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The ECB's Monetary Policy Strategy Going Forward

Let me first say that it's good to be back at "The ECB and Its Watchers" conference and to join Otmar Issing, and Petra Geraats on this panel with François Villeroy de Galhau as chair. Thanks to Volker Wieland and the whole team at the Goethe University Frankfurt for an excellent, well-organized conference. I was at the first "ECB and Its Watchers" conference in 1999. That conference and the whole series since then have had a very constructive influence on monetary policy.

It is good that the focus of this conference is on monetary policy strategy. The word strategy itself has some beneficial connotations. It conveys a more rule-like, systematic policy rather than one based on arbitrary discretion. A focus on policy strategy is very important in the ongoing European Central Bank policy review. Moreover, I like the emphasis of this session on drawing lessons from the past, including the global financial crisis and the not so distant events of the past few months.

Positive Aspects of the ECB Strategy

I'd like to begin by stressing some important positive aspects of the ECB policy strategy as it exists. Of course, there can be improvements, but I want to reinforce some things that have been mentioned by Petra and by Otmar. The ECB emphasis on transparency and clear communications has always been important. The essential goal of price stability that is just barely 2 percent was there from the start.

The endorsement of other kinds of economic policies, including structural policies, has been an important part of the message as has the emphasis on automatic fiscal stabilizers, a sound government budget, and open capital markets. Finally, as Mario Draghi emphasized back in 2016 when he said "We would all clearly benefit from…improving communication over our reaction functions," there has been a focus on a strategy by which the instruments of policy react systemically to economic events.

Deviations from a Strategy

If you look at particular episodes, however, there's evidence from time to time of deviations from a strategy. I'll look at the periods from 2003 to 2006 and from 2014 to 2018. I am not referring to "Whatever it takes" comments, but to specific monetary policy actions rather than communications. The reasons for the deviations are not always clear, but a key reason has been international influences, and I want to stress that in this presentation.

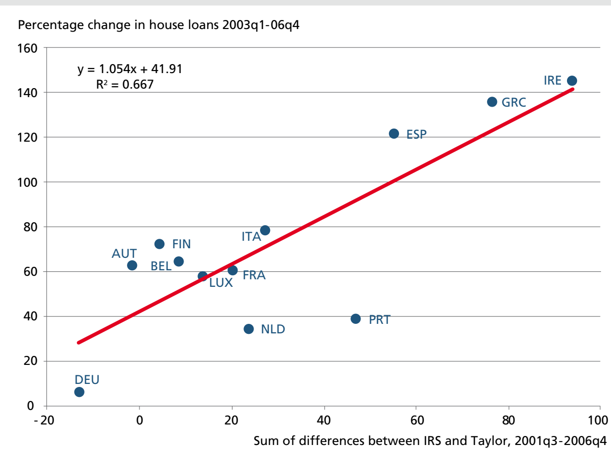

Figure 1: House loans versus deviation from Taylor
Source: Ahrend, Rudiger, Boris Cournède and Robert Price (2008), Monetary Policy, Market Excesses and Financial Turmoil, OECD Economics Department Working Papers, No. 597, March 2008, p18, Fig. 8

Figure 1 shows estimates of deviations of policy from a rule in the Eurozone countries. You can see that during the 2003-2006 period there were large deviations in Ireland, Greece, and Spain, where the interest rate was too low relative to a rule for that country. This is the period leading up to the

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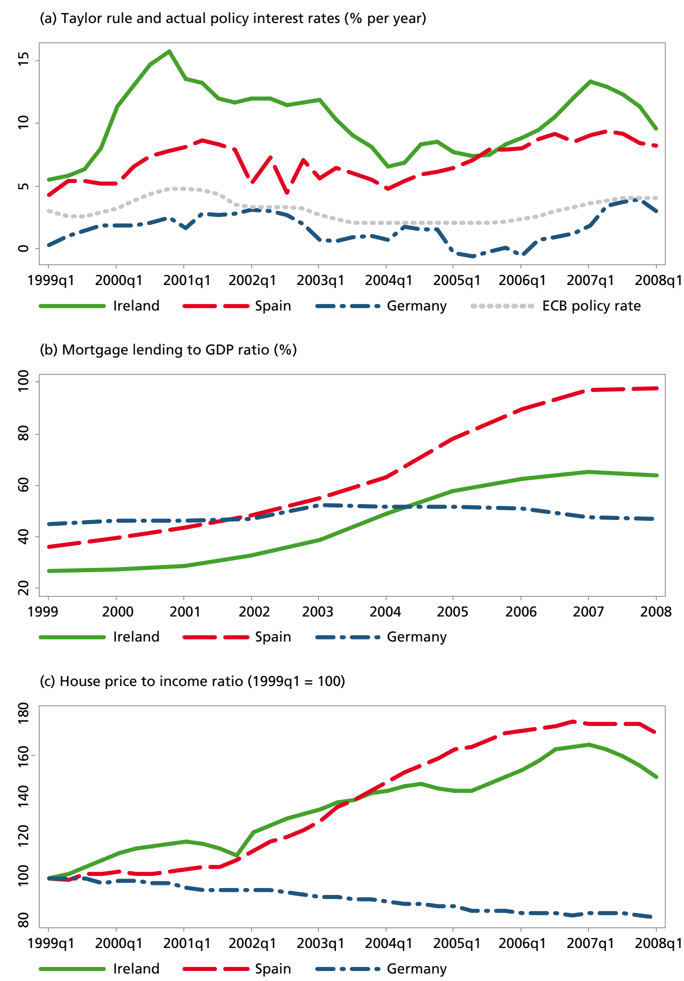

Figure 2: Short-term interest rates, credit, growth and house prices in Ireland, Spain and Germany
Source: Jordà, Òscar, Moritz Schularick, Alan M. Taylor (2015), Betting the House, Journal of International Economics, Vol. 96(S1), pp. 2-18

financial crisis. It's a problem that can exist whenever one has different circumstances in countries and the same overall rate. One mitigation is to have an interest rate which is a simple average of a policy rule recommendation across all the countries rather than in a small number of countries.

Figure 2 is another illustration of a deviation from a strategy during the same period. Here the focus is on Germany and two countries in the Eurozone—Ireland and Spain. You can see in the top panel of Figure 2 that the rate was too low for these two countries. And the lower two panels show that this deviation led to excesses in housing prices and excesses in mortgage lending in Ireland and Spain because the interest rate was too low.

Now consider Figure 3. It comes from the German Council of Economic Advisors, and I thank Volker Wieland for his work on this. It tells basically the same story, but now looking at France, Italy as well as Spain compared to Germany. You can see the rate was too low France, Italy and Spain in the period leading up to the crisis.

Now, why did this happen? There's debate about that, of course, but Figure 4 illustrates a key reason why I think it happened. Central banks tend to look at each other. The exchange rate is a big reason for that, because there is an aversion to letting the exchange rate move a lot. Figure 4 shows the relationship between what the Fed was doing, as illustrated by the red line, and what the ECB was doing, as illustrated by the blue line. Rates were a lower on average than they might have been in Europe because rates were lower on average than in the U.S. The exchange rate, I believe, was a reason for this deviation, and is one of the issues to worry about going forward.

Figure 5 illustrates, using more recent data, the connection between the exchange rate and monetary policy. The red line shows reserve balances at the ECB, and the blue line is the dollar-euro exchange rate. The two lines are quite related. The period where there's a depreciation of the euro is associated with a big increase in reserve balances. This was the period when Mario Draghi mentioned a concern about the value of the euro, and the ECB brought that reserve balance action into play. In sum, a key reason that policy deviated from a strategy, or rule for the country, is international exchange rate consideration. That certainly seems to be the case in the period leading up to the global financial crisis.

Evidence of Strategy in the United States

But in 2017-2019 things began to change. There were several papers, including by Bernanke, Kiley, and Roberts on different strategies for policy rules using the FRB/U.S. model, by Mertens and Williams using a New Keynesian model and by Sims and Wu using other models. These examples suggest that research on policy was moving in a rule-based direction, which was positive in my view.

Moreover, a whole new section on monetary policy rules or strategies appeared in the Fed's semi-annual Monetary Policy Report. Figure 6 gives a quick review. You can see that different policy rules were listed. The effort was to compare the Fed's strategy with specific rules that have been mentioned, such as the Taylor rule, a Balanced-approach rule, or a Price-level rule. The comparison of the actual strategy at the Fed with these rules was important. Fed chairs Janet Yellen and Jerome Powell began to refer to this comparison in what was a very constructive development.

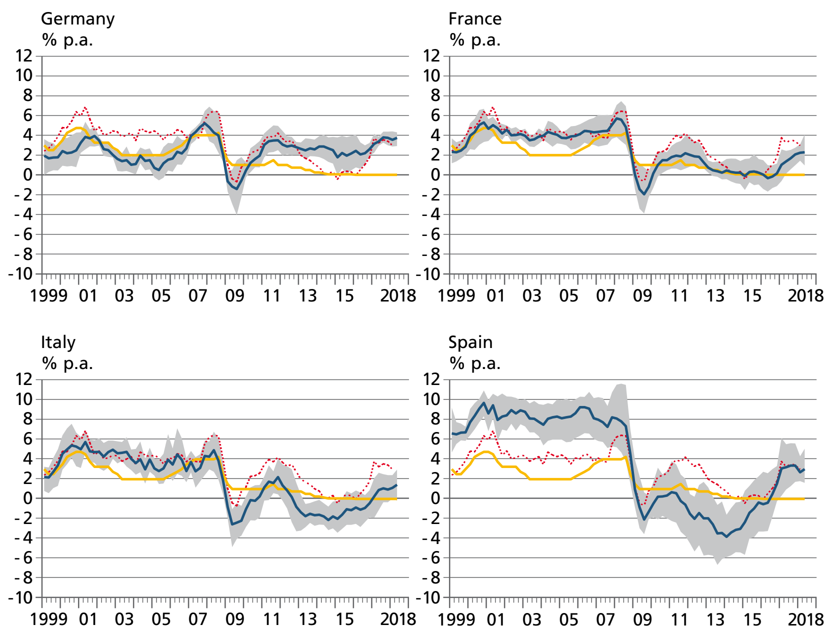

Figure 3: Taylor rules for selected euro area countries
Source: Council of Economics Experts, Germany (2018), Setting the Right Course for Economic Policy, Annual Report 2018/19, Released on 07 November 2018, p.202, sources: ECB, European Commission, IMF, own calculations

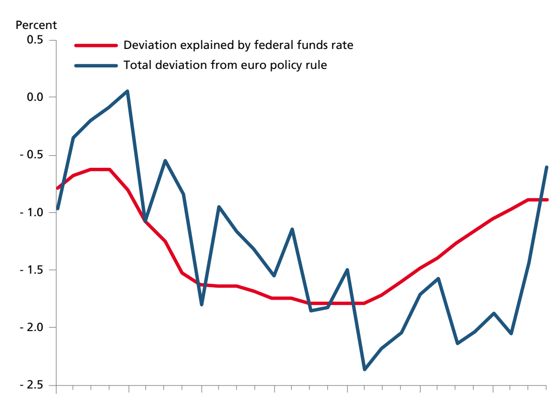

Figure 4: Interactions between central banks, actual deviations from Eurozone policy rule and deviations based on the federal funds rate
Source: Taylor, John B. (2007), Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis, Hoover Institution Press

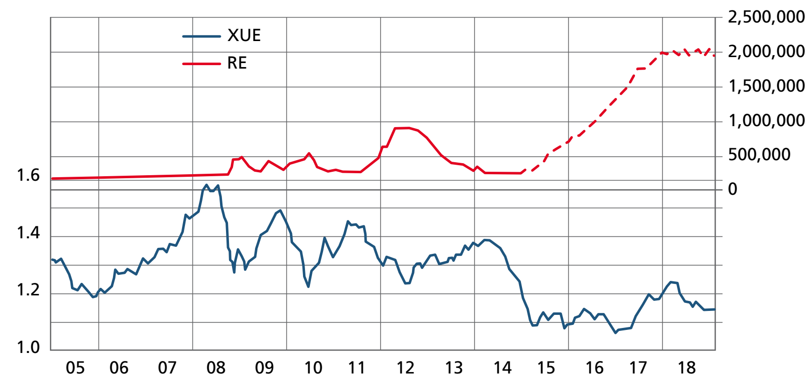

Figure 5: Connection between the exchange rate and monetary policy
Source: Taylor, John B. (2019), Reform of the International Monetary System: Why and How, MIT Press, Cambridge

A. Monetary policy rules	
Taylor (1993) rule	$R_t^{T93} = r_t^{LR} + \pi_t + 0.5\,(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t)$
Balanced-approach rule	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5\,(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Taylor (1993) rule, adjusted	$R_t^{T93adj} = \text{maximum}\,\{R_t^{T93} - Z_t, 0\}$
Price-level rule	$R_t^{PL} = \text{maximum}\,\{r_t^{LR} + \pi_t + (u_t^{LR} - u_t) + 0.5(PLgap_t), 0\}$
First-difference rule	$R_t^{FD} = R_{t-1} + 0.5\,(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t) - (u_{t-4}^{LR} - u_{t-4})$

Figure 6: Monetary Policy Report, Fed, Feb. 2020, July 2019
Source: Board of Governors of the Federal Reserve Board System, Monetary Policy Report, July 5, 2019, p. 38

More Deviations

I must use the past tense above because the most recent 2020 Monetary Policy Report of the Fed doesn't have such a section. It's gone. I think that reflects a big change, and it illustrates why it's important to have the kind of review that the ECB is going through. I am sympathetic with what Otmar and Petra mentioned that the ECB should proceed with its own review. Figure 7 shows the dot plot that the Fed has put out. You can see they have the interest rate near zero, between 25 basis points and zero, for several years.

Even when the Fed is back to normal, the rate will be quite low compared to the 4 percent where it was before the global financial crisis. That lower number partly reflects the reduction in the equilibrium real interest rate, which I did research on with Volker as Otmar mentioned. This is a big issue to address, but it's not such a big issue right now because the Fed is well below this number.

If you go through the other parts of Fed policy, you see the balance sheet has increased dramatically since the global financial crisis. It started to come down last year, but then reversed dramatically this year. There are some good things to say about that reversal: Markets needed to stay open, and the Fed responded with the help of asset purchases. But it's still going on. The question is how long that should continue. Is now the time to adjust to come back to some strategy? I think it is.

Money growth has also increased in the United States. The ECB has emphasized money and credit, but the data is quite amazing in the United States, because of the huge increase in money growth—both M1 and M2—which did not occur with the asset purchases during the global financial crisis. It's an incredible burst, that needs to be examined. I think that we need to be concerned with how that's going to be reversed, if it's going to be reversed, and to what extent this is part of the policy impact that we've had.

At the Jackson Hole conference last summer, Fed Chair Powell gave a speech (2020) and coined the term, "flexible average inflation targeting." It's had a huge amount of attention in the press and academic circles. In his speech, Powell referred to some of the research work done at the Fed. I recommend the ECB staff look at this research. The conclusion was that, "Following periods when inflation has been running below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time."

The "some time" is vague. There has always been an averaging in practice because no one would look at the monthly inflation rate as a good measure of performance. It's always been an average over time, but we're not quite clear how long the new average will be. I think more clarity about that would be helpful. I note that in the speech Powell emphasized the fact that the Fed is not tying itself to a particular mathematical formula that defines the average. While it does not have to be a precise mathematics, I think it would be preferable if this average inflation notion has some specificity about it.

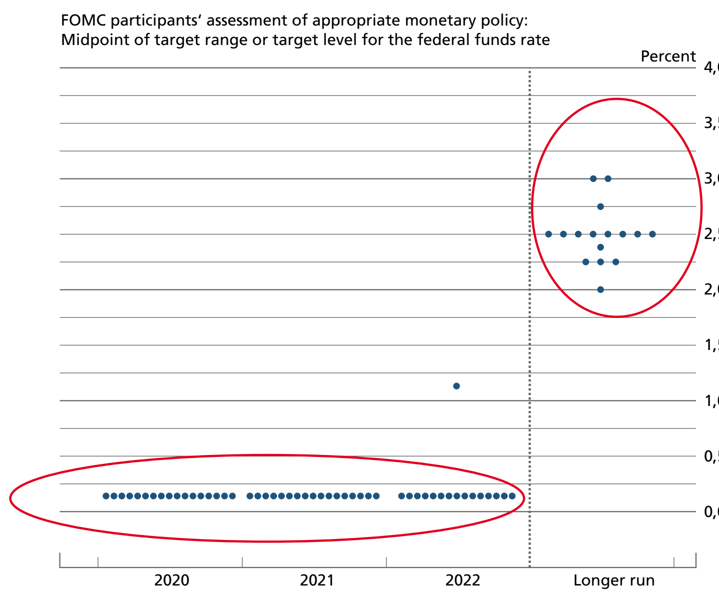

Figure 7: FOMC participants' assessment of appropriate monetary policy: Midpoint of target range or target level for the federal funfs rate
Source: Board of Governors of the Federal Reserve Board System, Monetary Policy Report, June 12, 2020, p. 56

There is also an emphasis that the decisions about appropriate monetary policy in the United States will reflect a broad array of considerations, and will not be dictated by any formula. If you don't like formulas, this is fine, but some details are needed.

The ECB Policy Strategy Review

I think you can see concerns about this vagueness today in Petra's talk, in Otmar's talk, and in Christine Lagarde's talk earlier this morning. They note that formal techniques have been used to evaluate policy. I don't think the ECB should be forgetting that going forward. The ECB needs to think about the specificity of its strategy, and the ECB policy makers need to make the decision themselves. I also note that in this story the international effects are significant. In a recent book (Taylor (2019), I show that there's a big connection between central bank decisions, and that it is related to the exchange rate.

My conclusion is, as the economy recovers, the ECB needs to think about strategy, and to return to a monetary policy strategy that works. It looks like the recovery will be V-shaped, at least in the United States where I am now. Also non-store retail sales have been increasing very rapidly, telemedicine is exploding. Video-conferencing, the kind of thing we're doing right now, is growing rapidly. Zoom Video Communications has seen an incredible expansion of profits for its founders, as well as a benefit for all. This term at Stanford I am giving a course completely online for 350 students who are all over the world in India, in China, in Europe. It's a phenomenal thing that's happening. I don't think we're ever going back to normal; there's going to be remnants of that when we get back to normal.

What I see is that policy strategy has worked, and that deviations from strategies have not worked; there are many examples of this. Thus the emphasis here should, as much as possible, be a more rules-based policy. There have been big elements of that at the Fed, as I mentioned, and the ECB and other countries, but this recent event has taken central banks away from that. There's very little discussion about how and when there will be a return to normal.

When you look around the world, not just at the Fed and the ECB, there is a connection between central banks which is frequently forgotten. Much of it has to do with exchange rates. It may be inadvertent, though I gave examples of Mario Draghi referring to it. To some extent it can be driving policy. And it also may drive a connection between these reforms at different central banks. The Fed's reform, the ECB's reform, other central bank reforms. There is a connection.

In sum, I like the idea that a strategy review is being undertaken. My observations here are based lessons learned from the global financial crisis and what I think led to it. Policy reactions we've seen so far in this current coronavirus COVID-19 crisis are also relevant. While there are lessons to learn all over the place, I think that the main lesson is to stick with the strategy that works, and do not throw out things that are working as one tries to get to a better system.

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Debate 2, Q&A: The ECB's Monetary Policy Strategy: Lessons From the Financial Crisis, Debt Crisis and Double Recession

Dirk Schumacher: My question concerns the rising corporate debt, but also sovereign debt, and what it may imply for central banks going forward. Whether the recovery is going to be fully V-shaped or not we shall see, but one thing that's sure is that debt levels will be a lot higher. Probably in the euro area something like 20 percent debt to GDP increase is what we are going to see and some countries even more. To what extent should this actually be a binding constraint for central banks going forward once they want to normalize at some point? Should they incorporate that? Does it make it necessary to spell out more clearly the interplay between fiscal and monetary policy? We heard a lot that this was needed. Monetary policy itself is not enough, we need fiscal policy, and one consequence of that is the rising debt level, much of that will end up at central banks' balance sheet.

Finally, doesn't all that mean that the monetary transmission mechanism will change in a meaningful way? In an economy which is more leveraged interest rate changes should matter more than in one where there's less leverage all else equal.

Julian Callow: What does the panel think that the ECB strategy should address which has not yet figured so large in discussion including those today? Are there other things?

Sylvain Broyer: A world of perpetual QE is likely to become the new normal. I wonder what the combination of the zero lower bound and perpetual QE means in terms of forward guidance? Should central banks communicate on the shadow rate, the policy rate adjusted downward by the amount of QE, rather than on the policy rate?

Otmar Issing: I would like just to take up two points by Petra and by John. Petra, you have a sympathy for shortening the time of the publication of minutes closer to the decision day. There's a trade-off. Remember when the Fed decided to reduce the time lag between the publication of its minutes from six weeks to three weeks, the Federal Reserve Governors complained they did not have enough time to make revisions to improve the text.

The ECB was very modern in this respect. It published the considerations in a short introductory statement in real-time. Of course, then you cannot have an extended presentation, but it was in real-time. I think this was a landmark. If we made a big mistake, we should have called it minutes and not introductory statement. "Introductory statement" has no sex appeal. When you see "minutes," you have a feeling as if you had attended, but the difference is not such because they are all well-drafted documents. There's a trade-off. I'm not sure what the optimal time lag is.

To John, having read your last book and having listened to you, implicitly and explicitly you are concerned about the consequences on the exchange rate, and implicitly the exchange rate development in open economies plays a major role. If you take also China on board, a lot of what is decided, for example by the Fed, depends on the potential consequences on the exchange rate. Policy measures cannot be coordinated and I think should not be coordinated in time. As I understand your proposal is coordination on having the same rules, the same concept. Now with the review of the Fed, the undergoing review of the ECB there is a threat that concepts, strategies or rules diverge and the consequences will be much more volatility or misalignment even in exchange rates.

Petra Geraats: Yes, there's a trade-off when it comes to the labor at which the minutes are being produced. That's why I also say, "definitely don't do it at the same time as the announcement," as the Bank of England does, that's just the wrong way around. It's distorting the monetary policy process. However, it can easily be done in two weeks. Other central banks have done it and it may take some unison rescheduling in some ways. When I look at the Central Bank of Chile, where I was involved in a major evaluation of federal monetary policy framework as well as financial stability, they published minutes with a delay of a week, so it can be done. It's just a matter of how you go to set it up and organize it. In think that two weeks would be a reasonable amount of time. That's especially important when you're in an uncertain and volatile world as we currently are because news becomes stale very quickly. One of the things that's important about minutes is that it gives you an insight into the thinking of the monetary policymakers so you can better understand the monetary policy reaction.

With respect to Otmar's comments on that they should have called the introductory statement "minutes," we're tongue-in-cheek because sometimes we referred to it as "Duisenberg minutes." The introductory statement is very different from minutes, in my view, because it doesn't really tell much about the discussion that was going on. Some arguments are presented, and you don't get any flavor of the discussion and any idea about what the balance of thinking was. I strongly disagree, I do not think that the introductory statement is a good replacement of minutes.

With respect to John and the Fed's average inflation targeting framework, I fully agree with his concerns about the vagueness in some of the terms. It's far from transparent. I also agree for his promotion of systematic monetary policy, although I would not call it rules-based monetary policy, for the reason that, in my view, monetary policy is too complicated to formulate in a simple rule. It's like trying to write down a complete contract which cannot be done. There are so many potential contingencies, but it is very important that monetary policy is systematic so that it is predictable and understandable because that will make monetary policy more effective.

With respect to the question on the rise in debt, this is indeed a major complication. It does change the monetary policy transmission for sure that leads to greater vulnerabilities. Is this something that central banks should be concerned about? In an ideal world, macroprudential policy takes care of that, but, unfortunately, we don't have a test-and-tried framework for macroprudential policy yet. So yes, under the current circumstances, central banks should take that into account, and especially when they're thinking about tightening policy that they're not in the same world that we were in previously and before the pandemic.

With respect to the question on perpetual QE and forward guidance, should it be forward guidance on shadow rates? In my view, there should be forward guidance with respect to any main policy instrument that the central bank uses. That improves its effectiveness: Forward guidance about policy rates so that interest rate expectations can adjust accordingly, and reduced longer-term interest rates that provide further stimulus but also with respect to large scale asset purchases. It's actually very interesting because many central banks, when they announced large scale asset purchases, they didn't do it month by month. They actually made an announcement about a large purchase that was going to take place over several months. When the ECB introduced the Asset Purchase Program and they announced it in January 2015, at the same time they indicated the intended horizon for the monthly asset purchases. That effectively is a form of forward guidance. The reason why central banks do it is because they know by announcing it in advance, you benefit from this anticipation effects and you have a bigger impact even before the policy has even been introduced.

In my view, it should not be forward guidance with respect to some kind of hypothetical construct like a shadow rate, no, it should pertain directly to the policy instruments that a central bank has, whether it's interest rates or whether it's the balance sheet.

John B. Taylor: One of the things I would stress in the ECB's strategic review is systematic, predictable strategic aspects. Those are words that are important. They don't come out quite enough where monetary policy will be operating going forward. That's missing so far. I think the second thing is the QE, or Quantitative Easing. If QE is going to continue, I'd like to see that also made more predictable, more systematic rather than just whatever is appropriate at the minute.

Just to briefly say, Otmar is correct to think about the exchange rate, and policies can be different in different countries. The problem is paying too much attention to the exchange rate rather than to what's happening in the countries. But there is more research that's necessary. I do not think it has to be the same. The Fed could follow its flexible average inflation targeting – we'll see how different that really is – and the ECB might try something else.

Finally, I'd say that I completely agree with Petra's comment about rules and other terms, the word "rule" has a connotation which is more formulaic, more model-based than systematic or predictable or a strategy. I've tended to focus more on the latter three terms occasionally but the models economists work on at central banks and elsewhere, they do have these formulas. So, a connection between those models and what's actually said would be very useful. You know that Volker Wieland has this terrific Macroeconomic Model Data Base with 150 models and so you can try out different things. I think separating too much from the analytical work is a mistake. I'd like to find ways to connect those more closely.

Otmar Issing: To Dirk Schumacher's question, I think this is a big concern. The notion that you can accumulate debt without limit is based on the assumption that long-term interest rates will remain flat. For future monetary policy, this will imply a tremendous challenge because any increase in central bank interest rates will bring big problems for countries, especially highly indebted ones, and also for bondholders and banks. The longer this goes on, the more problematic the exit will be.

Question from the Audience: In a world of low interest rates and in the light of the Pandemic Emergency Purchase Program, isn't it the case that some highly indebted countries like Greece take advantage of the program and follow an aggressive policy of purchase of their own debt?

Question from the Audience: A question to Otmar Issing on the limits of European primary law/effect of constitutional court: Expanding ECB remit towards monetary financing would require a Treaty change. Berlin governments haven't wished this. Is it becoming inevitable? Would that require a referendum in Germany? If so, what would be the result?

Question from the Audience: Mr. Issing, you referenced the Fed reviewing the possibility that this could push the ECB towards more of an inflation-targeting approach. I don't think that's what the Fed is actually doing. I think in many ways the Fed is looking for a model that lies beyond traditional inflation targeting.

What I think the Fed is saying is in an area that's dominated by the proximity of the lower bound, if you only ever shoot for whatever your inflation goal is in periods when you're not constrained by the lower bound and then you have weak inflation performance in periods where you are, on average you can't achieve your inflation goal and on average you won't be able, therefore, to sustain inflation expectations or target.

Is there anything about the ECB's framework that in your mind would prevent the ECB itself from taking the approach that in order to stabilize inflation at target over the medium term or to stabilize expectations at levels consistent with that, it ought to aim for a number a little higher than the medium-term goal **in periods when you're not ZLB constrained?**

Question from the Audience: Do you see a danger that in the discussion on the strategy review we had today we're fighting the last battle? Today we had a somewhat excessive discussion on the past undershooting of inflation relative to central bank targets and a desire to move those targets higher in order to get a little bit of inflation at a point in time where, as Christine Lagarde said today in her speech, there may be actually an inflation revival in the system building up.

Christine Lagarde, in one of the footnotes to her speech, made reference to the latest book by Charles Goodhart which explains why through demographic changes and also the costs of the pandemic, we may actually be at a point in time when there may be a little bit of inflation creeping back into the system. Just at that point in time, central banks are about to change the inflation targets and are about to tolerate or even call for temporary overshoot of inflation.

The second question with respect to the strategic review, what was missing today was the entire discussion about climate change. I think you can call it mission creep. There is a social demand on central banks to find answers to these questions and to the challenge that we're all facing which is a total change in our business model we have in the European economies.

Otmar Issing: The first question was about monetary financing. Allowing the ECB to do monetary financing would need a Treaty change, but a Treaty change would not be concentrated just on one issue. Once you open this Pandora box, the whole Treaty will be at the disposition of politics, and the outcome might be rather terrible, I'm afraid. In Germany, a Treaty change, or just going in the direction of a fiscal union, would also even need a change of the constitution for which you would need a referendum. It's a highly complex issue, so we are between Scylla and Charybdis. On the one hand, Treaty change is almost impossible to achieve, and the limits of the Treaty make the life of the central bank, I would say rather easy when they observe it, difficult if they want to go around this.

Second point on the Fed and inflation targeting, I'm not sure what the Fed is really doing now. I wonder as they explain that measurement of the output gap et cetera, it's impossible how they derive their inflation forecast in the future. I'm not sure if it's still inflation targeting, but I think what is obvious, one needs some pragmatic approach. In this respect, I've always seen the ECB policy as much more flexible, and open, and pragmatic.

Finally, on environment, this is a key issue in central banks. Every day they have to say "We are fully aware of that" and they should add "Unfortunately, we can do only very little about that."

Petra Geraats: I'll answer the first and the last question. The first one was on the purchase of own debt by governments. Now that interest rates are so low, it seems indeed a smart move to basically refinance your debt while rates are low. What I actually think that a country should do is use these unprecedentedly low-interest rates, especially in the euro area, to go and borrow for investments, to build a good foundation for future recovery, and massive structural changes will be needed in many countries.

There are certain things that are definitely going to be different after the pandemic, also the challenges of climate change will require massive investment to achieve a smooth transition. This is a time where you can go and issue debt and get paid for it. We have negative yields on government bonds in much of Europe. "Please, take advantage of it," that would be my message to governments, "Take this once-in-a-generation opportunity to use those funds, to borrow and invest in future recovery."

With respect to the strategy review being too much focused on the past, I fully agree with your point that we should be forward-looking, but the past can provide very useful lessons. When I look at what the Fed now has done – they really want to be more focused on maximizing employment in line with their dual mandate –, I start getting very nervous. Just look back at what happened during the 1970s when central banks thought they could push unemployment rates to very low levels. We don't know where the natural rate is and there's a lot of uncertainty about it. If you try to push it too much, then suddenly, you may find yourself in a situation that is much like the great inflation of the 1970s. I definitely think there is a risk of that. Especially the way the Federal Reserve has moved right now, there's absolutely a potential for inflation revival.

With respect to climate change, central banks will not be able to solve that problem. Governments will have to do it but central banks can play a role in providing suitable conditions. For instance, making sure that risks with respect to financial stability are properly taken into account and trying to stimulate lending for green investments. It's not so much monetary policy, it's more on the financial stability and the supervisory side that central banks have a useful role to play, although they will not be able to solve that problem. That's predominantly something governments have to address and have to address much more urgently.

John B. Taylor: Issues like distribution and climate change, these are very important questions. We're all very interested in getting those right. But monetary policy can't do everything and mission creep is a problem. Petra mentioned a little bit about how we can get away from mission creep which focusses on too many things. I would ask "What's the best strategy for doing it?" Central banks can't and shouldn't do everything. They have some particular roles and they've got to play those roles right.

The question about the past is a good one. The world is always changing, the models change but we learn so much from the past and we learn from different central banks' strategies so I don't want to ignore the past. I think the setup of this session, which looked at the Global Financial Crisis and the Coronavirus together, is very important but the way we look at the past is through models. We have models in the broadest sense of the word. You're interpreting data thinking of what causes what, so I would not ignore those. In fact, if you look carefully at, just for an example, Jay Powell's speech in Jackson Hole, there are references in that to fairly detailed work. Analyze that proposal. I think it's very important to look at the models and the calculations that underlie it. You may find that it doesn't correspond or you may find it does. If you want to think about another strategy linked to that part, it's a way we bring the past into play through theories of causality, through monetary theories, through fiscal theories. That's a big part of it, which should not be ignored in this review. It's a very important part of it, I agree with that.

François Villeroy de Galhau: If you allow me a concluding word on climate change, it will definitely be part of our strategy review. This will be a significant difference with the Fed's one, for example. I think it's not mission creep. It's already part of our existing mandate, be it as supervisors or even with a monetary hat. Having said that, I agree that we cannot do it alone. Governments have to play a role. The carbon tax is probably absolutely necessary. We cannot substitute for it. Here again, I wouldn't like monetary policy to be the only game in town but we will deal with the issue in the strategy review.