave you with some proposals that the industry has made to try and solve this problem and make this more of a backstop measure, as we heard on the first panel this morning, as an important parameter.

So first, let's take a look at the first consequence. And this is that banks would be incented to go hold higher risk assets. We've heard from the other speakers this morning about how there's not an adjustment within the leverage ratio for the level of risk. If we look at this example, we have $2.2 trillion of assets. If we assume that instead of raising more capital, banks take the option of reducing their exposures, an equally important way to meet the 3 percent leverage ratio, that would require a 19 percent de-levering in the system to get down to 1.7 trillion of assets in

the market.

Now, if we assume that banks want to hold, not grow, but hold their net income and hold their returns constant over time, that would equate to a need to raise 24 percent more in net income to be able to maintain those with a lower asset base to do that on.

A second potential negative consequence that has been alluded to this morning has to do with high quality liquid assets. As has been mentioned, these are low earning assets that banks would have to hold equivalent leveraged capital against. And when we took a survey across the entire industry, we found that 67 percent of global banks hold more than the required levels under the liquidity coverage ratio, quite a significant extent of banks holding more liquid assets than the ratio would require. And on average, they're holding a 13 percent excess there.

Now, we certainly saw in the recent crisis that liquidity matters, and that more liquidity in banks made for more safe and sound banks during times of crisis. So, it's worth considering this potential negative consequence of the incentive that this is providing banks to reduce their liquid assets, not below the minimums -- they won't be able to do that, but potentially significantly below where they are today. And is that a good thing for the overall safety of the market?

Third consequence has to do with the financing of

government securities in the repo market. Today, risk-based capital, as has been alluded to this morning, has very low risk-based capital against these exposures for sovereign securities. At a 3 percent leverage ratio, that's a constant requirement that they'd have to hold 3 percent capital against those.

On the bottom left hand side of this screen, you'll see that most of the market, well over half of the market for repo and reverse repo is made up of these sovereign securities. So it's a material portion of the market. And if we look at the chart on the right, we can see that this financing is an extremely important component of this market and these spreads. If banks were to decide to reduce their exposure to secured financing transactions relative to these government obligations, that would have material -- it could have material impacts on the spreads required to be paid by those sovereigns for their debt issue.

A fourth potential negative consequence of these proposals has to do with the measurement of those credit default swap exposures for the purposes of the Basel ratio. As Tim indicated earlier, there's a requirement within the current proposal to recognize a full notional, one hundred percent notional with a very minimal representation of effective hedging saying that if I have purchased credit protection with a maturity equal to or longer than the sold credit protection, I'm allowed to net that.

In this case, if banks were to reduce their exposure to the credit default swap market, we took a look at what that might do to the corporate spreads that corporate entities have to pay. And in doing that, we looked at a selection corporate entities between 2008 and 2012, and we look at any one for which a credit default swap was introduced during that period as a new situation.

Now, the results are not entirely conclusive, but in over 60 percent of the market, we saw a reduction in the spreads that those entities would have to pay by 39 basis points. There were some that went up, and there were some that stayed constant, but again, in 60 percent of the cases, it went down by 39 basis points. Now, we don't know what would happen if banks reduced or closed down their credit default swap business, but it is possible that it could affect bond spreads in a negative way.

The final negative consequence that I just want to spend a moment on is with regard to the unfunded commitment. So, this is commercial paper backstop lines or revolvers, any unfunded exposures that banks have to corporations. On the left hand side of this slide, you'll see, and this is just a matter of coincidence, that there is an equal amount of cash and unfunded obligations on the part of corporate balance sheets today. So, they're equally relying on cash on their balance sheet versus

banks providing these.

On the right hand side, what we did was we took a look at if banks were to charge an appropriate return to hold their return constant to those corporations, what would that equate to for that $1.5 trillion of exposure. And it turns out it would equate to 1.5 to $6.7 billion of incremental costs to those corporations, which represents a sizeable portion of their profits, in that it's 6 to 17 percent of the profits of those institutions. Again, banks likely won't do any of these in isolation, and it's likely to be a combination, perhaps of capital raising and of leverage reduction focused on some of these key areas that are most hit.

So, spending just a moment talking about what could be done to make the leverage ratio not a binding constraint, I think the market is not arguing that as a backstop measure to risk-based measures that have, as we heard this morning, been proved to be less than fully consistent across entities, it might make sense to have a backstop. But not as a binding constraint.

So, the first idea that the industry had was with regard to high quality assets, and in particular, cash held at central banks. Here, this is not a source of bank leverage, and we don't want to disincentivize banks from holding excess liquid assets on their balance sheet. As we indicated, liquidity was a key component of safety and soundness during

the last crisis.

The second recommendation would be that we would allow for legally binding netting agreements in secured financing transactions. Now, I know that ISDA recently did a survey across 55 different jurisdictions and found that there are legally enforceable netting situations with regard to the legal laws in those countries that would make this possible to rely on. In particular, when we talk about correlation, if you emphasize cash collateral, then you don't even have to worry about the value of that collateral changing over time.

So again, we understand that there are differences in accounting standards between IFRS and GAAP, but what we also understand is that they're not that different in the case of SFTs, and we're recommending that the regulators put the accounting to the side and come up with criteria that will require that these be legally enforceable, binding netting agreements, and then recognize them as the true exposure measurement for the bank.

The third has to do with the measurement of these derivative exposures. We've heard that they had to be introduced or risk—based or a more complex way to measure these, because they're not currently shown on the balance sheet. Here, the recommendation is that instead of using the current exposure method or SEM, as you might hear it referred

to, we go to what the regulators themselves are developing as an alternative to this SEM model to more accurately measure derivative exposures. It's the Non—Internal Model's method, NIM for short, and once finalized, we think it just makes a world of sense to use that as a more accurate measurement of exposures for derivatives than leverage exposure.

The fourth recommendation has to do with the credit default swap market. Again, one that was severely impacted by the proposal from the Basel committee. Now here, where they asked for the notional to equate these exposures with loans on balance sheet, we'd ask that they cap this exposure at the mark to market of the underlying loans, so that they're not disincentivizing banks from doing credit default swaps relative to funded loans on their balance sheet.

In addition, with regards to that hedging that's done on the credit default swaps, we'd ask for the regulators to give more complete recognition to economically effective hedges. So for example, if I have a sold credit default swap with a maturity of five years and a purchased credit default swap against that with a maturity of 4 years and 11 months, that is not zero hedging of risk. Any default that occurs in the first 4 years and 11 months is fully hedged from the perspective of the bank's risk.

So, we'd ask for recognition of hedges that have at least a

year in maturity and at least three months of remaining maturity. And we'd ask for, also, recognition of, if a bank uses subordinate bonds to hedge senior bond protection, that is again, a fully effective -- they'll get more than enough money on the underlying hedge to allow for full payment on the credit protection sold. So, we're asking the regulators to consider an adjustment for those two parameters there.

The fifth has to do with those undrawn commitments, those unfunded commitments to corporations. Here, the regulators in numerous regulatory rules that have come out recently have agreed with the industry that 100 percent exposure measurement against those is not an accurate measurement. If we look back to the crisis, we saw that only 20 percent on average of those exposures actually were drawn. And if we take it even further and look at corporations who later default and draw on their unfunded exposures right before they default, that number only rises over the last decade to 38 percent. So here, the ask is for the regulators to use some of the approaches that they have put forth in other regulations and more accurately measure these exposures relative to the true amount to be drawn.

And the final large recommendation that the industry has asked for the regulators to consider has to do with central clearing. Here, the G20 has made it clear that they want more derivatives to be centrally

cleared, and they need banks to provide in an intermediary role there as a clearing member for clients who are not directly related to the clearing entities.

Here, we've asked in support of the G20 initiative to want more central clearing that those exposures be excluded from the leverage ratio measure, or at a minimum, if the entirety of them is not excluded, that they not require banks to hold leveraged capital against the exposure to the central counterparty. Basically, if a bank acts as a central clearing member, they are required to hold twice the amount of leveraged capital, because they have one exposure to the client and a like exposure to the central counterparty.

We're just asking for the regulators in order not to disincentivize banks from wanting to be clearing members, to not recognize both of those legs, and at a minimum, only one of those. And with that, that's my comments.

MR. ELLIOTT: Well, let me start by thanking all of you. I thought those were truly excellent presentations, and it's clarified things for me immensely. We either need a very strong leverage ratio that's pretty much binding, no leverage ratio at all, or a leverage ratio that's significantly modified and is not binding under most circumstances. So, I'm glad that we finally had a Brookings panel where we've come to the

answer. (Laughter)

Well, okay, maybe we didn't come to a complete answer, but I do have a few questions for each of you. Marcus, two questions for you. The first one is, it wasn't crystal clear to me. Do you want to see a leverage ratio that's high enough that it's basically the binding constraint in most circumstances?

MR. STANLEY: That's a good question. I'll say that I do not share what seems to be this terror of the leveraged ratio as a binding constraint that other people have expressed today, mainly because I don't think that supervision over risk goes out the window when a bank is facing a binding leverage ratio.

I mean, if you see -- I suppose there's a question here about what is the easier form of arbitrage for regulators to spot: A situation where a bank is leveraged 15 or 20, 10, 15, 20 to 1 or what have you, and then chooses to substitute toward very risky assets? Or a situation like the one that I gave with a Dexia, where the bank is leveraged 50 to 1, but is going to regulators and saying, oh, there's not really very much risk here?

And for me, I think that the first kind of situation is the easier one for supervisors to spot and work with. And I think you know, we may need to think about some kind of better integration between leverage and

risk—based ratios where you do kind of add—ons when you see that risk there. And one other thing that I would say is that when you talk about risky assets versus low risk assets, I think people are leaning a lot on this sort of term, you know, risky is bad and low risk is good, which is somewhat ironic, because we've seen the Federal Reserve trying desperately over the past couple of years to push people into risky assets.

Because under our current regulatory metrics, real economy lending, getting out there and lending to real businesses is considerably riskier than –- measures is considerably riskier than a lot of other things, then, like for example, having a large matchbook repo dealing operation. Securities lending dealing operation is not risky under our current regulatory metrics. Or investing in Greek bonds. Not a risky asset. So you know, I do think that there's room here to manage this right, even with a binding leverage ratio.

MR. ELLIOTT: Okay. And you effectively answered my second question, which was about the incentive effect, so I will let you off the hook for the moment (Laughter).

Darrell, why don't I go to you? Just as a preface to my question, first of all, I thought your analysis was really intriguing, and I've not seen it before. So, thank you for that. I think you've fairly clearly shown what I believe we all came in agreeing on anyway, which is that the

ideal probably would be a risk—based measurement that was perfect in all respects.

And what I'd be interested in is, to what extent have you done sort of a wider range of analysis to show under what range of assumptions the leverage ratio is a worse second best than, or is third best, rather than the risk based measures? Sorry. Someone in the back could actually get his mic on. This is for Darrell Duffie. Sorry, Darrell. We may have to come back to you in a minute. So, you have the unfair advantage of being able to think a little further about this. Not that you haven't already.

So, let me turn to Tim and to Debbie. And your views are similar enough. I'll let you split this however you want. So, my first question is just a straightforward one. People are always suspicious whenever the industry does a study. How confident are you that the assumptions that were made to reach these conclusions, just the pure quantitative assumptions -- how confident are you that those are correct? Or how much of a range of error might there be depending on how people might interpret various things?

MR. LYONS: So you know, one of the challenges with all of this that we've run into repeatedly on any regulatory initiative is that there's this very long lead time process in which the regulators –- our

sense is with you know, the best of all intentions, think very hard and very deeply about a series of issues, and then come out with, you know, what in many cases are clearly complex sets of rules, and you know, kind of give you a 60 day window, essentially to scramble as quickly as you can to develop a response to that, that in some way is helpful and additive to the process.

To the extent that the work that you do for that is you know, fundamentally based on legal reasoning or logic or you know, that type of thing, you can arguably do that in a way that's constructive. One of the real challenges that we've seen over the last several years, though, is that your ability to do truly fact—based work to inform decisions that will have real world impact is profoundly limited by the time that you're given to do that.

And so, over the course of you know, this effort, you know, at some point, the rule comes out and you have transparency what the rule really is. You then try to, on a global basis, reach out to hundreds of institutions to have them simultaneously put together what in many cases is a very complex dataset, deliver that into a single integrated source which has to be confidential, and then synthesize a set of results.

So by definition, you know, your ability to do this is really limited. And in fact, what some would argue is that rather than launching

a set of rules and then trying to do the work to see if the rules are sensible from a real world perspective, an alternative approach would be to have -- you know, there would be a data gathering process that's deeply interwoven into the rule making process up front, so that you can gather data in a timely sensible fashion.

To your specific point, you know, do we think that the data is right, the vast preponderance of the information that was gathered as part of the survey was part of the QIS studies, and at this point, the banks had been doing their QIS studies for some time. So presumably, the banks have, at this point, in terms of their Basel submissions, developed methodologies that they think are correct individually. Even they really didn't verify, we assume that that's true.

For the CDS work, the CDS work was that the large institutions were pretty easily able to do that. So, do I think that there's error? Almost certainly. Do I think that it's substantive? No, I don't think it change the conclusion.

MR. ELLIOTT: Okay, Debbie, do you want to add anything on that or not? Okay. Then, my second question for the two of you is, I'll -- and the concerns about the incentive effects, which I do share, obviously, one way around that would be simply to raise the risk-based capital requirements.

Whatever leverage ratio you pick, you could simply raise the risk-based capital high enough that it would, in general, not be the binding constraint in what the leverage ratio would be. And that, in many ways, I think, along Marcus' lines -- is that a bad idea?

MS. TOENNIES: I agree with you that one way to solve the dilemma is to raise risk-based capital rules. And yes, that would solve some of the problems. But you know, more capital at banks -- there is a limit to how much more capital there is, number one, for banks to be able to get. They could also result in some of the same disincentives that are there today.

If you raise risk—based and you have higher leverage, and let's say some banks can't go out and find that capital depending on their financial help at the time, again, you're going to see you know, de-levering of the system. You're going to see increased pricing if they have to go out and raise more equity. Those aren't scenarios that are driven so much by just the leverage ratio being a non—risk—based binding nature. They would still occur if banks had to go out and raise more capital as a result of risk—base being higher.

MR. ELLIOTT: Sure. Briefly, since you also addressed it in advance, but go ahead.

MR. STANLEY: There is a somewhat -- I haven't completely

gotten my mind around this, and for the next presentation, I will try to make it more systematic. But I always kind of find that there's a somewhat surreal element to this whole discussion.

I am not familiar with any institution that is outside the government safety net that is sort of fully exposed on the private market that runs around with a 33 to 1 leverage ratio and needs to sort of regretfully inform you that it's going to shut down its business if it has to raise a significant amount of additional capital. The most leveraged private entities I could find were real estate developers who had about a 13 percent leverage ratio.

And when I talked to my friends at hedge funds, I guess it would depend on which hedge fund, but this was a pretty aggressive one, he said they tried to maintain about 5 to 1. So, you know, just in thinking about what it means -- and I tried to get at this during my presentation, to raise that additional capital, there's no really a shortage of capital in the world. The capital is just a reference to the contract terms on which people provide you with funding.

Specifically, if they provide you with funding that they'll take -- you know, they'll be the residual claimant and they'll take a risk of loss if you lose money, they are exposed to the up side and the down side. And what does it say if you can't go out and find people out there who are

willing to strike that bargain with you? You know? I find it a little bit disturbing.

MR. ELLIOTT: Okay. Why don't we cut it there?

MR. STANLEY: Yeah.

MR. ELLIOTT: Since you also did address that in the presentation. Yeah, briefly, if you could.

MR. LYONS: Sure. There's just one point that I think is actually important to note. You know, to the point that Marcus was making, the challenge that we've got is that the definition of exposure that's being contemplated here is, in fact, not balance sheet exposure. So, you can't actually do the calculation that you were just describing, because the data doesn't exist in the public domain.

So, if you look at a calculation of leverage ratios using on balance sheet assets and equity, which is a public fact that you can actually know, yeah, those are lower. We agree. The problem you've really got is that they've changed the definition of exposure in a way that accounts for these off balance sheet positions which aren't publicly disclosed. So, you can't really make that kind of a point, because the fact base doesn't exist to enable you to do it.

If you went to a hedge fund and said to them, they had to calculate exposure under this definition, treating their derivatives the way

that this definition would contemplate it being calculated, the answer wouldn't be 5 percent. It would be profoundly different. So, the problem we've got, really, is a lack of data and a lack of information and a lack of being, you know, clear and transparent and candid about what facts we know and what facts we don't know.

I'm very much in favor of us gathering all the relevant facts and making informed choices, but I'm deeply concerned about taking partial facts and using those as a way to draw conclusions, because I think it's just bad public policy.

MR. ELLIOTT: Okay, well I'm sure there are arguments that that's done on both sides, so let's not go too far into that argument. Darrell, try again. Let's see if we can hear you. Nope (Laughter). No, we can't. Well, okay, I will hope we're able to get back to you later, Darrell, so please, don't go back to bed. (Laughter)

All right. So, what I'd like to do at this point is turn to you, the audience. You all did pretty well with Martin, and he didn't give the same set of rules, but let me just say, please, make it a question, not a comment. And again, please tell us who you are. Thank you. So there's a gentleman back there.

MR. CHANG: Hi, I'm Robert Chang from FI Consulting. The question is for Marcus. You seem to kind of advocate a more punitive,

you know, measure of capital. Is there kind of like an adverse consequence, though, that if the banks can't you know, trade in that space, that the products might move to hedge funds or private equity firms, or maybe even to companies that are domiciled outside of the United States?

I'm just trying to wonder what your opinion is that there is kind of a limit of how punitive you can get with the banks, and whether that could have adverse consequences that the same type of operation will occur in an organization that's less transparent.

MR. STANLEY: That's actually a good question, because I actually do think that migration -- and this was something that Neal Cashop and Jeremy Stein, in a very good paper basically said, that the economic costs of raising capital were not very high. But the migration threat was a real one that we had to pay attention to.

And I think that the real question about migration -- first of all, I think it's sort of difficult to think of an institution that is less transparent than sort of the mega—banks which were not even really transparent to their own management. The BIS did a study where they found out that, I think half of the global SIFIs, and I don't know how many of them are the U.S. ones, couldn't actually aggregate their risks across all their different operating lines.

And fortunately, they did have a timetable for being able to do so over the next x years, which I suppose was reassuring, but it was disturbing that they couldn't already. If migration does happen, the question is, are we going to see migration to entities that are sort of genuinely market disciplined? Or, are those entities themselves going to become so big that they sort of become central to the economy and kind of get pulled into the implicit safety net in some way?

And Dodd Frank, I think, does have a lot of good transparency metrics and good ways to gather data on non—bank institutions. You know, that's kind of what the Office of Financial Research is for. That's what derivatives or trade repositories are for. You have the capacity to designate non—banks as systemically significant.

So, I think it's an important question, but I think if those entities that an activity migrates to are genuinely disciplined by the market, then you know, that might not be a terrible outcome in some cases.

MR. ELLIOTT: Further back.

MR. ECKEL: Hi, I'm Scott Eckel with Schwab. I guess this question is for the folks from JPMorgan and Morgan Stanley. I believe in both of your presentations, you sort of made the assumption that just in order to get back to current return on equity, in other words assume we need to get back to that same level of return on equity, do you believe that

the regulators crafting the rules are also using the same assumption, that you need to get back to your current levels of return on equity? Or do you think that they don't think that's necessarily a requirement, and so you wouldn't have to do x, y and z that you outlined in your presentations?

MS. TOENNIES: I can start with this one. No, I don't think that they made the same assumption. And the point of the slide wasn't so much that banks will maintain a constant ROE, but you needed some point of comparison to draw the slide based on. So you know, might there be an adjustment, and certainly, the regulators have been public about the fact that they assume there might be an adjustment, I think that's true. But for purposes of having a scenario to analyze, we had to pick a point. And picking a point at a constant seemed like as good a place as any.

MR. ELLIOTT: Sorry. Darrell, do you want to try again?

MR. DUFFIE: Yeah. Can I be heard now?

MR. ELLIOTT: Yes.

MR. DUFFIE: All right.

MR. ELLIOTT: Yes, you can. So, please, elucidate.

MR. DUFFIE: Okay. So I want to come back to what I thought was the central point in the last discussion on the panel, which was, why don't we just raise -- and you raised it yourself, Douglas -- why don't we just raise the risk weighted capital requirements, increase capital

in the banking systems and then let the banks decide how to allocate the capital across risky and less risky assets?

I mean, I think that's the obvious answer. That's exactly what's suggested by the calculations that I did that led to my presentation earlier today. If a leverage requirement is binding, it will raise capital, which will make banks safer. But the banks will be allocating the capital inefficiently across risky and less risky assets. You'll be crushing matchbook repo. You'll be pushing some kinds of derivatives more than others.

The official sector will be in under the hood adjusting all the dials and levers that the bank should be adjusting on their own. It's the responsibility of the official sector to make sure that the banks have enough capital that when the risks materialize, it's the bank's shareholders and creditors that pay and not the taxpayer. So, I realize I'm disagreeing here with some members of the panel that feel that we have enough capital, but I'm also disagreeing with Marcus that says the way to get capital up is to treat all assets as though they have the same risk.

I think we can do much better. And again, I would put it to those who are proposing the leverage requirement to go back and write up the analysis that suggests that this will arise as the efficient way to improve safety and soundness in the banking system. It just doesn't pop

out of the calculations at all, not at all.

And in fact, I remember years ago, following the Basel debates, there were reams of papers coming out of the official sector describing in minute mathematical detail, how to choose the risk weights. Now, clearly, they went wrong. There is a congressional budget office study that showed that during the financial crisis, the value of risk estimates used in internal bank models were vastly underestimating the tail risks of those risky asset portfolios.

So, it didn't work right. But now, we're basically saying, well, let's stop doing any micro economic analysis. No more models, please. Let's just slap on this extra equal weighted capital requirement and hope for the best. It's just going to result in a very inefficient banking system.

MR. ELLIOTT: I would like to come back on -- I'm sorry if I didn't formulate my question well. But what I wanted is, I literally don't know the extent to which you have pursued this. This is not a rhetorical question. Have you done enough different analyses with different numerical possibilities to be sure that your earlier statement is true, that there is no question to which this could be the reasonable answer?

Or, is it possible that in the second best world where there aren't serious difficulties with getting the risk weights right, that there might be situations in which the leverage ratio was a useful supplement? Have

you basically reached the point where you're confident it would not be?

MR. DUFFIE: Well, let me clarify. I do think the leverage ratio requirement would be a useful supplement in that it would raise capital in the banking system. But there is no calculation that I can imagine, and I've done a few, that suggest that it's a good way to improve safety in the banking system. There are much better ways, along the lines that you have suggested a few minutes ago, Douglas, which is simply, even though the risk weights are not very good right now, just raise the capital requirement for the risk weighted system.

That would be much better than simply increasing the leverage ratio to get the same kick from capital requirements. You would get the equal amount of capital into the banking system, and the capital would be allocated much more efficiently. So, I definitely support the proposal that you made. It's better than adding a leverage ratio, and it could be made better yet by being more conservative on risk weights that are more subject to distortion, whether from the official sector or the banking side.

MR. ELLIOTT: Okay, thank you. Marcus, you wanted to add something?

MR. STANLEY: Yeah. I mean, I think one issue is that in a certain sense, the leverage ratio is the answer to a question in

organizational theory, and in political science, perhaps. And Professor Duffie is a professor of economics and a very fine one. And naturally, he turns to economic modeling.

But the question is, it was interesting that you mentioned the official sector being in under the hood, you know, making these sort of micro economic decisions that are inappropriate. But when you look at the Basel II risk weights, it certainly feels like the official sector was in there under the hood to an incredible degree with the risk weighings. I mean, 20 percent for exposures within the financial sector, and a hundred percent for exposures out. The difference in mortgage exposures versus other kinds of lending. You know, as you said, VAR has a lot of structural assumptions about correlation in it.

So, just organizationally, I mean, can we build a process that's going to turn something out where risk weights are not significantly distortionary, as well?

MR. DUFFIE: Okay. So let me go to the political economy, or as you say, the organizational problem and step away from the economics. The process that we've seen is one of frustration, and the official sector from a political viewpoint saying, we've got to do something.

And so, someone gave a speech about a dog and a frisbee, and someone has made some proposals that say, let's just back up what

we had before. And somehow or other, this has taken a grip on the process of implementing new capital requirements which has short—circuited what is normally a very careful, deliberative process of analyzing capital requirements, because they are so important to the financial system.

So, we have essentially just done an end run on our homework. If I gave this problem to my PhD class, which I'm going to meet in less than hour, I'm pretty confident that at least half of them would come up with proposals that might not be as good as the other half, but none of them would arrive at what we've seen today. And I don't think anyone has done that analysis.

Here, I'm talking about process, not the actual calculations. So, why don't we just take a little time out and ask the official sector to produce the white paper by which this way to get capital, and I agree we should have more capital -- this way to get capital will result in fewer distortions than other ways that are readily implementable. The one that Douglas mentioned is very simple. It doesn't require any new calculations, and I'm pretty confident that it's going to result in fewer distortions, because it does apply higher weights to riskier assets with the same amount of capital entering the system. So it can't be worse.

MR. ELLIOTT: Okay, well this is fun, but let's go back to the

audience for the remainder. Unless Tim, were you about to dive in?

MR. LYONS: Yeah, I just had one other question. And again, I haven't studied this and you would almost need to. But I guess I would challenge the premise that the banking system today, at least in the U.S., is undercapitalized. And I guess I would make the following argument for that.

There are a series of these kind of run rate ratios that get calculated -- you know, kind of tier one common, tier one capital, leverage ratio and all that. And there generally seems to be advice that one is always better, or certainly, in general safer, presumably. Whether it's better or not is probably a different question.

If you think of, you know, kind of what's the right way to decide how much capital is the right number, how do you know the answer to that question? What's the analysis one might actually do to develop a point of view? The first panel, I think pointed out that one way to begin to get at that is to run a series of stress tests. And if you look at what the stress tests do for the capital markets firms, they actually do a stress test twice.

They do a stress test that is implemented by the Federal Reserve. It is a stress test that's more severe than the 2008 crisis, that's more prolonged, that's an instantaneous shock to the capital of each one

of the banks. And then, in addition, they run a second shock, which is a degradation of the trading environment, which effectively replicates 2008 again.

So there is effectively, you know, kind of two shocks that are done to the banks now. After they've taken those two shocks on, which are equal in magnitude to 2008, they still have to be above a series of risk—based capital minimums. And last year, when they did this, all the banks essentially passed on capital adequacy. Some of the banks didn't do terrific on their governance processes, but everybody, when they actually did the math -- and the people, by the way, who did the math was the Federal Reserve. It wasn't the banks. Right?

When the Federal Reserve went through and did this analysis themselves, they concluded that the banks, in fact, had sufficient capital. And I didn't hear anybody who was particularly close to the process saying that they thought that that process lacked rigor or discipline or sufficient conservatism.

So, I guess what I would start off by saying is, if one thinks about how much capital you're supposed to need, if they hit the banks with the baseball bat once, and then they hit the banks with the baseball bat twice and they're all still fine, what's the basis for the argument that banks need more capital?

MR. ELLIOTT: All right, we're going to side step that one, because I think we could have another whole event, and perhaps should, at some point, on that one. So, sorry. Actually, sorry, no we've hit you before. Actually, we've hit both of you before. So Larry, go ahead.

SPEAKER: My question is very basic, and it may not be very popular in this audience. But I noticed sitting in front of me, two rows, a former U.S. senator. And my question is, who's going to make this decision? And now, he is now a representative of Goldman Sachs. Is official Washington going to make the decision or is the banking community going to make it? There's a real shadow here that really disturbs me, as I said. It really disturbs me. Thank you.

MR. ELLIOTT: Okay. I'll take that one as a comment, because I think that would be a much longer discussion.

SPEAKER: Okay.

MR. ELLIOTT: Sorry. The fellow back there?

SPEAKER: Real question. Estimates of risk are uncertain and of course, they evolve in time. Is there an official time constant for which institutions have to respond to changes in the risk weighted assets? Numbers? Or are they expected to respond instantaneously? Or can they average over the next year?

MR. ELLIOTT: That's a good question. You're talking about

with their internal models?

SPEAKER: Yes.

MR. ELLIOTT: Yeah. That's a good question. I don't actually know. Anyone here?

MR. LYONS: Well, I think there's an official regulatory view, which is of course, that these are very long lead time things, and it's until 2019 or 2047 or at some point when banks are supposed to earn their way in. In practice, that's not really true. In general, the market expectation -- when a new rule comes out, what the expectation of the market is, is that you will very quickly disclose where you stand today on that rule.

So the leverage ratio that just came out, it wasn't even finalized yet. Right? And the capital markets' expectations on the earnings calls that occurred within weeks of it coming out was, basically what's your number and how fast are you going to get there? So if we separate you know, regulatory theory from capital markets reality, it puts a lot of pressure on the institutions. Now, we can argue whether that's good or bad, but in practice, we shouldn't pretend that the institutions aren't held accountable almost immediately.

MR. STANLEY: Well, there is -- I'm not sure. Maybe I misunderstood your question, but there is a transition period of four to five years in terms of when you actually have to meet these requirements.

Right?

MS. FRONE: Barbara Frone from the Institute of International Finance. Mr. Stanley, you refer to the correlation between leverage and bank failure. So, my question is, did any of those studies or your own analysis also include the liquidity dimension? That's the first question. So, the possible reliance on short—term wholesale finance of some banks that failed.

And the other question is, has anybody really looked, also, at the large number of banks that are quite highly leveraged and that did fare very well during the crisis? Because we do have in the U.S. and in the UK and in other countries, we do have a lot of banks that actually have low risk assets in their portfolio, simply because they are focused on, for instance, triple A rated public sector exposures, or they have no risk mortgages in their books.

So, the question is, wouldn't we find the same evidence if we looked at this banks with low risk assets, actually relatively high leveraged, but not having failed?

MR. STANLEY: Well, those studies, and I would have to go back and look at those specific you know, variables in the regressions again, because there were a number of studies. But I believe, from what I can recall, that there was not a separate control for exposure to short—

term wholesale funding markets. And that such exposure would be registered as potentially having a higher leverage ratio.

And I think in terms of your second point, I mean, this is sort of an average statistical prediction across a number of banks. So, you know, an individual bank's mileage may vary. This is kind of a statistical predictor.

MR. ELLIOTT: Okay. We've actually run out of time, but thank you to the audience. And thank you very much on the panel. Thank you.

(Applause)

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