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WEBINAR

TAKING STOCK OF NEW FED AND ECB MONETARY POLICY FRAMEWORKS

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P R O C E E D I N G S

MR. WESSEL: Good morning. I'm David Wessel, director of the Hutchins Center on Fiscal and Monetary Policy at the Brookings Institution. I want to welcome everybody to today's event. After a long stretch of below-target inflation and interest rates that were harboring close to, or even below, zero, both the Federal Reserve and the European Central Bank have revised their monetary policy mandates in ways that may seem insignificant to the uninitiated, but are quite significant to those who follow Central Banking closely.

In August 2020, the Fed redefined its definition of maximum employment and launched what it calls flexible and average inflation targeting which, among other things, aims at following periods of below two percent inflation with periods of above two percent inflation. And more recently, in July 2021, the European Central Bank tweaked its goal, which had been inflation close to, but below, two percent to what it describes as a symmetric two percent target.

Today, we want to ask if the new frameworks are well understood by the markets and the public, whether the Central Banks in Europe and in the United States have communicated them adequately, and how well these frameworks are holding up in what amounts to a very unusual stress test, a surge in inflation as the global economy recovers from the COVID-19 pandemic.

We are happy to take your questions on Slido; that's url sli.do, or on Twitter, #fedframework, or by email at events@brookings.edu. Our event today will come in two parts. First, we'll have presentations by Rich Clarida, vice-chairman of the Federal Reserve Board, who is very key to the writing of the new framework. Then, by Phil Lane, who is a member of the Executive Board and chief economist of the European Central Bank, and then by my Hutchins Center colleague, Ben Bernanke, former chair of the Federal Reserve. That panel will be moderated by Rachana Shanbhogue, who is the finance editor for the Economist, and who, among other things, has previously worked at the Bank of England. And then we'll have a panel of Fed watchers, which I'll introduce later in the program. So, with that, I'd like to turn it over to Rachana.

MS. SHANBHOGUE: Thank you, David. One of my tasks today was to introduce the panel, but they don't really need any introduction. I'll just tell you a little bit about the structure of the

next 50 minutes. We'll have Rich Clarida and Phillip Lane both presenting for about ten minutes on changes to the framework, how well they think the framework's understood by the public, the markets, businesses, and politicians, how well they think the framework is fairing given where inflation is today, and then those presentations will be followed by a presentation by Ben Bernanke, some thoughts on the conceptual differences between the two frameworks, and how he thinks they've been fairing. And then we'll have about 20 minutes for a group discussion. So, Rich, over to you.

MR. CLARIDA: Thank you, Rachana. The U.S. economy in the second quarter made the transition from recovery to expansion. Few forecasters could have expected that the recovery would be either so robust or as rapid. In retrospect, it's clear that timely and targeted monetary and fiscal policy actions provided essential and significant support as the recovery got underway last year. The recovery that commenced last year was quite robust, and with one quarter to grow GDP growth, this year's projected by the Fed and many outside forecasters to be the most rapid since 1983. Moreover, under the medium projection for GDP growth in the September SEP, the level of real GDP returns to its pre-pandemic trend growth trajectory by the fourth quarter of this year which, if realized, would represent one of the most rapid such recoveries in 50 years. In the September projections round, my individual projections turned out to be quite close to the path of the SEP medians. Under these projections, GDP growth steps down this year, to around four percent next year, and further, in subsequent years, towards trend. Not surprisingly, above trend growth in GDP translates into continuing declines in the projected path of the unemployment rate, which is projected to fall below four percent next year.

This modal projection for the unemployment rate is
certainly consistent with a rebound in labor force participation to its estimated demographic trend, and it's also consistent with cumulative employment gains that by the end of next year, eliminate the 4.2 million employment gap relative to the previous peak. My projections for headline and core inflation are, alas, also similar to the median SEP projections. Under these projections, inflation surges this year to at least 3.7 percent, more likely now, with new data, probably 4 percent, before reverting back to about 2 and a quarter percent next year. Thus, the baseline outlook for inflation shared with many

outside forecasters is that under appropriate policy, most of the inflation overshoot relative to the longer run goal of two percent will, in the end, prove to be transitory.

But as I've noted before, there is no doubt that it

is taking longer to fully reopen a 20 trillion-dollar U.S. economy, and really a global economy, than it did to shut it down. Although the number of sectors in the economy and balances between demand and supply are substantial, I do judge that over time, they are likely to dissipate and to do so without putting persistent upward pressure on price inflation.

But let me be clear on two points. First, realized inflation so far this year represents to me much more than a moderate overshoot of our two percent lateral goal, and I would certainly not consider a repeat performance of policy success. Second, as always, there are risks to any outlook and I, and at least a dozen of my colleagues in our SEP projections, indicated that the balance of risk to inflation are to the upside.

Turning to the framework, in September of last year, the FOMC introduced, and since then has reaffirmed, outcome-based threshold guidance that specifies three conditions the committee expects will be met before it considers raising the target range for the funds rate. This guidance brought the statement into alignment with our new flexible average inflation targeting framework adopted in August of last year. To quote from the FOMC statement, the conditions are "labor market conditions have reached levels consistent with maximum employment and inflation has risen to two, and is on track to moderately exceed two percent for some time." (audio skip) interest rates, if the outlooks for inflation and employment I summarized a moment ago turn out to be the actual outcomes, then I do believe these three conditions for raising the target range for the funds rate will have been met by year end 2022. Core PCE inflation since February of 2020, a calculation that smooths out BASA Facts and also measures the average rate of inflation since hitting the ELB in March of last year, is running at 2.8 percent through September and is projected to remain mildly above two percent in all three years of the projection window.

Moreover, my inflation projections for 2023 and 2024 would certainly, to me, satisfy the on track to moderately exceed two percent for some time threshold.

Finally, while my assessment of maximum employment incorporates a wide range of indicators to assess the state of the labor market, the employment data I look at, as is well summarized by the Kansas City Feds Labor Market Conditions Index, are historically highly correlated with the unemployment rate and my expectation today is that the labor market, by the end of next year, will have reached my assessment of maximum employment if the employment rate has declined by then to or below four percent as in the projections.

Now, given this economic outlook, so long as inflation expectations remain well anchored, which I judge at present to the be the case, a policy normalization path, similar to the SEP median dot, would, to me, be entirely consistent with our new flexible average and targeting framework and, as well, the policy reaction function I discussed in remarks here at Brookings exactly one year ago. In the context of our new framework, it's important to note that while the ELB can be a constraint on monetary policy, the ELB is not a constraint on fiscal policy and appropriate monetary policy under the new framework, to me, must and can incorporate this fact. Indeed, under present circumstances, I judge that the support to aggregate demand from fiscal policy, including the more than two trillion dollars in accumulated excess savings, in tandem with appropriate policy, can fully offset the constraint that the ELB imposes on the ability that inflation targeting monetary policy acting on its own to restore maximum employment and price stability while keeping inflation expectations well anchored.

Before I conclude, let me say a few words about our Treasury and NBS purchases. In our December FOMC statement, we indicated that we would maintain the pace of our purchases until "substantial further progress has been made towards our goals." At our FOMC meeting last week, the committee agreed that the substantial further progress standard had been met and we decided to begin reducing the pace of our purchases by ten billion per month for treasuries and five billion per month for agency and BS. The committee judges that similar reductions in the pace of our purchases will likely be appropriate in future months, but it is prepared to adjust the pace if warranted by changes in the outlook.

Thank you very much for your time and attention, and I look forward to the conversation with Ben, Phil, and Rachana. Thank you.

MS. SHANBHOGUE: Thank you very much, Rich. Phillip, over to you.

MR. LANE: Okay. Thank you and good morning, everyone on that side of the Atlantic. So, our strategy review, of course, faces the same basic environment. In particular, the implications of a low equilibrium real rate for monetary policy. But because it's been 20 years since the first review, there were a lot of other tasks to take on. So, as David mentioned in the introduction, it is important to clarify that the inflation target is indeed two percent, and when we say symmetric, it's symmetric in terms of finding the deviations on either side to be equally undesirable. So, it's a statement about our preferences.

We also, you know, conclude a rate in a way that's, of course, the same family of conclusions as Fed had. With the effective lower bound, it's important to take that into account in the monetary policy. So, in other words, even if preferences are symmetric, the world out there is not symmetric. There is an effect of lower bound. So, in terms of how monetary policy responds, that's important to take into account.

So, what does that mean for us? It means, first of all, in terms of our toolbox to make clear that it's not only a question of using the interest rates, it's a question of using forward guidance. It's a question of using asset purchases, and it's a question of using long-term refinancing, including targeted operations, which are especially relevant for our bank-based system.

So, first of all, with a lower bound, step number one, expand the toolbox. Step number two is to be clear, essentially, if there's lower bound constraints what it means is monetary policy needs to be forceful or persistent in the neighborhood of that lower bound. And, of course, if the steady stays equilibrium when the real rate is low, your base claim nearly always near the lower bound in that sense.

So, we have a situation where we concluded that in order to stabilize inflation of two percent, both the medium term, it is important to have a full toolbox and important to be willing to sign up to forceful or persistent policies. And to be clear that this may imply a temporary period where inflation is moderately above zero. So, these policies, you know, in terms of thinking about these that kind of inflation path may well generate transition paths where for a period of time, inflation is

temporarily above two percent.

Now, let me mention, of course -- it's an interesting topic to think about -- is the similarities and differences as to flexible average inflation targeting because we did conclude that we would not temporarily move the targets. We keep the two percent targets, but it's important to be clear that the pathway to that two percent in the medium term may involve that kind of temporarily period of overshooting.

Maybe what's interesting is when you think about, well, how do I translate a persistent—a determination to be persistent near the lower bound and into a rate forward guidance, where we ended up actually, we think actually, caters quite well to this kind of supply shock that we're currently facing. Because we say, well, honestly, let's also say that where we ended up was a mid-point between the traditional forecast based monetary policy and the outcome-based monetary policy. So, what we ended up with is a plan with the two approaches. So, in terms of the forecast-based approach, we pulled forward the kind of timeline where we need to see two percent. So, we need to see two percent well ahead of the end of the projection horizon. So, we're not going to rely on forecasts two or three years from now, which are also going to be much more uncertain than forecasts that are more near-term in nature.

But very importantly for today's situation, we also insist on durability. It's not enough to hit us on a transfery basis. It also has to be projected to last throughout the rest of the projected horizon. And, of course, right now, when inflation is temporarily high, and when our projection horizon in the next forecast around December will include 2024, this is why we do say -- and by the way, I have some remarks at an event earlier today, where I reiterated this -- we do say, we think inflation is high right now. It's going to fall through the course of next year, and we remain confronted with weak medium-term pressure not excessively strong medium-term pressure.

And then, the third element is we do need to see the outcome. You know, it's not just (inaudible) forecast and for us we see real-life progress in underlying inflation. On one point I was making today was essentially, of course, matching underline inflation right now is difficult because with the pandemic, with bottlenecks and base effects that simple process, such as looking at core inflation,

is not going to work, because if there is temporarily high goods inflation, there are temporarily bottlenecks also in the labor market. So, I do think with those appropriate adjustments, the forward guidance that we have is telling you quite a bit about how we're going to make policy.

Let me just mention, because of that the mandates are different between the Fed and ECB. So, throughout our strategy is we focus on the medium term. And historically at the ECB, one basic reason to look at the medium term is that those (inaudible). So, clearly, you know, if you tried to tie the monetary policy in response to supply shock in terms of weighing up the pros and cons of that and looking at the (inaudible) price criterium, it's important because there can be adverse effects that affect unemployment. So, you know, again, when we think about similarities and differences across mandates, our medium term perspective delivers quite a bit. So, I'm not too sure if I'm running out of time, but let me mention maybe two other factors which, of course, one is on financial stability. I mean, the Fed also had to take this on, but I think we were also clear and depending on the circumstance we face, it's important to think about financial stability. And, of course, the pandemic represents a particular version of that, which is it was so important last year to make sure there's enough financial or monetary policy response to rule out having financial instability on top of pandemic instability. Let me join Rich Clarida in emphasizing the fiscal rule. I mean -- by the way, we were looking for the ECB strategy. We do have a two-page high-level statement, but the governing council also wrote an 18-page outline or overview, which includes some paragraphs on fiscal policy, where we do say fiscal policy can play a really important counter cyclical role near the lower bound and we also released 18 occasional papers where even more material some of the staff on fiscal monetary policy.

Okay, and then finally, we also covered climate change. Because looking ahead over the next number of years and, of course, while COP26 is still going on in Glasgow, it's so important to mention when we do think about the environment we face for the next number of years, the transition to lower carbon economy is clearly going to be a kind of macro-relevant factor shaping economic dynamics and, therefore, I think we've highlighted that sort of as an analytical challenge to stay on top of that -- macro-implications which are not obvious, but also in terms of toolbox. Making sure our corporate purchase programs are collateral and can be shaped or reflect that the risks associated with

high carbon sectors. So, again, I could say more but maybe I'll stop there. Thank you.

MS. SHANBHOGUE: Thank you for that. Plenty of food for thought and I'm sure we'll pick up lots of that in the discussion. Now, over to Ben.

MR. BERNANKE: Thank you. I'm impressed with the progress that's been made in articulating policy frameworks by both the Fed and the European Central Bank. Good frameworks help to make policy more coherent, more transparent, and more credible. In my few minutes, I'm going to raise some questions I hope will stimulate the discussion, but given time, I'm not going to ask for immediate responses from Rich and Phillip. Instead, I'm going to leave it to the moderator to guide the discussion.

First, both the Fed and the ECB reviews were motivated by the constraints imposed by the effective lower bound, or ELB, and the concern that under previous frameworks, the ELB would result in inflation remaining most of the time below target. To offset that downward bias, you can either adopt a policy of systematically overshooting the target after a period of low inflation, as the Fed has done, or you can avoid intentional overshoots but simply try to return inflation to target relatively more quickly when inflation has been too low, which appears to be the ECB's approach. To Phillip, is that a fair description of the ECB strategy? Now, isn't there a problem though, that precisely because of the ELB, the ECB has recently not had a lot of policy space so that an accelerated return to target from below will not always be feasible.

For Rich, in its new framework, the Fed is actually

trying to offset the downward bias in inflation in two different ways. First, by aiming to overshoot the inflation target, and second, by eschewing preemptive strikes on inflation. That is, by not raising rates until full employment is achieved. The overshooting strategy is flexible. Since the size and the duration of the overshoot are not specified, they can be calibrated as needed to ensure that inflation expectations are anchored at target in the medium term. However, although I support the new emphasis on maximum employment as a broad-based and inclusive goal, there seems to be a missing degree of freedom here.

In particular, there is no guarantee that avoiding preemptive inflation strikes and

anchoring medium term inflation expectations at target will always be neutrally consistent objectives. How will the Fed deal with any potential conflicts?

On this topic, and Rich already made some allusion to it, any further thoughts on how the Fed will determine when we are at full employment in this very unusual environment would be, of course, quite welcome.

I've noted the advantages of policy frameworks, which like ford guidance in general are intended to clarify the Central Bank's reaction function. A drawback of explicit guidance, however, is that it's impossible to specify all contingencies in advance, which can result in miscommunication. The pandemic recovery has involved many unexpected developments, including larger than expected fiscal packages in the U.S. and supply chain problems globally. For both the Fed and the ECB, what's the general strategy within the formal framework for dealing with and communicating with unexpected contingencies?

Monetary policy has had to contend with the fact that many key variables are not directly observable, including the natural unemployment rate and inflation expectations. Let me ask about one other hard-to-observe variable, the neutral interest rate. Once rate hikes begin, the neutral rate will be an important determinant of how far and how fast they go. But R-star is as uncertain -- an uncertain guiding by the stars, as Jay put it, is as uncertain as U-star. For example, the Fed's estimate of 2.5 percent nominal neutral rate is higher than what markets imply, although I think the ECB's estimate is lower. How should Central Banks deal with the uncertainty about the neutral rate in calibrating policy and the pace of tightening?

And finally, in this sort of hard, but short, list of questions, I'm interested in the comparability of U.S. and Euro area inflation measures. We're talking about two percent as if it were a constant of nature, but the Euro area inflation numbers exclude housing -- which is one of the planned reforms is to add housing to their indicator -- and the role of government in health and education, two big parts of the consumer basket, are very different in Europe and America. Have either of you looked at the mapping between U.S. and European inflation measures? Are the targets really the same?

Those are just a few, I think, difficult questions, but I'm sure we'll have plenty of time to

talk about a variety of issues and I look forward to our discussion. Thank you.

MS. SHANBHOGUE: Thank you very much for all of your comments, and now we are open to a bit of a discussion. I propose that we -- I have a few questions of my own. I'll mingle them with Ben's very difficult questions, which might be a bit of a relief to Rich and Phillip because mine are much easier, I'm sure, to answer. Perhaps, Phillip, we'll start with you on Ben's question on policy space and whether the EBC has enough room to achieve its new tweaked target.

MR. LANE: Okay. I think that's a very important topic and, of course, when a strategy is written, it's intended not to be facing today's situation, but a guide for the next number of years. This is why we say we do think that near the lower bounds, policies should be forceful or persistent. And the idea -- so, let's say we're back at two percent inflation. That's a -- that's very low. So, that essentially, the steady state interest rate is not that far away from the lower bound, i.e., it's a constraint in the sense of using interest rate policy may not be enough if you have a very large macro-shock. I think there's a general principle there which is, let's be forceful. Let's not get down to that lower bound, and I think that was what Ben was saying. Look, you know, let's be speedy. When you do have that kind of a risk factor preempting the drift down to the lower bound will be a good idea. So, I think forcefully to make sure you don't find yourself in a situation of persistently being too far below two percent. That honestly is going to be very important for the future. But right now, we're in a -- essentially for various reasons, we've ended up having to use up a lot of the policy space in terms of the policy rates having gone to negative 15 in terms of the deposit rate. This is where the persistence comes in. So, essentially, we do think that it's important to be clear in the patience required in making sure -- because, of course, as inflation -- I mean, quite often, inflation protection basis is going to take some time, but every year, inflation is going to go up. It's going to converge back towards the targets. So, if you hold a policy rate constant and every year inflation is creeping up, then essentially the re-rate is becoming more negative, which in turn is supporting the inflation dynamic. So, if you're persistent in holding down the normal yield curve, then that will be helpful in helping the role convergence.

What I would emphasize though in our case, even more

so than the Feds, or maybe not so differently from the Feds, it's important to recognize that the role of interest rate policy can be reinforced to enough at (inaudible) and for us at the target landing, where it includes the use of dual interest rates. And, of course, it doesn't hurt if fiscal adds to that by also being kind of cyclical.

One of the points that I mentioned there is -- I think in my opening remarks -- is we do think the European price measure should be revised to include a greater weight on unoccupied housing and that -- by the way, we made a different choice than the Feds, its less about equivalent rents for owner occupiers, and more about pricing index, where actually, a large weight is essentially repairs, renovations, construction costs, but also has a little bit of weight on house prices. And there's pros and cons in the different approaches. But right now, I mean, this would mean a higher inflation rate than we're currently seeing. There's no doubt about that. So, we do have to, first of all, be clear of any point in time that we're targeting the official measure. We do have to wait until that revision is made, which is, you know, going to be a multi-year project for Eurostat and the European system.

I also -- we did -- this is very interesting. The cost of living. To think about, of course, in Europe, a lot of goods are supplied by the public sector. I don't have to spend money to have access to publicly provided education and health. But clearly, it's relevant in terms of the overall economy. So, those are very interesting questions, as well, about how to think about inflation. I do think, honestly, I mean, these will take on more and more importance as inflation stabilizes. I mean, I think regardless of which precise measure you're targeting. When you do have this -- this morning and the other talker guest today -- in 2014 and 2019, inflation in the Euro area averaged 0.9. So, 0.9 is below any other measure you may want to think about. Now, when the gap closes and we no longer have this super-low inflation problem, it's a reasonable debate to refine the measure. For right now, the bigger question is to make sure we restabilize. So, let me stop there.

MS. SHANBHOGUE: Rich, I'm wondering if I could ask you, what does it change that you're now approaching the target from above, rather than -- you might have expected when you spoke last year, to be approaching it from below.

MR. CLARIDA: It's a great point and as Ben alluded to, a key element of our new

framework, even absent supply shocks, is to offer guidance at the ELB that liftoff is delayed until you're actually at two and the committee has some comfort that at least you're in the vicinity of maximum employment. We don't observe it precisely. So, it's actually a feature of the new framework that you would be approaching from above because you're delaying liftoff and there's some inertia and there will likely be some inertia in the liftoff path if history is any guide. The difference that we did not anticipate is the depth and the breadth of the global supply shock. Adverse supply shocks are a fact of life for monetary policy. It's been a while, maybe in the U.S., since the 1950s since you've had such a huge supply shock good vs. services and now global commodities, you know. In the existing framework, we made changes. One thing we didn't change is what's in paragraph six, which talks about how we'll deal with supply shocks when the maximum employment and price stability legs of the mandate are in conflict, and it essentially says that's a difficult tradeoff to make and we're going to look at the relevant gaps and how long it would take to restore both of those.

So, I think in the narrow question that the new framework anticipated, you know -- and look at the simulation for Bernanke, Carly, Roberts, which were key influence on us. Some approach from above. What's complicating this is this year of the breadth and the enormity of the supply shock. If I could, just briefly, because Ben raised this and I'm sure it's implicit also in your question, as well, Rachana, so obviously, the Fed is a dual mandate central bank in contrast to many in the world. And so, in particular, we focus on the labor market as opposed to some broader concept of slack, for example, at other central banks. And that's appropriate since Congress has said we're not to focus on slack, but on the labor market. So, you know, maximum employment, we've said is broad-based and inclusive. And, in fact, what that means to me and what I've said here at Brookings and other places, is that history shows that if you can get a fully employed labor market that's consistent with price stability and keep the labor market there, the longer you're at a healthy labor market, the broader and deeper are the gains to different groups in society. Obviously, we don't have a well stocked toolkit to deal with every labor market indicator, but broadly, my sense is if we get the unemployment rate down in the vicinity of what we think of as UStar, and we keep the economy there, that the benefits will be broad-based and inclusive.

But important, and let me emphasize, national employment is the level of sustained employment consistent with our price stability goal. And everything in the new framework is in service of well accurate inflation and inflation expectations, and certainly, there is -- my view is that there's not a particular number we're aiming for regardless of inflation. In terms of what we look at, I think it's important in the labor markets -- and I don't look at quantities, but at prices, and in particular, labor unit cost and wages adjusted for productivity, one of the remarkable features of the economy last year is we had the most severe recession, arguably, since the Great Depression, and we had an unemployment rate that rose briefly to 14 percent, and yet, if you look at the Atlanta Fed Wage Tracker for those households and workers who kept their job last year, there was really no material slow-down in wage inflation. So, that was a policy success, but what it does mean is coming out of the recovery and now into the expansion phase, the labor market, if you look at wages adjusted for productivity, is certainly much closer to where it was, say, in 2017 than it was in 2011 or '12. And that's going to be -- to get to Ben's point -- very relevant to me are costs adjusted for productivity broadly in the labor market. So, thank you.

MS. SHANBHOGUE: Thank you. Ben, would you like to come back on either of Rich or Phillip's points?

MR. BERNANKE: No. That was very helpful and I think Phillip is right that you need an asymmetric reaction function that you need to be more aggressive at avoiding the lower bound. But I just note that before the pandemic that the ECB, whose policy guide I found extremely interesting and well-coordinated, which had a great deal of difficulty getting inflation and inflation expectations up, and their framework relies on moving more quickly when they start from near zero. So, that was my question.

I think that maybe Phillip can comment. It seems to me that where they are now is actually in many ways closer to where the Fed was in 2012, with a symmetric inflation target and an effort to maintain inflation expectations at that level. The Fed has gone to a somewhat different approach that involves intentional deviations from the target. So, I think there is a substantive difference there and that zero lower bound will remain a concern after we get through this unusual

period.

MS. SHANBHOGUE: Would that be a paradigm that you agree with, Phillip, that the ECB now is like where the Fed was in 2012?

MR. LANE: Maybe partially, but I mean, we do recognize the asymmetry. Maybe the Fed in 2012 was clear about inflation targets. And it really boils down to this asymmetry between how much, and again, you know, I think our review was formed by a lot of model-based simulation, you know, which was also heavily used by the Fed. When you look at the trajectory with the kind of phase-type structure, where you do say, well, you know, I'm going to intentionally overshoot, vs. a commitment to be persistent, which may imply a temporary period of overshooting, whether this really makes a dramatic difference. And let me emphasize again, when you supplement with enough QE and enough target landing, so, you know, just doing a simulation with one policy measure which is forward guidance, it is really, I think -- and let me emphasize again, maybe -- well, basically, when we think about the initial conditions facing us vs. facing the Feds, you know, the initial condition for us which was basically a long period of inflation at around one, if not below one. You know, talking about the kind of extra target, if you like, to temporarily elevate the target above two, compared to (audio skip) super relevant when you're already quite close to and you want to reinforce stabilization around two, but when you're quite far away from two percent, is that the first order element of the policy strategy? And so, what I would say -- what we always kind of say is we're taking this kind of package approach. And there's a lot of reinforcing complementarities between pushing the deposit rate to minus 50 at the short end, the rate for guidance, the QE at the long end, plus the extra help from target landing. When you put those together, it's quite a lot of support. Now, again, pre-pandemic, when fiscal was dealing with the aftermath of the global financial crisis were not particularly helpful in terms of the difficult transition. Whereas now, with the pandemic and with the innovation of next generation EU, where there’s a very significant joint fiscal efforts, but is a basic, I think, difference compared to pre-pandemic, and there is maybe an element now driven by the temporary pandemic shock, which, I think, if you look at what's going on in the data the kind of, until the pandemic, there's quite a bit of weight being put on the ECB basically has been confronted indefinitely with very low inflation. It's

inflation that's stagnating indefinitely at one or below one, or even, let's say, below 1.5. Now, there's very little weight, actually, whether, I think, it's in the financial markets, in the separate survey professional forecasters, we now remise consumer expectation survey we run every month now and in the European basis. What's interesting, where there is a shift and maybe it's a little accidental because of the pandemic, but regardless, it may be helpful, is basically shifting the distribution where those very low outcomes are essentially seen as very unlikely. Now, high outcomes are also seen as very unlikely and it remains to be seen where these expectations will settle down. Are they going to settle down in the high ones or really at two percent? And that's going to make, I think, a difference.

Let's go back to the unobservables that they mention, which, of course, they all are. But I think a little bit, going back to -- this is why we put a lot of weight on outcomes. So, if you put a lot of -- which we say -- we want to realize progress in underlying inflation. So, of course, if you see enough weight inflation emerging. And so, for us, this is going to be a very important outcome-based variable. So, yes, I think we don't have to, if we're going to be persistent to really make sure we really are going to deliver two percent, we don't have to, you know, have a lot of guesswork about where exactly is R-star two years from now or whatever. We can wait.

MS. SHANBHOGUE: I just want to move from -- you talk about outcomes Philip. I wanted to move to something that might be a little bit less observable, which is inflation expectations, and both Rich and you, Phillip, mentioned anchored inflation expectations when you spoke, the strategy review documents and the Fed's long-run goals and policy statement refers to affords inflation expectations, sort of quite an important role. Rich, if I could start with you. What would the anchored inflation expectations look like?

MR. CLARIDA: Well, I hope I don't find out. It could bear similarities to what happened in the U.S. in the 1960s when Livingston -- in those days, we had very few -- we had the Livingston Survey, and the Livingston Survey has been around one, one and a half percent for almost a decade, and then between 1966 and '69, it moved to four, so I think there are historical episodes where even after a long period of low inflation, they can drift up. To be blunt, I think it would be a policy -- it would require a systematic and persistent policy mistake relative to our avowed framework.

You know, I'm not putting -- and I don't think the Committee is putting all its eggs in the rational expectations basket -- I think you want a robust sense.

As I said, in particular, one thing I like about the Feds' staff index is that it combines market-based and survey-based and econometric model-based. Maybe one data point that's useful probably other than Livingston -- you know, the oldest survey that's been around is Michigan, which goes back, I think, to the '70s, and there has been a pickup in Michigan inflation expectations, but if you look at the Michigan inflation expectations five years in the future, so that's sort of trying to filter out the oil price and the supply shock, it has risen, but it's basically risen to a level where it was between 2004 and 2014. So, it's useful to have some long history to sort of get a sense of those.

Obviously, market-based measures, especially five years in the future, but obviously, inflation expectations are unobservable, but they're mission critical of what central banks do and our focus is really on having a robust assessment on them and not taking them for granted, which gets back to what I said a moment ago about when you look at labor market indicators, it's especially important to look at prices and wages, as well as quantities. You know --I see Phil, maybe Ben, nodding -- you know, there was a tradition going back to the '60s, '70s, and '80s, where there's a different regime and there was a pretty prompt passthrough from unit labor costs to price inflation. That empirical relationship has weakened a lot in the last 25 years, which I think is because of the regime change in credible inflation targeting, but it's very crucial, I think, going forward that wages are adjusted for productivity. Be consistent of the medium-term with the inflation objective. Right now, they are, but as I said, the labor market is, because of fiscal and monetary policy support and probably some supply issues, as well, the labor market is definitely, you know, operating in a position much similar to where it was in 2017 or so, than 2011 or '12. So, we need to look at that very closely.

MR. LANE: Let me talk briefly. First of all, I briefly mentioned actually, currently, this week, there is a joint EBC, New York Fed conference, I think, on consumer expectations, so I'm going to say a few words about that, as well. But we have this new consumer expectations survey which

consists, well, like Rich said, consumers are paying attention. So, their one-year expectation has gone up but their three-year expectations have not. So, again, the consumers in Europe are also assessing right now this is a temporary increase in inflation. Now, of course, I'm trying to summarize and, of course, there's lots of heterogeneity across consumers and we care about that, as well. But in terms of the mid-point of the distribution, I think that's an interesting difference. But this goes back to -- and again, when we think about this in model frameworks -- if it's a true generalized economy-wide shift in expectation, you're going to see it in wage and price behavior. And, so this is why it's important to -- and the ECB came out with a paper last week, by the way, where there is predictive value in survey of professional forecasters. Much less so in terms of the market-based measure. I mean, the market-based measures have moved a lot in your area and this goes back to this risk premium issue which is the risk discount inflation would stagnate at a very low number, that, I think, is (inaudible). It's much more about that, which is welcome, compared to fears of kind of inflation have been very persistent above the targets. So, that's not really in the data. The wage outcomes for long time were more influenced by the fact that, honestly, Europe was getting used to inflation rates, you know, around one, rather than around two. And, of course, if that gets reassessed with two percent placement, that's good news, but, of course, we have to look at, in case it kind of destabilizes. But it's very important, also, to the last point going back to the pandemic, it is this year, and the same throughout the US, inflation’s been unexpectedly high. So, if you think about wage assessments in the next year or so, some elements of that might be to just simply catch up. You know, I made a bad wage barganing last year. Maybe more so in our multi-year wage bargaining in Europe than (inaudible) labor market in the U.S. So, we may well see faster wage increases for a while, but that doesn't necessarily tell us that the medium-term dynamic has changed. So, it's a kind of -- working on these labor market issues that's going to be, you know, take a fair amount of time before it settles down.

MS. SHANBHOGUE: So, I think we have time just for one last question. And I wonder if I could pose Ben's question on the equitable real interest rates to you. It's what set off your strategy reviews and your framework reviews. Rich, if I could start with you. How do you cope with the uncertainty around R-star and Ben's thinking on that?

MR. CLARIDA: I think the sequencing is important. There is uncertainty about R-star, but the committee at least believes that, you know, the neutral nominal rate's above zero. So, whenever liftoff commences, and if history is any guide, it will be inertial. You know, the Fed is not going to go from zero to whatever it's neutral view is in one meeting, and there will be a time when you're essentially ramping up until you get in the vicinity. When I joined the committee, actually 38 months ago, as coincidence would have it, that's where we were, in that the Fed had been on a very gradual inertial liftoff and in September 2018, we were still below everyone's estimate of neutral on the committee and the econometric models. And then, after the fact, within several months, certainly into 2019, it, you know, became clear to us that the effective neutral rate in the U.S. economy was certainly not greater than two and a half percent. But we didn't know that in September 2018 or earlier. So, I think it becomes more of an issue in the interest of time, as once the liftoff commences and once you're getting into that vicinity, then you really do have to be very attained.

And then again, you know, I'm an international monetary economist, so it would behoove me to say, remember R-star -- whatever it is, it's a global general equilibrium outcome. You know, savings glut and all the rest, and so countries don't have the luxury of having independent R-star as a substantial global component and that needs to be respected, as well. And I'll leave it at that.

MR. LANE: I mean, from my side, this is going to be more of a binding crest and much later in the interest rate cycle. I was more (inaudible) about how do we think over time, especially with the pandemic, how we think the pandemic bears on the path of R-star? So, typically, we think about demographic factors, we think about inequality, but we also think about our desire for safety. And with the pandemic, which is a huge negative shock and, of course, connects right now to the high accumulated savings which households are holding onto. You know, in Europe, we have yet to see a big dip in dipping into that accumulated stock. So, savings are just kind of going back to normal. It's not going below normal as of yet. So, it looks like, now, of course, the pandemic is not over yet. Now, people are kind of pleased at the opportunity to strengthen their balance sheets. It's a big topic.

Now, during the pandemic, that was kind of being balanced by government being very willing to increase their debt levels to offset what's going on in the private sector. But again, in medium-term, here where the fiscal system is so different to the U.S., this is going to be a big question where savings have settled down. Aggregate savings have settled down. Here, of course, that also (inaudible) in the global context. And then maybe this thing about -- of course, if we're optimistic with digitalization and potential productivity gains from the acceleration of digitalization. On the other hand, with the carbon transition facing us, it's going to be not obvious in which direction R-star is going to move in the coming year.

MS. SHANBHOGUE: Ben, I wanted just to get a final word from you, really. Your sort of closing thoughts on whether you think the U.S. and the Euro area can escape the effective lower bounds. Whether you think these framework reviews are a step in the right direction. What you might worry about in terms of their efficacy.

MR. BERNANKE: Yes, I think these are definitely a step in the right direction. They maintain the target, but they have elaborated on the strategy and added ways to stay further away from the lower bound. A lot depends on how R-star evolves over time. There's arguments that it might rise. You know, fiscal deficits. We have, perhaps, increased productivity. We might have at least somewhat higher sustainable inflation depending on whether we reach targets. So, that would be also constructive. We also seem to have, on both Europe and U.S., more aggressive fiscal policies, as well. So, I'm hopeful that after this episode, which is a very challenging one, that these frameworks will reduce the problem. I think in very large recessions that fiscal assistance will be necessary; that we're no longer in a world where monetary policy can take full responsibility for stabilization. But these -- again, I began by -- I raised, I hope, some interesting questions, but I began by commending both central banks for their careful thought about how to address this most important issue that monetary policy faces since the financial crisis.

MS. SHANBHOGUE: Well, both central banks said they will do another review in 2025, so maybe some of us will be back here in five years' time, talking about what changes have been made. But, in the meantime, I'll hand over to David for the second session. And thank you all

very much.

MR. WESSEL: Thank you very much, Rachana, and Phil Lane, and Ben Bernanke and Rich Clarida. I sometimes think the hallmarks of a good conversation are one that you wish could go on twice as long as it did, and this one certainly qualifies.

Now, I'm going to turn to a different approach. You know, sometimes, central banking is like watching professional sports. They're a bunch of us on the sidelines and think, if they'd only listen to us, they could do it better. And so, we have a very good panel and we structured it to get different kinds of perspectives. We're going to focus more on the Fed framework, from people in the market, from people in academia, people who are veteran central bankers. So, we have Julia Coronado from Macropolicy Perspectives, Bill Dudley, the former President of the New York Fed and now at Princeton, Aysegul Sahin, who is an academic at the University of Texas, a veteran of the New York Fed Research Department, and Tiffany Wilding at PIMCO.

So, I'd like to start, I think, with you, Tiffany. The central bankers argue that we have told you enough about our framework, so you should be able to understand what we're doing and what we're thinking. And I wonder how you and the clients you have in the markets think about that. Do we know enough about what the Fed means that its monetary policy strategy so we will understand how they will react as the economy evolves?

MS. WILDING: Well, first, thanks for having me. You know, obviously, this was a very interesting debate and discussion that we had with Bernanke and Vice-Chair Clarida and Phillip Lane. But let me just say that I think, overall, that the Fed's communication of its new objectives, I would argue they've been quite clear. But I would also argue that the framework, in large part, has already been successful and as a result, the FOMC now faces a different set of risks, and I think there are practical questions around, you know, the implementation of that from a monetary policy perspective.

So, let me just expand. I think Vice-Chair Clarida's April 2021 speech, I thought, was particularly useful at discussing the new framework because it talked about the shortcomings of the previous framework and it talked about the motivation for the new strategy. In particular, he

summarized it as shifting stars and the end of the copasetic coincidence, basically arguing that a flexible inflation targeting strategy could no longer really deliver long-term inflation expectations at two percent because of the low R-star world which affords the central bank less room to accommodate in the event of negative shocks. And, of course, at that time, measures of longer-term inflation expectations also appeared to be anchored below target, we would argue. Of course, in 2014, there was a marked decline across inflation, longer term inflation expectation measure.

So, since that time, the new strategy, you know, of course, coupled with a large dose of fiscal stimulus and the currently elevated levels of realized inflation, you know, it does appear to have delivered longer-term inflation expectations that are back at target. I think Vice-Chair Clarida mentioned this that, of course, the Feds' measure of this, the common inflation expectation index has risen back up to its historical mean. We would even argue that the maybe longer-term inflation expectations have been a little bit more adaptable to the new regime than maybe even we thought they would be. So, I think as a result, as I mentioned before, the risks that the FOMC have now faced have shifted. You know, in longer-term inflation expectations, the risks around that, we would argue, are now balanced instead of maybe to the downside as they were previously. And I think there are key questions now as a result of that, you know, that, of course, the folks on the panel before us, you know, I think did a nice job of answering, but, you know, I think those key questions are, you know, how much more above target inflation is now necessary given that inflation expectations look re-anchored, and how should the Fed react to further supply shocks, which maybe risk boosting inflation expectations above target. And then, of course, how is the trade-off between maximum employment and price stability changed? And I think these are the questions that markets are currently grappling with when they're trying to assess, you know, the market pricing of Federal Reserve policy, as well as longer-term inflation expectations, but I would say, overall, I think the markets are still, you know, providing the Fed a lot of credibility around its two percent inflation goal in the context of the still-low R-star environment.

MR. WESSEL: Thanks. So, Julia, do you think the Fed has explained well enough what these tradeoffs are and how it will react to a situation that is actually quite different than the one

in which the framework was conceived?

MS. CORONADO: So, I think, you know, the basic gist of the new reaction function, the new strategy of the fact that the effective lower bound means that they will err on the side of being behind the curve and very outcomes-based rather than preemptive and forecast-based, that's well understood and even, you know market pricing now that's running a little bit ahead of the FOMC's baseline projection is still sort of much more dovish than prior cycles. So, in that sense, I think the market is very clear.

I think one of the missing elements in the framework that gives rise to some of these potential areas of confusion is that it does focus on the effective lower bound for interest rates and it does not bring in the fact that the Feds' toolkit isn't empty there. You know, they do have these asset purchases and not only the asset purchases, but in addition to the bond purchases, the Fed implemented a number of supervisory guidance tools on loan forbearance that were hugely effective in preventing default and sort of the second round of effects that are typical in a recession, as well as these emergency lending facilities. So, the Feds' toolkit isn't empty there and, in fact, maybe what we learned is that in a cycle where we're not dealing with a big debt overhang and a debt deleveraging risk, those tools can be quite effective. And so, you know, I think future iterations vs. promise to regularly review the strategy, I think we need to expand it to include the other pieces of the toolkit and what we know about them and how they integrate together. So, right now, you know, the whole question about tapering, you know, how does that fit in with interest rate policy? Are they distinct? You know, I think the Fed has done a really good job of communicating, kind of, the different thresholds that they are currently applying this cycle to tapering vs. raising interest rates. So, you know, I think that they've done a good job communicating that. I think it's reasonably clear to the market, sort of, the dimensions along where the risks lie. So, to the extent -- I think to Tiffany's point -- to the extent that, you know, the market might be pricing earlier rate hikes than the Feds' baseline, you know, the Fed itself acknowledges this is where the risks lie. You know, we are facing this tension between the mandates that is, you know, that was conceived of. There is a clause and Vice-Chair Clarida reiterated it, as has Chair Powell, that, you know, when there is this tension, they'll take into

account the magnitude of the deviations and the likely horizon over which they are expected to persist. So, that makes it very important to see whether we see this broadening in wage and inflation pressures vs. which would say, that's more real and demand-driven vs. more supply chain-driven. Do we see that fading? So, I do think that the communication has been -- they've been trying to be nimble and fold these in -- these unusual and unforeseen circumstances into the framework, and explaining it to the market, and I think, you know, the conversations I have with clients, those are the dimensions -- those fundamental dimensions -- is inflation more persistent? Is it broadening out to say, rent inflation? Are wages broader or narrow? Is the labor market tight or loose? Those are the kinds of conversations that I think the Fed wants market participants to be grappling with, to feed it into the framework. So, I think it's reasonably clear there's no way you're going to delineate, you know, concrete metrics given the complexity of the global economy. So, I don't think that the framework was that ill-suited to the current circumstances. It does require an added dose of, okay, what are the dimensions that we're going to be looking at to make these difficult judgments when there is this tension?

MR. WESSEL: Thanks. Bill, it seems to me the risk here is that the Fed elaborated a framework at a time of below-target inflation, very low interest rates, and it sort of -- we all expected that to persist. And now, I think the risk is that they boxed themselves in and it will make them too slow to react to an economy which may be quite different; one that's more inflation prone. How do you look at the world?

MR. DUDLEY: I agree with that as a risk. I think the move to two percent average inflation target made sense because you want to keep inflation expectations that are anchored around two percent. So, I have no quarrel with this shift in the long-term monetary policy framework on inflation. Where I think there is a possible risk, though, is the three conditions that they impose now for actually raising short-term interest rates. As Vice-Chair Clarida pointed out, you need three conditions. Inflation has to be at two percent, yet the (inaudible) can be above two percent for some time in the future, and you have to be confident that you're at maximum sustainable employment. So, that means a big contrast of monetary policies this cycle compared to last cycle. Last cycle, the Fed was

essentially trying to arrive at a neutral monetary policy setting at the same time they arrived at two percent inflation and full employment, sort of soft landing. This time, they're not even going to start to raise short-term until they're actually at or beyond full employment. I think this has a number of important implications that I don't think have fully sunk in. Number one, it means that the Fed Reserve is going to be behind the curve and so, once they recognize they're beyond full employment, they may have an inflation problem and have to move faster. Second, they're going to have to do more because remember, inflation now is higher and they also have to push monetary policy not to neutral, but to a tight setting. And number three, there's much more risk of a hard landing. The Fed's ability to push the unemployment rate up by, say, a half a percentage point and avoid a recession is essentially non-existent. There's never been an example in U.S. economic history since World War II where the Fed has been able to achieve a soft landing from below, where they pushed the employment up a bit. What happens is once the unemployment rate starts moving up, almost always, you get a full-blown recession.

I think the problem that they have is exacerbated, as you mentioned, by the current economic environment. It's very unclear where full employment is. If they're missing it badly already on the inflation side, and there's a risk that inflation expectations could become unanchored even if the inflation factors today turn out to be transitory. If we have high enough inflation for a long enough time, it's possible that people will start to lift inflation expectations even if the factors that caused that turn out to be transitory.

And lastly, they sort of locked themselves in with the taper. The taper is not going to be complete until the middle of next year and they've basically said that they can't raise interest rates until the taper is complete. So, yes, they could accelerate the taper, but accelerating the taper is very, very difficult because the whole focus of policy has been to avoid a taper tantrum. What do you think would happen if the Fed Reserve tomorrow announced that they were accelerating the taper? Not only would people be much more confident that the Fed was going to liftoff immediately after the taper was finished, it would be the mission by the Federal policy era. So, the fact is, not only the Fed -- but potentially, even late today, it could be much later by the time we get to mid-year.

MR. WESSEL: Well, thanks for that encouraging remark, Bill. Aysegul, now that you're in academia at the University of Texas at Austin, you've done a lot of work on this maximum sustainable employment leg of the Fed's dual mandate. I think that sometimes gets overlooked when we focus so much on the current inflation situation, but I wonder, is it significant that they've changed the way they look at maximum employment and how much of that do you think will restrain them, as Bill suggests, on the day of tightening?

MS. SAHIN: Thank you. It's great to be here. I see my former boss, of course. I looked at Chair Powell's press statement a couple of days ago. The phrase price stability occurred 8 times in questions and answers, while maximum employment appeared 29 times, and full employment another 4 times. So, it's clear that this is now well-defined and there are lots of questions. So, when I look at the way they defined it, when there's no tradeoff coming from the inflation side, they mandate that they are not going to respond to a hot or tight labor market. So, this is relatively easy to understand when there is not much tradeoff. But there are three key phrases that make it very hard for the public to understand what they mean by maximum employment. The first one is the new edition, broad-based and inclusive. That is not directly measurable. So, not only we don't have a clear measure like EPOP payroll growth, we also have the dispersion of this unspecified level. The second one is they're going to assess progress towards this unspecified level or measure by looking at a wide range of indicators. So, we were already looking at a wide range of indicators, but now, we have to think about the dispersion across the population of these indicators. The third one is this level, even though we don't specify it, it's very largely due to non-monetary factors. So, you will have to then think about what fraction of each of these indicators the Feds can influence. Which part, as we call it, in central bank in cyclical vs. trend. So, these are the difficulties as an academic to parse out what they mean.

Again, what did the public take out of this? The

Fed was very clear in communicating that don't only look at unemployment. We heard a lot of this today. Don't only look at wages. We have a holistic view of the labor market that we are going to evaluate when we want to understand what the maximum employment is. So this created, I think,

three different ways of looking at the labor market. The dashboard approach, which is very hard to aggregate, even for experts. The second is labor market conditions index. (inaudible) has one. San Francisco has one. The Fed Board used to have one, but they had to discontinue it because of the trending matters and changes in (inaudible), so there is some issues in trying to tie yourself to a certain index and then what the public did is they decided that they're going to look at pre-recession levels of key indicators, EPOP and LFPR payroll as their benchmark. Of course, when we know that there are other factors affecting the economy, this is a very dangerous benchmark. And I think this is where we are right now. When you look at the questions asked to Chair Powell, they're always trying to understand, is it minimizes the maximum unemployment of this group vs. that group? Is it the participation rate? Which fraction is trend? So, I think there's still a lot of room to improve communication on the maximum employment side.

MR. WESSEL: Thanks. Julia, I wonder if you could respond to that. Do you think that people understand what they mean by maximum employment and do you think it's important that they parse the measures as Aysegul pointed out? Or is that just a second order question? You're on mute, Julia.

MS. CORONADO: Got to have one of those in every appearance.

MR. WESSEL: I'm going to get a tshirt made for the pandemic reunion and it's going to say, you're on mute. The most uttered phrase of the pandemic.

MS. CORONADO: The word of the year. Yeah, so I think that more -- I agree with Aysegul that more clarity could be useful, actually. And I think there are a few benchmarks. Actually, her research, I think, has been extremely useful in delineating some of those benchmarks. I think what I take from the paper that she presented at the Jackson Hole Symposium is that we overfocus on the unemployment rate at the expense of the labor force participation cycle. And because of that, you know, while broad-based and inclusive doesn't fold into employment population ratios, labor force participation does. So, at a minimum, we can rotate away from the unemployment rate as some kind of, you know, summary statistic towards employment population ratios for prime age workers. I think there's broad agreement on the committee and in the academic and the Fed-watching community,

market community, that that's a good benchmark of a strong labor market where you see the unemployment rate decline. You see participation improve following that, and so you can set that as, you know, policy. Definitely, one thing broad-based and inclusive means is you do want to, at a minimum, give some space for that recovery to happen because we know it's lagging. So, you don't want to jump the gun on full employment using the unemployment rate. You definitely need a broader measure. So, at least rotating to something specific that people can watch again. Necessary, maybe not sufficient, conditions for policy calibration, but I do think just saying we look at a lot of measures isn't -- it's too broad. It's too vague. I think Vice-Chair Clarida just gave us another one which Chair Powell has also been mentioning lately, which is productivity-adjusted wage growth. Right? Unit labor costs. Productivity-adjusted wage gains, you know, are wage gains. For example, we've seen great productivity. We're seeing higher inflation, so we should see wage growth that is above the prior cycle because we're doing better. So, you don't want to just look at nominal wage growth. You want to look at these measures adjusted for productivity and inflation and look at what real wages are doing. So, I think that's useful also. Unit labor costs, the labor share of GDP, the prime age employment population ratio. I think that those should be brought into more specifically. These are the things we're looking at. If they show certain patterns, then we'll need to respond one way or the other. And I see a lot of Fed officials moving in that direction and I think that's quite useful.

MR. WESSEL: Tiffany, Bill Dudley made a pretty strong case, and it's one I've heard from some people in the markets, that basically, they're going to wait too long to tighten, and that we should be preparing for a period of more than the moderate overshoot of inflation for some time, and then the risk is, of course, the Fed reacts by raising interest rates and tumbling us into recession. So, I have two questions for you on that. One is, how much do you worry about that? And two, is this something that PIMCO clients worry about, or is this just Bill Dudley fighting the last war?

MS. WILDING: Let me maybe first start off by talking about our clients. You know, I think, overall, the volume of questions that we've gotten on inflation and on our inflation-linked products has certainly accelerated. You know, since maybe the beginning of this year, and if you look at measures of inflows into tips or commodities-based funds, for example, they have accelerated. You

know, so I think market participants are, you know, what I would call moderately worried about it. I think what they're waking up to realize is that maybe, you know, they're just from a diversification perspective that the insurance against higher inflationary outcomes that they have in their portfolio is low. I mean, in one place, you know, in particular that I would just highlight on this is many target-based funds, for example, have a very low allocation towards tips. Even the target-based funds of the cohorts that are retiring, you know, within the next couple of years. And I would argue that having inflation expectations or having inflation protection within those portfolios is very key because, you know, the high fixed-income allocation in general of those near-retirement type of target date funds. So, I think, overall, it makes sense that investors are sort of rightly thinking about this in terms of their broader portfolios. But again, I guess I would just highlight that even despite that, the market, you know, if you look at tips break even measures, for example, the 5-year, 5-year forward, of course, the one the Fed likes to look at, it does look still relatively anchored at two percent. So, there's not a lot of inflation risk premium even though we're hearing it anecdotally that markets are pricing in. I think that just speaks to the credibility of the Federal Reserve.

Now, maybe one other point I would make on this is that I do think where markets are interestingly pricing in risks of elevated inflation, how they're positioning their portfolios for that, is actually to sell the front end of the interest rate curve. In other words, they believe that maybe longer term inflation expectations aren't really going to that great of a hedge for me because I think the Fed is going to react to it and raise rates, and maybe they'll have to raise rates by much more than what markets are currently pricing. So, I think that's why you're actually seeing term permium in the front of the curve and on a risk-mutual basis, for example, the markets are sort of implying much higher probability of the Fed lifting off interest rates and hiking than maybe we or other consensus economists think.

MR. WESSEL: Bill, there was a little bit of discussion of R-star in the previous panel. That is, the interest rate that people predict, not knowing will prevail when the economy is calm and full employment and price stability. R-star has been coming down for, as best we can tell, for a number of years. I'm curious, (a) how useful a concept is this given how hard it is to define, and secondly, how

do we think about R-star, the equilibrium interest rate, in an era of just huge increases in government debt? I mean, you'd think that that would have eventually some effect on pushing up the neutral interest rate. In fact, Ben sort of suggested that might be welcome because it would make it easier for the Fed to maneuver.

MR. DUDLEY: Well, first of all, I don't think R-star is a very useful concept because it's an unidentified variable. Number two, I don't think it's a very good concept because the monetary policy works through its effects on financial conditions, not through short-term interest rates directly. So, if the linkage between financial conditions and short-term rates is pretty flexible, just focusing on R-star is missing, you know, the forest for the trees in terms of what actually happens to financial conditions. What's so striking right now, of course, is that financial conditions are extraordinarily accommodative when you look at the level of the stock price, the level of bond yeilds, the narrowness of credit spreads, and the way I think about monetary policy conceptually is the Fed is going to have to at some point tighten financial conditions considerably. What we don't know is how much short-term rates are going to have to rise to accomplish that mission. I can't imagine financial conditions three years from now be anything like what we're seeing today.

What's interesting about markets right now is that markets are not very worried about the scenario that I outlined. The amount of policy tightening priced in is pretty modest. I mean, the peak in the Federal funds rate as you look out four or five years in the euro dollar futures market is around one and a half to one and three quarters percent. That would be the lowest peak in an interest rate cycle going back to the 1950s. But even in the 1950s, we got the higher peaks in that. So, the market is not at all worried about there being an inflation problem. Not at all worried about how the Federal Reserve is going to have to respond aggressively to make monetary policy tight. The reason for that, I think, is because that's not the today story. Today's story is we're tapering, and we're going to be tapering for the next seven or eight months. And so that's a story that's sort of over the horizon. Markets are very focused on the next thing. It's a beauty contest. It's not about what I think will happen. It's about what I think you'll think will happen and how are you going to act? And I think the markets right now are just not focused on what's going to happen when the taper is complete.

MR. WESSEL: Why are long-term rates apparently failing to respond noticeably to this huge run-up in government debt?

MR. DUDLEY: I think there's two reasons. One, the Federal Reserve has taken a lot of that government debt off the private sector's balance sheet, right? I mean, the amount of QE the Federal Reserve has done is not done yet. That's number one. And so I think that's very, very important. Other than that, though, I think QE is more powerful than people think. And the reason I think QE is more powerful than people think, it's not just taking the assets out of the private sector balance sheet. It's also the fact that you're increasing the amount of reserves in the banking system. You're forcing people to hold deposits in the banking system that they don't want to hold, earning zero, and so this pushes people to look for yield and that then feeds out to all of risk assets. That's why I think financial assets valuations are so extreme right now because of QE. QE is basically forcing people who don't want to hold deposits in the banks, go out elsewhere and look for yield.

MR. WESSEL: Aysegul, how do you read the labor market now? Do you think that we are at a -- it's sort of confusing. On one hand, there's, like, help wanted signs in every store I walk by, at least in the District of Columbia. There's all sorts of anecdotal reports about labor shortages. The job openings data support that. On the other hand, we have a lot of people who are still on the sidelines of the labor market and there's some complaints that, yeah, people say they want to hire, but when I apply for a job, you know, they're bait and switch. They don't really want a full-time person. They want me to work part-time. So, I'm having a hard time figuring out, is the labor market really tight now? Is there a possibility that over the next six months, we'll pull in a lot of people from the sidelines of the economy and we'll discover that we can run an even hotter economy, or is that just naive, where we're going to see wage inflation that more than the productivity would justify?

MS. SAHIN: Thank you, David. The labor market had a big up and down in early 2020. And there was a very unusual period where a lot of people were on temporary layoffs and most of them went back. So, now, we are in a labor market that looks like the labor market pretty much in 2017, or late 2016. So, by traditional metrics, it's actually pretty tight. Unemployment rate is in the mid-fours, and when we look at different indicators, almost all of them are at 2017, 2018 level, except

for one, which we have been talking a lot about and your questions about it. What's happening at the participation rate? There was a quick reversal of the exits, partial, after the lockdowns ended. But we are not seeing this inflow of workers. Vaccinations didn't do it. Schools opened. That didn't do it. And my guess is we're never going to see this big entering into a labor market. The reason is people took their time off from the labor market and now they have a different work life balance, and they will come at at a pace that they prefer to. And what the Feds should be doing is to make sure when they come in, there are job opportunities. So, ultimately, wage growth, participation, labor force attachment, they're all related to how many job opportunities are out there. And when I look at that metric, the labor market is doing pretty well. And what we have seen with my author (inaudible) in our Jackson Hole paper is that an empirical regularity between the unemployment rate and participation rate. The participation rate always lags. And that's not because sideline workers enter. It's because workers who enter, enter into reemployment and the ones who are holding short-term jobs are able to create employment stability. And this is going to happen, but the job finding rates and vacancy rates that we are seeing, we don't have to wait for this to happen, because this is already baked in the cake with the conditions that we are seeing in the labor market. So, this is what (inaudible).

MR. WESSEL: And when you look at the wages, how would you describe what is happening to wages now and what would make you think that we're overheating? That we've run the high-pressure economy experiment and that we've now gone to -- I don't know what's beyond high pressure? The steam engine blows off or something. I'm running out of metaphor room here. How do you look at what's happening to wages now and what would be a warning sign that the Fed was waiting too long?

MS. SAHIN: So, what we are seeing is definitely how to reach growth and different indicators have different slopes, but we are seeing some reach growth. That's for sure. But let's remember that this was also a labor supply shock. In willingness to work, also a health shock that's more persistent for some workers than others. So, it's only expected that this is raising reservation wages of workers. And we see that in the New York Fed sort of consumer expectations that reservation wages started rising in 2018, and they continued this rise throughout the pandemic. So,

that's what we are seeing right now. Part of it is coming from the fact that this is labor supply shock, and the other part is, as you mentioned, there are many vacancies and we are trying to fill those in. There's a lot of competition and this is a healthy labor market. And what is really telling me this is happening is the unemployment rate. Because each is influenced by the big reduction in job destruction and the rise in job opportunities. But the others are following this because they are all driven by the same mechanism of increased employment opportunities. That creates new jobs and employment stability for workers who are subject to more turnover.

MR. WESSEL: I see. Julia, there is always a lot of uncertainty about the future and the economy. I'm waiting someday for the Federal Reserve's speech at Jackson Hole about making monetary policy under conditions of uncertainty. But there's what's going to happen to COVID? There's questions of geopolitics, and all that. But one element of uncertainty right now is we don't know who President Biden will choose for the new Fed Chair. Will it be reappoint Chair Powell or go to someone else? And I wonder whether you think that is a problem as we navigate this very tricky moment of monetary policy, where, you know, the Fed is implementing a new framework. As you pointed out, they're tapering, and we don't really know for sure how QE works, and so forth, and the points that Bill made. Is this an unnecessary level of uncertainty? I would argue yes. I want to know how big a factor that is in understanding what the Fed will be doing six or nine months from now.

MS. CORONADO: I don't think it's a huge problem at the moment. I think one reason that's the case is because tapering is largely pretty pre-set. You know, barring big surprises in one direction or another, you know, we know it's going to happen through June, and then the question is what happens beyond that? So, there's a lot of different views about that, but it's not a very immediate issue and we're going to get lots of information between now and then, so it's not a really front burner problem for making expectations. Two, I do think the framework does provide -- there's a lot of judgment within the framework, which is why personnel matters, but we do have a basic framework. And then we look at who the candidates are and if it's Governor Brainard or if its Chair Powell, they are actually quite similar. And I don't think most market participants see a lot of daylight between them in terms of their monetary policy positions or their view of the labor market or their view of inflation. They

both tend to be more on the dovish side of the committee, but also neither of them would ignore inflation if it is broader based and more persistent. So, I think even though there's a big question over who will lead the committee, the leadership won't look that different under one scenario vs. another. It will also matter what other pieces are put around them. Who are the two Vice-Chairs? Who are the Reserve Bank Presidents in the empty seats? All of that will matter, but the big decision is who will be the Chair and the two leading candidates, they're pretty similar in approach.

MR. WESSEL: And, Tiffany, finally, a question to you. When we framed this originally, the question was is the Fed's framework well understood? I wonder if you could -- if if the Fed would tell us something that they haven't told us so far. If you could get the lie detector test on the FOMC, what is it that you wish they would tell us that would make it easier to understand what they're doing and make for a smoother transition to the next phase of monetary policy?

MS. WILDING: Well, this is something I alluded to in my introductory comments as well, but I think understanding how much more above-target inflation they're willing to tolerate in the context of the currently high inflation that we're seeing, and what appears to be inflation expectations that have re-anchored at their target. I think that would be extremely useful. I think they've talked a little bit about this, but overall, I think that the so-called averaging period was left "fuzzy" when they were devising this target because, ultimately, they didn't know how much above-target inflation they would need in order to re-anchor inflation expectations. So, now that they are re-anchored, I do think there's less need for above-target inflation, but I don't think that they've sort of come out and communicated that directly. Because that obviously would, I think, imply a change in sort of near-term policy expectations relative to what the statement says, for example. Maybe even relative to what markets are pricing in, or maybe markets are already pricing in, but that would be my question.

MR. WESSEL: I see. Thanks. I think we're out of time. I want to thank Julia, Tiffany, Bill, and Aysegul for a very lively discussion. We got some questions online. I tried to pull most of them in. I didn't get them all, so I apologize for that. And this video will be archived on the Brookings website, so you can watch it over and over again, or you can watch it at 1.5X if you prefer. But thank you all for this. Stay safe and I look forward to the suggestion that was made earlier that we regroup in

five years so we can really know whether the framework was a disaster or not. So, have a good day.

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