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COVID-19 AND THE FINANCIAL SYSTEM
HOW RESILIENT ARE THE BANKS? HOW ARE THEY SUPPORTING THE ECONOMY?

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P R O C E E D I N G S

MR. WESSEL: Good afternoon. I'm David Wessel, director of the Hutchins Center on Fiscal and Monetary Policy at the Brookings Institution. It's my pleasure to welcome you this afternoon to a discussion about the role that the banks have played during the Covid crisis and the response of their regulators. As we know, the pandemic and the shutdown of the economy had a significant effect on financial markets and on banks. We expect banks to play a key role in channeling credit, including from the government to businesses and households, both to ameliorate the pain of the recession and to help quicken the return to a more normal economy as the pandemic recedes and the economy gradually reopens. To support banks' ability to do this, regulators have urged them to use their capital and liquidity buffers and have eased some capital requirements, but what we ask today basically is what vulnerabilities has this very real-life stress test exposed. Are banks meeting our expectations? Are they strong enough to keep lending through what is likely to be a very difficult economic recovery or should they be cutting dividends or share repurchases now or even raising new equity so they're ready? What have we learned from the behavior of banks about the cost and benefits of Dodd Frank and the other reforms we put in place after the Great Recession? Are there longer-term risks to financial stability if regulatory forbearance is extended? A week ago, we focused on the financial markets. Today we focus on the banks and we are very fortunate to have an extremely impressive group of people to discuss.

We're going to start off with a presentation by Jeremy Stein of Harvard, who will discuss a paper that he's written with Sam Hanson, Adi Sunderam, and Michael Blank of the Harvard Business School. After Jeremy presents, my colleague, Nellie Liang will join the co-authors for a brief discussion of the paper. Then we'll have some reactions to the paper and to the bigger issues that are on the table from Betsy Duke, formerly Federal Reserve Board governor for former chairman of Wells Fargo, Don Kohn, my colleague at Brookings, former Vice Chair of the Federal Reserve, and Andrew Metrick of the Yale School of Management.

So, with that, I'd like to turn the screen and the podium over to Jeremy Stein.

MR. STEIN: Thank you. Thanks very much, David. Let me see if I can share my screen here. It's a pleasure to be here. As David said, I'm going to talk about some joint work with my colleagues, Michael Blank, Sam Hanson and Adi Sunderan. Basically, we're trying to address the question in the title. How should regulators respond to the pandemic? To give you the short answer up front, our view is more forcefully than they have done so far. Just to put this in context, our view is that the Fed's overall response to the pandemic has been generally outstanding. They have been appropriately aggressive, imaginative, willing to push the envelope. I think they've been in all cases equal to the moment, except strikingly in bank regulation where it feels like they've been somewhat too passive and behind the curve. So, basically, I'm going to attempt to in the next few minutes, make that case a little bit more explicitly.

So, just to break things up, spend a minute or so on kind of what we learned from last time around, say a few things about what the market seems to be telling us this time. We've done a very crude, little, homemade stress test of our own. We'll let you know what that's not to say. A little bit on what one should do in principle in a time of stress and wrap up with some very specific policy recommendations.

A very simple point is we've kind of seen this movie before between 2007, quarter 1, and 2008, quarter 2. So, this is the prelamin, but problems are already underway, period. U.S. banks paid out $135 billion in cash and repurchases and did minimal issuance of new public equity and waited, and basically waited and waited and waited, even as several hundred billion of loan losses were accumulated in the system, didn't really do a meaningful issuance of public equity until mid-2009, after the original stress test, the so called S-Cap. By that time, their stock prices were down, sort of ballpark 70 percent.

Second point is stock prices were all along sort of telling the story and were more forward looking than the sort of traditional accounting base measures that one looks at to judge capital adequacy. So, even by March of 2008, around the time of Bear Sterns, bank stock prices were down by 35 percent, but again, that was a period of essentially no action on the part of banks and their regulators. At least in hindsight, that feels to us like it was a major policy mistake and a missed opportunity to raise equity and to stop dividends at a time when prices were higher and didn't have to have been done sort of in the shadow of government putting equity and people worrying about nationalism. Just to follow on this point, not only were bank stock prices declining sharply, they seemed to be sort of informative. So, none of us are trying to push market efficiency too far here, but if you look at the cross section of which bank's stocks fell the most, that was a very good predictor of which banks ultimately had the biggest loan losses. So, that's what this graph is telling you. Those banks whose stocks went down the most, at prelamin, ultimately realized the biggest loan losses. In fact, there was much more information in stock prices than in again accounting based measures of just change in recapitulation. So, again, making the case that stock prices, albeit noisy, do seem to have some useful and importantly at sort of turning points like this forward-looking information.

What are they telling us this time around? Well, bank stocks again, look quite similar in some ways to some of the prelamin, call it Bear Sterns 2008 period. Bank stocks are down 40 percent. In that sense, they are quite distinct from the rest of the market which has rallied quite strongly. So, again, if you look at which banks have fallen the most, it doesn't seem to be random. It seems to be the banks with the most exposure to risky loans and in particular, to CNI and consumer loans as the strongest signal. So, there seems to be again, some information there, corroborated by other market prices. If you look at indexes, for example, leverage loans, those are down around 10 percent, try to reconstruct essentially indicator of CNBS prices. Those are down 9 percent. Of course, those have rallied. It's this after that having them rally on the heels of support for credit loans. So, that's sort of inclusive of the Fed put. They are still down kind of substantially.

Market crisis are one piece of information. We try, and of course, this is very, very crude. We tried to do a little homemade stress test. What we did, with thanks to the researchers at the Minneapolis Fed, they have a model that basically allows you to feed in macro-economic assumptions, and then based on historical relationships between macros economic variables and category level loan losses, sticks out estimates of loan losses. So, for example, we feed in an unemployment rate, and based on the historical relationship between unemployment and say, CNI loan losses, it will spit out estimates of CNI loan losses. So, if we feel in the main thing that drives this, there is also various real estate, commercial, residential real estate prices. The simple heuristic here, the primary driver of our analysis is unemployment.

I should say there is an enormous caveat, because, as you'll see, the path of the unemployment rate, looks very different than in past history. It's like we've spiked much, much higher, but it may be more temporary and sort of more punctuate spike than we've seen in the past. Of course, the model can only extrapolate based on past history. So, please take everything that we say here with an enormous grain of salt. The point is not to make a precise estimate. It's to get sort of broad, broad magnitudes. So, again, a bit of a black box, I know, given the time, but the most optimistic scenario we consider is when the unemployment bank peaks at 17.8 percent. Obviously, that is probably short. This is not an extremely adverse scenario at this point. This is probably short of where we'll be. Even in that relatively more optimistic scenario, banks will have a net hit to their equity, Tier 1 capital, about 400 billion, and their capital ratio will fall from 11.25 percent to 7.3 percent. So, a little over 400 basis points, if we go more pessimistic. This is sort of the pessimistic case that Minneapolis has sketched out. Obviously, you get sort of more substantial numbers. Again, I don't think we're particularly trying to push a point estimate here, but to suggest that for plausible magnitudes, you can get quite, quite substantial effects.

Here is a picture of some of what we've done. I'd like to draw your attention to the right-hand panel over here, just to show you that what's going on inside this black box is not crazily plausible. So, the blue line is in our most optimistic case. What is the model telling you about losses, for example, on residential real estate, loss rate of only two percent? So, in fact, this scenario, our so-called optimistic scenario is if anything, quite a bit gentler on residential real estate than we've had in the global financial crisis. Another just sort of sanity check, the loss rates, depending on how adverse the scenario for CNI loans are between five and 10 percent, upper and there conforms with what market prices again of leverage loans seems to develop. So, while this is a bit of a black box, it doesn't seem to be generating loss numbers that go crazy.

Another kind of interest bit of validation is if you think one thing to look at is market prices. Another thing to look at is the stress test. They line up very closely with one another via cross section. So, in other words, on the horizontal axis I've got here, how much have the stock prices of a particular bank declined, and how much on the vertical axis has there the CET-1 capital ratio moved. You can see there is a very, very close association. Basically what is going on, banks like Allied, Cap One, Discover, that are more

Consumer centric, the stock market has recognized that apparently and has hit them harder. Our stress tests basically are hitting them harder as well. That's a loan category that is sensitive to high unemployment.

So, again, none of this tells us that the magnitudes are precisely right, but it at least has some modest feeling of cross validation. So, that's sort of the numerical analysis. What should one in principle do at a time like this when there has been a major shock to bank capital? Obviously, you want to protect the banking system, while at the same time, encouraging credit supply, and we've done some previous work on this in a sort of an intuitive principle, which is you want to work simultaneously on two margins. You want to simultaneously lower the marginal tax rate if you will on new lending. That is like lowering the capital charge or the capital ratio that is applied to new loans. That is one thing, but at the same time, you want more dollars of equity. Those two together will both bolster the system and create more capacity for lending. I think that's very much the lesson that we've learned and I think the fundamental insight of the 2009 S-cap, where if you will recall, we were not telling Bank of America, improve your capital ratio by two percent. We were telling Bank of America, raise $30 billion in new capital. So, that's a very important part of the response and by analogy, to taxation, this is sort of like simultaneously saying, we want to cut the marginal tax rate because we want to encourage more desirable activity, while at the same time, we want to broaden the base, and maintain our revenues, not deplete revenues. If you look at the U.S. policy response thus far, it's been entirely essentially focused on loosening the ratio type of requirements. That is to say cutting the marginal costs of making a new loan, but it hasn't done the other part, which again, we think is a very important and perhaps the more important part of the overall response.

So, just to summarize, I think we have a pretty simple bottom line in the short run. I think this is as close as you get to a no-brainer, that bank dividends and share repurchases should be altered immediately. The U.S. is something of an outlier in not having done this already. A number of other countries have, maybe a bit more challengingly, but we think also importantly. If you think about it's no fun to issue equity when your stock price is down 40, but there is a scenario and the global financial crisis teaches us, there is a scenario where things get better, but there is also one where it gets worse. I think you want to think about the cost to the stakes on either side and the cost of having to issue when you're down 70 and you need government support to do it, I think we would judge as a substantial cost. So, that's our second thing.

More broadly, I think this time around, as a last time has taught us about the value, especially of these turning points of looking to market information for some guidance. That's not to say that we want to mechanically tie capital requirements to market prices, but there should be some discipline, as we've tried to illustrate here, between if you're thinking about a stress test or if you're thinking about capital leads and the stock prices are down very dramatically, you should be trying to at least reconcile the two pieces of information with one another. If we had previously raised the so called counter cyclical buffer, we would be in a position to cut it now, which would be the other thing that we think was useful was to lower the marginal capital tax. Unfortunately, it was not turned on in the U.S., and you can think of sort of various political economy reasons why that's challenging. I think we think that studying the default, so there's a presumption that it's basically on in good times, would give you a better shot of having the scope to lower it in that.

So, that's pretty much it. I will stop here and then
'm going to turn it over to our Q and A which will be led by Nellie Liang and we're going to be joined by Sam, Adi and Michael. Thank you very much.

MS. LIANG: Terrific. Thank you so much, Jeremy, Sam, Adi, Michael, for this paper. Very interesting and an interesting set of proposals. So, I'm going to pose a couple of questions, focusing first on the short term, and probably mostly on the short-term recommendations. This will sort of give you a little time to sort of bring out a little bit more of the richness of the paper that you can only do so much in 10 minutes.

So, you introduced this as the Fed has been very forceful and aggressive on all kinds of actions, monetary policy, emergency, liquidity, and has not been as aggressive on the bank regulatory side. I think the Fed could say they've put in place a system to anticipate this type of situation. They have stress tests which are tailored to individual firms that incorporate the proposed dividends and share repurchases that might be paid out. So, that's already built into the capital requirements that they have for individual banks. Until now, that's included dividends and share repurchases, as you know. Although, they're moving to a system where it looks like it will be only dividends. Can you just explain, or just express a little bit more, why isn't the current system enough?

MR. HANSON: Sure. Maybe I'll start. Thank you very much for hosting this great event. I think just to start at a high level, our view and our comparative advantage is starting with the substance and then asking how the process can be used to implement that substance. At a very, very high level, I think the substance is a completely unprecedented shock that no one anticipat4ed 3 months ago, let alone 6 months ago, let alone 12 months ago. So, though the stress tests from 2019 are admirable in many ways, through no fault of their own, regulators were not anticipating a worldwide pandemic and the corresponding kind of economic destruction. Therefore, what we did in the past is probably not enough, given the size of the shock. The other thing I'd just like to say up front is just what I think the thing we're learning from this is that the stress test is becoming a commitment that may constrain us from taking actions in response to a shock. So, this is kind of like the problems that the people have had with the dot plots and monetary policy on steroids. I announced 6 months the banks were fine, but the world has completely changed. I feel a little constrained to continue saying that the banks are fine, whereas I guess our view is it should be pretty reasonable for people in the process to say the world changed pretty dramatically, and let's use the tools that the process has set up to understand how to respond to that dramatic change as soon as possible.

MR. SUNDERHAM: Just to follow up on that, have we come sort of an interesting long way from 2009. Thank about the original stress test. It was like oh, my gosh. Obviously, the accounting numbers are not telling us the story. We need to do something that will mark this to the current reality to some extent and allow us to do what we need to do in sort of a crisis. Then we went through this period of the stress test becoming a kind of normalized thing and a kind of compliance exercise to some extent. It's fine. It seems to be fine to say when you're doing whatever in the 2019 stress test, let's have a hypothetical scenario where you continue to pay dividends for (inaudible). It seems kind of crazy that you would then say you were locked into that. It seems to completely undermine the complete point of doing the stress test, which is again this is an original wartime kind of tool. If we turn it into a nice to use for the Army and have the Army do exercises at this time, one of these peacetime exercises and the compromise and the ability to use it for what was, I think, was original in that purposes, that would be kind of unfortunate..

MS. LIANG: Could you clarify, does your proposal which is to immediately halt dividends and share repurchases until –- so there are 2 questions here. One is would it be all froze, halt dividends and share repurchase, regardless of their capital levels, and then until when. I don't know if you've kind of gone through that process yet, but just can you address that?

MR. BLANK: I would say for a short haul. You want to take the signaling sting out of all this. It's just a preemptive, across the board. So, it's not like you're getting the – you're getting the signaling out of each individual banks. I think that's problematic.

MR. HANSON: Also, given the shape of the current shock last time in the global financial crisis, the shock, mainly it impacted the very largest banks. This time we don't have – some small or mid-sized banks are also, they make many commercial, industrial loans, commercial real estate loans. So, I think that there's less sense at this time for it to be concentrated in the largest banks. Jeremy, I don't know if you had thoughts on, if there was some automaticity.

MR. STEIN: One simple point would be I would think you would want to for precautionary reasons shut off dividends and repurchases until you were relatively sure, given the shape of the shock and the capitalization of the banks, that you knew pretty well that they were going to be able to survive. It seems like the presumption should be let's be cautious until we're really sure that we're going to be able to weather the storm, as opposed to, let's pay dividends until we're sure that we need more equity.

MR. SUNDERAM: Just to add on that note, to survive, in other words, I don't think you're doing this just to prevent the worst-case scenario of the banks need to be rescued by the government for any danger of failing. We have a financial system that we're going to need when we come out on the other side of this to be able to supply credit to the new economy and it's quite possible that the other non-bank parts of the financial system will bring a very, very heavy role and corporate credit will be damaged in some way. So, some of this is just having a stronger banking system, so we can re-intermediate to continue to provide credit. Even if you are down three or 400 basis points of capital and you're not in danger of failing, that puts a pretty significant dent in your ability to expand credit.

MS. LIANG: Yeah, I agree. Your point about a dynamic resilient framework focuses on both reducing probability of failure and supporting lending to the economy and that's an important element.

Could you speak to what you think this might do to banks cost of equity capital, this type of regime? So, I think of this regime as almost, not quite, but turning CCYB on its head, where you try to raise capital early when capital is relatively cheap and you can release it. That's part of your framework, but there is also this piece where you have a shock big enough and now you need to raise capital, which you could cut dividends or repurchases or it may actually require new issuance. So, can you just talk about the cost of equity capital to banks and if there is a social cost, to lower stock prices, which is kind of where I was thinking it might lead to. So, are there social costs, other than private cost that we should be concerned about?

MR. SUNDERAM: I guess the first thing I would say, as Jeremy kind of said, I think we are big fans, as we said, kind of two things. One is broadening the base or increasing the total dollars of equity in the banking system, while at the same time you are relaxing capital ratio requirements as exactly would be the case if you were kind of drying down into a counter cyclical buffer. So, I think we're completely fine with allowing ratios to kind of fall behind where we would like them to see in a normal steady state, while at the same time, yes, we do think there needs to be more dollars of bank equity capital. In terms of the social cost of bank equity issuance or bank equity capital, I think, I guess the first thing, there is a very large corporate finance literature about what happens to stocks when you issue them. For the most part, if you issue equity, your stock price does fall some, but it's certainly not the aquaretic event that it seems like people often think it is. Then as we kind of argue in the paper, we think that a lot of the costs of issuing or raising equity are kind of private in nature. They do not represent costs to society. They mainly say our transfers from bank shareholders to bank creditors. I think the biggest kind of social cost of issuing equity that sometimes people will point to is that people will say well, if the

Fed asks banks to issue equity, it will scare the markets because it will kind of reveal some very negative information that the Fed has about the macroeconomics. I guess the point then that we would make is we think the Fed has been admirably forthright in one, the Chairman is out regularly talking about being concerned about there being a kind of tsunami of corporate defaults and household bankruptcies that could have very long lasting and scarring effects on the economy, and has been issuing some pretty dire, scary statements in acknowledging the tremendous uncertainty about the macroeconomy. For that reason, as the Chairman has recently said, the Fed has kind of blown past what normally would be a bunch of red lines because of that. I think the only thing we can say here is unless we somehow think that, you know, investors in bank stocks can be told by top Fed officials that this could be a very, very severe recession or even depression, and that there could be significant bankruptcies, but the only thing that they haven't figured out is that banks make a lot of loans and could lose money if there are bankruptcies. It just doesn't feel like there is much that we can be keeping secret from investors at this point.

MS. LIANG: We have probably a minute if anyone wants to wrap up or I have one more question. So, let me just raise this. Your proposal doesn't distinguish between dividends and share repurchases, which is something the current stress test regime does. Yet it has recognized for rightly or wrongly that dividends are more costly to cut in the sense of it's more costly to the stock price than share repurchases and banks have ramped up share repurchases in a big way and not dividends over the past two years. I've been a big proponent in cutting share repurchases, certainly for at least the period for which the SLR is exemption treasuries. Do you see any role for why do you need – let me just ask this way. Why do you need both? Are you certain you need both in your proposal? Are you certain that the amounts of capital that you need are necessary to ensure the markets are comfortable with the firms and they can continue to lend or is there a possibility of something intermediate?

MR. STEIN: One observation, it's always been a mystery as you have alluded to corporate finance to throw cash out the door. What's the difference?

MS. LIANG: Yeah, totally.

MS. STEIN: To accept that anybody has a theory of it is kind of a stigma, like we sort of kind of promised we were going to keep dividends constant until we go back to that stigma is a company question. Now, of course, if the regulator imposes that on you, it's no longer a signal about the individual company or question. I think that the argument that dividend cuts are more costly goes out the window at least to some extent. I take your point. The amount of dividends we're talking about is probably in the ballpark of $50 billion. It's not indicative of purchases. I don't think it's sufficient if you look at sort of the numbers that you're showing in the stress test. I don't think it's sufficient. I think we're arguing on it on the principal of man, you should at least do this because this seems like a relative, easy thing to do. I think the 4 of us all believe that we need to go further. IF you want to have real magnitudes, we probably need to have multiple hundreds of billions of equity issues, anything like the downsides they already owe is in the3 offing. There is no penchant that dividends are not, but they would be the first step along the path.

MR. HANSON: Exactly to Jeremy's point, the chatter that we've heard from bank executives is almost of the form. IF the Fed told everyone to cut their dividend, of course, we'd be happy to do it. It's just that we don't want to be the first bank to do it, but yet the Fed hasn't yet taken that step.

MS. LIANG: Okay. Great. This is terrific. Thank you again for a very interesting paper. We'll be coming back to this again with the panelists that we're going to next, all have some thoughts they want to share on this. I think we'll be coming back to this discussion. So, I'm going to turn now to Andrew Metrick from the Yale School of Management. He should be coming on.

MR. METRICK: Hi. I really like the message that pops on the screen. It says, "You have been promoted". It's very exciting. Thanks very much for the invitation to this and for giving me the opportunity to look at this paper. It's a short paper, but it has a lot of I think really good content. My key takeaway that I got from it which won't be any different than perhaps the conclusion slide that Jeremy just showed is first, on the content side, the strong value of market information in how we should be thinking of our stress tests in general that there is a lot of information that the market has that perhaps we're ignoring. That is to our detriment. I think that is a very important point which we should be thinking about as we design our stress test going forward. The second kind of specific exercise, and they call it a table top, and there's lots of caveats about that table top, but I was struck by the fact that while the assumption seemed to me to be kind of conservative, conservative in the sense that they are not imposing really,

really nasty economic scenarios compared to what we observe out there, the results were still pretty scary. In the adverse scenario, it was almost 80 percent of the bank assets were in banks that would be below their required capital ratio. That to me was the alarm bells, kind of a cause for concern if that's what your tabletop is telling us. We need to get more into that. Most of my comments will be about that. What should Jeremy, Sam, and Michael do? It's not their job to have all the data the Fed has, but what do we need the Fed to do to make this stress test credible. Finally, there is a set of policy recommendations. Usually I really enjoy debating Jeremy about his policy recommendations. I like to disagree and give him a hard time and all of that. I find myself sadly agreeing with these policy recommendations. I will not engage. I will not continue the debate, perhaps others will, about whether we should stop paying dividends. I agree. Instead, what I want to do is talk about another aspect of the stress tests that I think is very important. In their writings, Jeremy, Sam, and Adi in past papers as well, have emphasized one very important part of the stress test which was a key insight in staff which was the need to raise more dollars in capital, not just change ratio in dollars. That's a very important point. I think perhaps the twin pillars of what was so cool about the wartime stress test. That's one of those pillars. The second is how credible the test was. So, the difference between the very successful stress test in the United States, successful meaning that markets really reacted very positively to it, and it helped to end the disruption in short term credit markets, compared to what happened in Europe with their first stress test was credibility, and there is a bunch of different elements that go into making up a credible stress test and I think there are some danger signs that what we are going to see in our wartime stress tests here may not be credible, and I wanted to just throw out a few things that I thought would be really necessary components of what our wartime stress test will look like. I imagine what the Fed is going to announce is what they're going to announce. They're not eagerly listening in on this call to see what they need to change for the one they will announce soon, but perhaps going forward, you know, we can have this debate.

So, the first is that -– and this is all framed by the fact that in the paper, you can see, just looking at the class model, which of course is not a model, but they're using on a bank by bank basis, but gives you the idea. We're looking at the path to help us predict the future, and the class model, the scenarios are so difficult that we're actually getting in some extreme cases, weird non-sensical results. We have to override them, just kind of in this basic model, and I'm sure that's going on in the more complicated models as well. We're going to need something that at post when people read the fine print, they think is credible. So, one piece that I think is important here, which I hope is not left out of our models is that banks are currently taking some of the losses in the economy that are happening through very, very necessary loan forbearance we are giving to people. When people don't pay their rent, when they don't pay their mortgage, when they don't have to pay some of their contracts, ultimately some of that is falling on the owners of the loans that are not getting paid at the end of this chain. So, it's not just loan losses the way we have in normal times. We are actually through policy setting up a lot of different ways now and probably going forward where we're going to allow some of these loans that we are asking the banks that are well capitalized to do part of the rescue for now. We need to keep that in mind as we're thinking about what thinks look like in six months.

Second, the adverse scenarios that we see here in the Minneapolis Fed, for example, and you see in a lot of different places, I got to say, they look way too much like a URV or whatever you want to call it to me. It does not seem credible that we don't have at least some scenarios where this is a very long and protracted recovery. I'm not going to go into all the details for it now, but I think it's quite clear that that is possible. Just looking at what's going to happen if we come right back, I think is not particularly credible.

Finally, bringing these together, I would say what we will need to have credible looking stress tests is underlying models/scenarios that are paying more attention to the connection between what's going on on the bio medical side and what's going on on the economic side. We are starting to see some pretty good models coming out of professional practitioners, our friend Alexander has a very nice one that's trying to bring together data from what's happening in the virus, what's happening in mobility and how that relates to economic activity. We're going to need that. We're going to need something more than just looking at the historical relationship between various macro things and defaults, to come up with reasonable looking forecast for the path of these key macro variables and how they're going to interact with loan losses and bank capital. I think we're going to need this. I think absent having -- perhaps my largest concern right now, is that with what the banks are being asked to do, and with what an adverse scenario might look like, a realistic adverse scenario. It just takes a long time to come out of it. That banks' capital reasoning from the public on their own, on the private side, is going to be insufficient for a variety of reasons. I don't know whether our political system is going to be capable of recapitalizing the banks, given the strong pushback that we received from doing it 10 years ago and so right now, before things get bad, we've got to do everything we can to try to both preserve capital and establish a credible framework for evaluating our capital needs. I probably took more time than I was supposed to but let me shut up now and turn it over to Don Kohn.

MR. KOHN: Thank you, Andrew. It's a pleasure to be part of this panel. It's been really interesting so far. I have a couple of points I want to make if I can move the slides. So, I agree with the points that the paper makes and that Andrew just emphasized. So, like Andrew and Adi, I think this could be a very severe stress event even more severe than the Fed's severe scenario. At least, there's a fat tail out there and a pretty fat tail, and the banks need to be resilient to that fat tail. They need to have enough resources to continue lending, to keep credit flowing, to reduce the scarring, a lot of which will happen, but even more of it will happen if the banks don't continue to lend. So, I think conserving that capital, building the capital is key.

I want to spend my time on the next two points. There is a regime built around the dynamic resilience that the authors have advocated? It is in the U.K. and I've been part of it as a member of the financial policy committee. I want to review that. I also think that the U.S. capital regime was moving in the wrong direction before this stress event. Capital requirements from the stress test had fallen. The framework was becoming less counter cyclical and unsurprisingly, and I'll explain why I think that, and unsurprisingly I have a recommendation for that. So, what have we been doing in the U.K.? For many years, for 5 years or so, we had a counter cyclical counter buffer that was set at 1 in a standard risk environment. Last year we said we wanted to make it two in a standard risk environment. We did it in part by looking as the authors did in the global financial crisis and we could see that the buildup of capital before that crisis to make banks resilient would have been much larger than one or two, and one for sure. We questioned whether we could have gotten the counter cyclical buffer up to the three and a half to five that the staff estimated we would have needed if we started from one. We might have trouble even starting from two, say, in 2003 or 2004, but at least we would have a better chance of getting it to where it needed to be to make the banking system resilient. Going from one to two in a steady state would have added a little bit to tier one capital requirements about a quarter of a percentage point. It wasn't a bit increase, but a little increase in the quality of capital.

Our stress test in the financial policy committee helps us to decide on what the countercyclical buffer should be. As in the U.S., we make it countercyclical. So the lower the unemployment rate is, the bigger the increase in the unemployment rate. The higher the property prices, the greater the falling property prices are. We also look at the stress environment or the financial environment, the risk environment globally and in the past couple of years, our stress test has produced larger drawdowns in U.K. capital, importantly because of our perception of rising global risk, including leverage in U.S. businesses and leverages in China. We also believe in releasing the countercyclical capital buffer can be an effective macroprudential tool to enable and encourage banks to lend. I think the important point is it adds to the4 amount of capital that can be drawn down before you get to a spot in the capital stack in which you might be required to cut back on dividends or share buybacks or bonuses paid to top management. So, it gives a bit of a cushion that banks should be willing to use.

So, we have released the countercyclical buffer twice, once in the market volatility to follow the Brexit referendum in June of 2016 and again, just a couple of months ago in the Covid-19 stress. I think an important point is, we started from a standard risk environment on the way to one in 2016 and on the way to two in 2020. It wasn't the financial system that caused the stress, but it came from somewhere else, but releasing the buffer gave the banks a way of lending so the banks wouldn't be amplifying the stress.

I think with respect to the dividend issue that the authors raised in the 2016 release, we said that the banks could not use the released capital to increase their dividends. Of course, in 2020, the Bank of England, with the strong support of the financial policy committee has convinced the banks that they shouldn't pay any dividends at all to conserve capital and should cut way back on cash bonuses to management. We have emphasized that buffers are usable, including the capital conservation buffer.

Buffers serve two purposes. Building buffers on top of the basic requirements gets capital high enough, so that in a stress event, especially just important institution, they will survive. The taxpayers are not required to step in.

The second point is the one I've been emphasizing, that it gives capital that can be drawn down to keep lending flowing and prevent banks from amplifying an already bad event. I think we're in the middle of a test of that second thing. So, will the banks actually use the buffers, the management buffers they built up, the extra that they've gotten from the countercyclical capital buffer? How will markets view declines in capital and liquidity metrics and will banks be willing to test h ow markets might view that? We've already restricted dividends and buybacks. So, the threat of getting into the distribution restriction territory is much less, but still, it's not clear how banks are going to deal with this. We hope and we will encourage them to recognize the externality. The collective action problem that some of them -— it's in everyone's collective interest that they all continue to loan and use the capital that they've built up. The U.S. in contrast to the U.K., has been going in the wrong direction. So, the stress test is said to be the marginal capital constraint for many large banks, the stress test that has just been discussed by the panel. In 2019, in a paper that Nellie Liang and I published, we showed that in 2019, or in updating that paper, we showed that the stress capital buffer, the capital buffer that fell out of the stress test, fell, and fell substantially in 2019. So, here we have a situation in which the unemployment rate was falling. So, you would think the stress would be greater; the capital would be higher. Business leverage was rising. The risk environment was getting worse. Yet the required capital went down. I think the paper showed very, very clearly the starting point in the stress is critical.

The increases we've had in capital liquidity from the regulatory reform of 2009 have meant that the banks have been able to play a constructive role in 2020. I think it's concerning that the 2019 stress test implied that the authorities were okay with that starting point declining, and particularly at a time when the banks were already talking about drawing down their management buffers. So, not only was there downward pressure on the starting place, but the changes in the stress test regime have weakened the countercyclical. Nellie talked about this. Much of the countercyclicality that was in the stress test came from the requirement that banks in stress had to prefund 8 quarters of dividend and share repurchases. Naturally, planned dividends and share repurchase rise in good times and fall in bare times. So, the prefunding requirement gave a bit of a higher capital stress requirement in good times and scaled it back in bad times. That prefunding requirement has been scaled back to four quarters of dividends from 8 or 9 quarters of dividends and share buybacks. That's much less prove, much less countercyclical.

A second point that's been changed in th4e stress test is the Fed used to impose a soft limit of 30 percent of dividends proportionate distributions. They've eliminated that. So, they've allowed dividends to rise relative to share buybacks. We have seen graphically, illustrated in the current environment, that it's much easier to cut share repurchases than to cut dividends. Encouraging or allowing dividends to rise relative to share repurchases goes against the3 countercyclicality of the macroprudential requirement. The test now assumes a constant balance sheet, rather than the small increase that it had assumed before for bank lending and risk related assets. I think it's important that banks be able to fund and capitalize the fund increases in lending, even in a stress environment. Now, that's been reduced. So, my r4eocommendation, not surprising if you heard what I've been saying, is that the Fed and the other authorities use the current experience to think very hard, to reevaluate what the public interest, costs and benefits of the way they were moving, and the way they had changed the stress test and the effect it was having on the cyclicality rather than the countercyclicality of bank capital. I think th3e U.S. should adopt the framework of dynamic resilience with a positive counter cyclical buffer and standard risk environments. As we've seen, stresses don't always originate in the financial sector. So, waiting until the financial sector gives you a signal for raising the countercyclical buffer is too late. Things happen. You want to release that buffer. This is the dynamic resilience that Jeremy and others were talking about. Release the capital buffer in order to give banks more3 incentive to keep lending. In the standard risk environment, just to come back to that starting point, you've got to have enough capital to allow that capital to be released, the have the markets and the macroprudential regulators comfortable when capital is released. So, banks retain their access to funding markets and continue to lend. Thank you. I'll turn it over to Betsy Duke.

MS. DUKE: So, thank you, Don. I had forgotten how much fun it was to be the only banker in a room full of academics talking about bank capital in the middle of a financial crisis.

So, let me start with talking a little bit about the loan programs that are being administered through the banking system, but they don't really put a lot of strain on bank capital, liquidity or even credit. So, the one that's the perfect example of that is the paycheck protection program. In terms of the origination of these loans, I think it's been a phenomenal effort and probably a phenomenal success, $510 billion in 4-1/2 million loans. That's about four or five years of small business lending, capacity being put together in a matter of four or five weeks. It took extraordinary effort, by the SBA and the banking system to get it there. The speed and some of the changing guidance certainly has made it bumpy and probably there are a lot of mistakes and fraud in the thing, but it did get out there. I think you already see regrets in both directions. So, borrowers looking at the forgiveness application began to worry that rather than getting grants or free money, they were going to have higher debt and not the revenues to pay it. Then in the public, you had some concerns about companies that weren't deserving of the assistance getting it. So, the lending part is actually the easiest part. Getting repaid, whether it's through the forgiveness, the post-crisis cash flow or a government guarantee is going to be the real challenge.

Just last night, the Senate passed the house bill that will extend the forgiveness terms. So, extending from eight weeks to 24, the time that you had to spend the money, the required payroll spending has been reduced from 75 percent of the money to 60 percent and the date to rehire all employees was moved out until the end of the year. Still, small businesses were absolutely horrified when SBA put in the forgiveness application. I was actually going by a local restaurant. He was putting inside the 4 tables he was allowed to serve outside, and he said, you know, we've just seen it. I just feel like we have to close up, because we're getting deeper and deeper in debt and there is no way I can see that we're able to make money or climb out of it. So, there is that piece. Then just processing those applications. So, SBA and the Paperwork Reduction Act estimates 3 hours to process those applications. I think it's going to take a lot longer than that, both on the bank's side and for small businesses, most of whom will have to depend on accountants and attorneys to help them complete that paperwork.

So, the first question is can the forgiveness be made as simple as the original application? Then the second piece is what happens to the loans that aren't forgiven. So, there are going to be a lot of businesses that didn't follow the rules or in one way or another, don't have their loans eligible for forgiveness, but still are not doing very well. So, how far are the banks going to have to pursue those customers to get payment in order to receive payment from the SBA for that guarantee? I think those are some things to really think about going forward.

The main street lending program is just getting up and running. The terms are past credits, leverage limits set 4 times or 6 times, senior to or existing to debt and there are restrictions and potential stigma for borrowers. So, in reading the terms, it was really kind of hard for me to think about who actually is going to get these loans. It's the old conundrum in banking, which is the borrowers who can qualify for the loans don't want them or can get the loans under better terms than are offered in the program. So, it's going to be interesting to see who actually signs up for it. I don't see a sign yet that banks are unable or unwilling to maintain the capital liquidity levels that will support loan demand with acceptable credit quality, but it is hard for me to imagine a scenario where the economy is as bad as some of the most stressful scenarios/ Yet there is this huge bit of unmet loan demand that is bank quality credit. I think the regrets on this program are likely to be bigger and even more severe consequences than in the PPP.

Let me turn to the regulatory capital regime and just point out some things to consider before you get to the conclusion that we need to immediately have all the banks raising additional capital. The first one is I'd hate to see us squander the C-car (phonetic) credibility. If you go back, particularly Don and Nellie, to that S-cap exercise, if you'll remember when we were doing that, there was a lot of discussion in the Treasury, in the White House and even in some parts of the Fed that the capital hole was so big, that the government was going to have to come in and take over different institutions. Investors were scared of all banks at that point. Counter parties were scared of all banks. I was scared. When we start4ed talking about actually publishing the results of that, I was ready to dive under the table because I was so afraid that the distinguishing of the bank that needed more capital from the banks that needed less capital was going to cause havoc in the bank investment market. As it turned out, that was the one thing that calmed everybody down because the capital holds were less than the worst-case scenarios had assumed and there was some confidence among investors that they could differentiate between the capital needed between one institution and another. So, over time I think there has been a considerable credibility built up here. The investors, I think their appetite for investing in banks is tied to the transparency of this capital regime. So, that one time, and then if you have a second time, particularly if you came in right now and said, all banks have to raise this amount of capital, whether they need it or not, I think that would have some handover with bank investors. Sicor exercises underway now and the original scenarios were not changed, but I think the firms and the Fed had the opportunity to pressure test the results with the same sorts of additional risks and unemployment curves that you used in your models.

The second thing I would say is that I know I'm the only person in the United States, I may be the only person in the world, who spent five years on the Board of the Feds approving Siecor plans, and then five years on the board of a G-sib (phonetic) approving Siecor plans and capital distribution and three years talking to bank investors on a very regular basis explaining why we were taking the actions that we were taking. So, for having seen it at that 360 degrees, I think everybody worries about the same concerns. Everybody has the same concerns and weighs them differently. It's the job of bank management to balance the regulatory requirements with the investor expectations, but I think the investors have come to understand this regulatory framework and they are not going to reward banks for paying out capital and running the capital levels down to places which then risk much more severe regulatory action. So, if you look at investors right now, they are focused on the institutions' ability to earn the dividend first. I think this is a place where you've already seen the largest banks stop their repurchase programs. I think they are also going to have to look at what their realistic earnings outlook is for the next 4, 6, 9 quarters and adjust their dividends to sort of match their current earnings. Everybody is looking at reserve adequacy and that's complicated by you have a new accounting method of reserving the seesaw which stands for loss expectancy. Don't remember exactly, but it's a through the cycle loss reserve methodology, rather than an incurred loss methodology.

Then the last thing I would say that is within the banks, the tools that were developed for Sicor are helpful to constantly forecast earnings and capital levels and use those to adjust capital plans in real time. So, what is the risk that the stress losses will be higher than the current modeling. The marketable securities balance sheet of banks, I would say, have been to some extent saved by the actions of the Fed in early March because a lot of the swings and evaluations of their securities have been dampened by the Fed's actions. On the consumer side, a lot of the risk in consumer lending is now on the books of the government, whether it's through Federally guaranteed mortgage lending or in student lending. If you looked at the banks that seem to have the greatest concern from investors and the greatest impact in your models, it was those that were heavily in credit card lending, unsecured lending. Debt payment ratio is historically low. Government support, tight underwriting, I just don't think the mortgage market is in any way the same as it was in the financial crisis. You don't have tht bubble. You don't have subprime lending. There has been really a very, very low level of supply for the last 10 years and looking back in the early 1990's, you didn't have the kind of losses in mortgages that you had in the last one. I think all the risk is in commercial, and I think everybody has looked at commercial real estate. The only thing I would point out is again, in the last 2 loss cycles for banks, the real losses in commercial real estate were in construction lending, much more so than in income producing real estate, although they are, granted, going to be at the mercy of forbearance of lease payments. So, the big thing is in the CNI's, in the commercial lending itself, and I think those losses will depend on the arch of shutdowns, how cautious customers are in coming back, and the priority of bankruptcy. So, I do think there is going to be an extraordinary level of bankruptcy filings, but I think particularly of Chapter 11 reorganizations as a tool, rather than a problem to be solved, because you will have a lot of extinguishment of debt restructure in Chapter 11 and companies will be able to operate.

Finally, just quickly on the supplemental leverage ratio, my question is who benefits from the exemption and Don, you may remember, was very vocal on the fact that I thought reserve expansions can only be absorbed. It has to be permanently exempt or the bank is going to have to find another way to fund itself or be constricted by the ratio themselves. When we looked at QE2 reserves, they were almost entirely absorbed by foreign banks. I don't know whether that was the case in QE3. I don't know where those reserves are living today. Finally, the reserve constraint is in the bank. So, particularly national banks what use the exemption will then need OCC approval for any upstream dividends to the holding company. So, the holding company will have to get OCC approval to get cash from the bank. I'm not sure how many banks are going to be willing to use that exemption with that out there. I just don't know how much bank balancing capacity is necessary for treasury market functioning.

So, I would change the question a little bit differently and I would frame it that I don't think more lending can change the problem of insufficient debt service capacity. I think policy needs to be designed to bring lending and debt service capacity into better balance. Overindebted consumers don't spend. Overindebted businesses don't hire, don't make capital investments. For the consumers, I think the key is in student loans. When I graduated from college, I was worried whether I could afford a car payment. Now, students are regularly graduating with student loan payments that are higher than their parents' mortgage payments. So, then you get to the businesses. They have to survive before they can hire or rehire. So, I look at this as not so much an issue of bank capital, but an issue of general business capital to survive and continue to operate. With that, Nellie, I will give it back to you.

Ms. Liang: Thank you all for very thoughtful comments and strong views on all sides. I don't quite know how to start this. So, I'm going to start a question. I think we have a little less than 30 minutes, and I have a couple of questions that I'll throw out and you can choose to respond or not. So, in the current, in March, the Fed was in the midst of its 2020 stress test. It made a decision to continue with that stress test. Some countries cancelled theirs and just said cut dividends, but the U.S. made a decision that within its capital regime process and rules, that it would continue. Then as Betsy said, there is going to be a little bit of testing around, pushing on models and trying to incorporate more realistic economic and financial assumptions. In your view, what is it that would make them credible when the release results later this month? I mean, what would you want to see to make your comfortable that thee banks were sufficiently far from some solvency issue or do you think that's not possible, given the uncertain environment? I'm going to throw that out there as possibilities and let somebody take a start at that.

MR. STEIN: I think from my perspective, Nellie, I think what would make me comfortable, if the Fed were listening to Andrew and tested a very slow rebound, may not be their central tendency. We may see something else out of the F1C when they release their forecast in a week or two, but stress tests are about tail events and resilience against the tail. That's what really contributed, as Andrew said, to the S-ca thing. It turned out to be it wasn't that much in the tail, but when we did it, we thought it was in the tail and that's what got the credibility. So, I think a slow recovery with a lot of bankruptcies et cetera like Betsy was talking about. Are they capitalized for the failures that would occur and for the debt restructuring that would occur in that environment? I agree with Betsy that a lot of this is about how much credit is being accumulated by households and businesses. So, there is a big hole and we've chosen to fill it entirely with credit. Some of the credit is the taxpayers credit through fiscal policy. Some of it is credit throughout households and businesses and I think one way of keeping that balance is making sure that fiscal policy fills as much of that hold as possible so that the4 riskiness of the households of businesses are held down, but we need to see a very adverse scenario to have to get credibility.

MS. DUKE: I would agree. I think, in publishing the results, if you publish the results for a very different shape for the recovery and said if this had been the level of severity, this was our estimate of how much different this would have been. Then I think that gives everybody a window into how much more severe it might be and would inform the decisions that banks made about their capital distributions and the decisions that bank investors make.

MR. SUNDERAM: One small, sort of additional, sort of building on Betsy's point on the Chapter 11, there is some very nice research by a guy by the name of Ben Iverson looking at the effective congestions of bankruptcy courts on Chapter 11 outcomes. It's pretty strong. So, to sort of caricature it a little bit, it has the feeling of garden variety accession. The extra crowding of bankruptcy courts has the effect of effectively doubling loss given default. The courts get more crowded; the judges just get all overwhelmed. The docket is overwhelmed. People are processing faster and less thoughtfully and that has a big effect. I think if you believe that is going to be a big thing, this time, I think, that's another second order to some of Andrew's points, but I think that another think that someone might want to build into the stress testing solutions.

MS. LIANG: So, one of Jeremy's long-term recommendations was about the countercyclical capital buffer and using it more regularly as part of the regime. Some other countries have done this. Perhaps some other countries have the government's mechanisms in place that allow them to calibrate a time varying buffer more easily. So, in the U.S., in your view, given what you know about the

U.S., and the structure, do you think it's viable or should regulators just raise capital to be a little bit higher through the cycle? That's my question. Is countercyclical viable in the U.S.? I'm asking Andrew.

MR. STEIN: I agree with 100 percent of everything that Don said about this. Then you get to sort of a political economy question. We know what the ideal is, that you want to be able to start out high with enough clearance over both the regulatory minimum you're going to be comfortable with in bad times in the market imposed minimum in bad times so you can draw down a few hundred basis points ideally. Then the question is how do you get there. For reasons I don't fully understand, it was harder for the Fed to get there in terms of raising than it was for the Bank of England. They have a different institutional structure, the FPC in some sense has an affirmative mandate to consider. They consider this in a way that the Fed doesn't. It's a little hard if the burden of proof is on you to find affirmative evidence of a credit bubble. So, I just say given the U.S. evidence that they are able to raise it last time around, who wants to think of setting the defaults differently. I don't know exactly how you do that, but I think Don't idea of "normal times", just normal times. It should be on a somewhat elevated level so that again you have it pretty good. If you don't think you have the ability to do time bearing stuff, it goes away. (

MS. LIANG: Andrew –

MR. METRICK: I've heard people from the Feds say the banks and their political supporters would be opposed to raising it, even to a normal level and then the people who aren't so friendly with the banks would be opposed to lowering it. But I think they've got to make a decision based on financial stability considerations and the public interest, where it needs to be on a permanent basis and the value of reducing it, rather than fiddling around, as they have, with leverage ratios and distribution requirements. They've gotten space, but they've had to do it in kind of a temporary forbearance on their regular ration. We've done that too in the U.K. So, we've done both, but I think it's much more straightforward, much more countable, much more transparent, to lower that countercyclical buffer, and frankly, in the 2 instances, where the FPC has done it, there has been no blowback. Everybody has recognized that this Is a stress event and we're better off with banks lending. There has been no pushback with lowering the capital requirements.

MS. DUKE: So, Don, the one caution I would put out on that is that, first of all, when I was talking with the investors in the bank, their question over and over and over again was with current capital regime, can I once again earn "x" percent on my investment. That was their big question, is can the banks get there. So, the banks are going to have to find a way to earn their cost to capital, regardless of where capital levels are set and how they are measured and they will find a way to do that, but one of the things that's happened is that the businesses that are riskiest and are the biggest capital hogs are now moving out of the banking system and into other entities where we don't have any control or even visibility into the resilience. The one that's got me worried right now is mortgage servicing because I don't think the mortgage services have the capital or the liquidity to support the level of forbearance they're being asked to extend to consumers It really scares me when you've got an undercapitalized institution, getting payments of cash that they are supposed to use on behalf of the people making those payments and they have really strong survival needs for that cash. I think that' the risk of getting the capital requirements to the point where they just push the activity into places where we can't see it or control it in any way.

MS. LIANG: I think that's an important consideration whenever we are thinking about capital regulations is where –-how it moves out. I've been struck by the huge deposit flows to banks, the huge loan, the credit line draws on banks in March and April. So, in some sense, people have moved back to banks through this episode. I think the issue right now is can the banks stay strong enough so this continues. I mean, they are serving an important role and I think given the uncertainty about the outlook, how will that play out over the next year or two, given if you don't accept a quick recovery. So, I'm going to ask a question about -– this is roughly 10 years after Dodd Frank, believe it or not. We sort of put the banking system to a test. So far, in my view, they have shown themselves to be resilient, and Jeremy's paper is about let's ensure that they are there to support or at least not hold back the recovery. That's how you want to frame that. Are we in a good place? Is there something in Dodd Frank or the regulatory regime that you would change? Let me change? What is the one thing if you made a change in a limited amount of time, in a limit4ed amount of time? I don't know who wants to start. We have 10 minutes for 4 of you, but I'd love to hear something from each of you.

MR. METRICK: I'm happy to start and I promise not to take the whole 10 minutes. This is really just to follow up on what Betsy said because I think Betsy raised a very important point and I think it does go to perhaps the largest hold that's still remaining from Dodd Frank which is really what we've done with the non-bank sector, which is not enough. So, taking the example that Betsy raised about mortgage servicers, one of the issues that we saw happening early on in the crisis was when it was clear mortgage servicers were going to have a very important role to lay in helping to get relief to individuals, there was no obvious platform by which the government could reach them. They weren't a counter party of the Fed. There wasn't an obvious way. That raises the short-term problem of that, we have a Federal Reserve system that is really set up to deal with banks and primary dealers, but a lot of the financial system has moved away from that. We don't really have a great way to interact with that part of the financial system. The longer-term issue is, even in the GFC, that's where there were a lot of problems. So, one particular place that would have been nice to see in Dodd Frank and my efforts in this respect in 2009 and '10 were complete failure. So, perhaps we'll get another try in 2021, but what we did in Title 7 to move a lot of activity to swaps clearing houses. The definition of swaps did not have to be as narrow as it ws and it could have included other things. It didn't even have to use the word swaps. I mean, we could have had repo there, for example. If we had moved bilateral repo, it's kind of moot in this funny way to one single tri-party place and we have all kinds of problems with that. If we had moved bilateral repo into a clearing house similar to the way we did swaps, then we would have the ability to do the same good stuff we've done with swaps, which is turn gross exposures to net exposures and we would also have, no doubt, a way to reach the mortgage servicers and others like them, who would be interacting with that central clearing house. I think overall we just didn't spend enough time on banks. This is one place to go after it, but I do believe there are others.

MR. METRICK: That's okay. I'll pick up on the same thing. I was also going to talk about beyond bank. One particular way we are fortunate with this crisis because this was sort of an alien invasion. This was nobody's fault. So, the Fed and the Treasury have been able to muster a response in causing t4he market that is well beyond what I would have thought. If you had just said, we're going to have a crisis like the money market funds are going to come under pressure again and we're like opening bond funds are going to have massive liquidation, I would have thought Oh, my God, that's a terrible scenario. I thought that Dogg Frank said you're not allowed to use the exchange stabilization fund to help out the money market funds. Well, if it had been a more moral hazardous crisis, that's what would have happened and we would have had much worse damage in the events. In this event, the Fed was able to very effectively basically stem the problems in the money market fund sector. We had what was looking like an insipidus run on like junk bond or on loans funds that primary and secondary market credit facilities were extremely helpful in normalizing that. I don't think you could count on those kind of things being rolled out if the crisis is of a different origin. So, even though we haven't seen the kind of carnage you could have seen, those were among my big worries going in and would still be my big worries if we don't take the right message from this time around. We just got lucky to have a Fed that was built so aggressive, it had in some sense the political cover to be aggressive the way that they (INAUDIBLE)> As you know, Dodd Frank really tried to tie their hands in a bunch of these.

MR. KOHN: I certainly agree with Jeremy and Andrew, concentrating in the non-bank sector. I think we've seen pockets of leverage and maturity mismatch. The deleveraging was very disturbing, including to the Treasury market. At the Brookings event a week ago, we had a suggestion of moving that treasury market into central clearing. That might help some, but I think we need a broader examination of all the vulnerabilities that were pointed out by this thing, beyond just mutual funds, the marginal issues. We didn't really get through the cycle margining which we were trying to get things like that. I think that's right. If I can put one thing on the table from the first part of your question, what would you change about Dodd Frank, I'd remove Title One. I'd be honest that to resolve a systemically important institution, the bankruptcy courts aren't going to do it, and it's going to have to be through the FDIC and we might as well not live the lie that it's going to be bankruptcy. I don't know that would change a lot of things. It might change some of the thinking about liquidity and liquidity requirements that are driven by Title One and might themselves be having an adverse effect on market making. So, I think we need to have a revolutionary regime that doesn't have moral hazard in it, that bails in creditors, longer term creditors, but is effective, and it's hard. We need to concentrate on that. That would be my one suggestion for Dodd Frank.

MR. STEIN: You don't want to lose all of Title 1, Don, right? Just the assumption of bankruptcy is –-

MS. LIANG: Yeah, Title 1 bankruptcy.

MR. METRICK: Like Title 2 is resolution.

MR. STEIN: It is but Title 1 gives us the epoch (PHONETIC), for example. We've seen how effective that piece of Title 1 is.

MS. LIANG: It gives enhanced standards for the large system institutions as well. So, you probably don't want to lose it all. Okay. Betsy?

MS. DUKE: Again, I would say outside of the banking system, all the financial products and you still have, again, mortgage servicers will go through Chapter 11 and they will have a ton of consumer funds under their control. We haven't yet seen the full expansion of these technology-based lenders, these syntax, but as they get a bigger, bigger piece of financial services, the regulation of safety and soundness of syntax is going to be also incredibly important. It's sort of the thing that if you can't sell what you want to, you sell what you can. I think we are in a situation where if you can't regulate everything you want to, you regulate what you can and just continuing to press down on regulation in the banking system, I don't think is helpful.

MS. LIANG: So, I think we are at our time. Actually, I have one minute. I want to come back to the4 banking sector, the very last question. So, you got 30 seconds on this one. I think we have different views on how quickly the economy may recover, but it's going to be painful, and it's going to be long and we're going to have low interest rates for a long time. What is your view for the banking sector in this kind of economy? Do we ne3ed to change regulations? You only have, I think, 30 seconds to answer that. It is a longer, just sort of getting past. I think we're going to be in a low rate economy. Does this fundamentally change their business models?

MS. DUKE: Is this for me?

MS. LIANG: Sure. You start, Betsy.

MS. DUKE: I think it's definitely going to put pressure on bank earnings. There is no way it doesn't put pressure on bank earnings, for sure. Then the second piece is I don't think bank examiners, much different than the bank regulators, but the bank examiners, can help themselves from not really being quick to classify loans and put restrictions on banks based on the possibility that those loans will go bad. That will definitely throw cold water on the bank's willingness to work with borrowers into recovery. If I could just use up the rest of the time, the biggest danger in a workout is not lending enough money. Don, I don't know if you remember this, but when we had the meeting to decide whether or not we were going to lend $85 billion to AIG, there was a long conversation. This was the collateral we had. It would use up every bit of our authority, but we could lend this $85 billion. The one question I have was is it enough money because if you paid the $85 billion and you can't lend the money to the other side to get where it's going to take to have it repaid, then you have lost that money. So, you can't go halfway in. You've got to go all the way in to get businesses to recover so that they can hire consumers and consumers can spend. I think that's the only way we can get out of it. Sorry to steal the last 30 seconds.

MS. LIANG: That's fine. Does anyone want to add anything on low rates or are we good? Okay. I just want to thank you all for joining and Jeremy and co-authors for writing a very interesting thought-provoking paper for this discussion. Hopefully, I wrote down every idea for how to change Dodd Frank and hopefully we'll be using that kind of list to inform the public discussion of this. So, thank you again. I appreciate it all. Thank you.

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

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