Institute for Monetary and Financial Stability

IMFS

IMFS Interdisciplinary Studies in Monetary and Financial Stability

1/2020

Contributions to the Strategy Review of the European Central Bank

Edited by
Volker Wieland

IMFS

About the IMFS

The Institute for Monetary and Financial Stability (IMFS) is an academic center of Goethe University Frankfurt, Germany. The Institute serves as a hub for interdisciplinary research in economics that is dedicated to improve our understanding of conditions and policies that are supportive of both price stability and financial stability. It is supported by the *Stiftung Geld und Währung* (Foundation of Monetary and Financial Stability). Apart from its focus on excellent research, the Institute's scholars are committed to knowledge exchange between the academic world and decision-makers in politics, administration, financial industry, and central banks. The research areas of the IMFS comprise Monetary Economics, Financial Markets and Macroeconomics, and Public Law, Economic and Currency Law, Financial Markets Regulation and Legal Theory.

About the IMFS Interdisciplinary Studies in Monetary and Financial Stability

With this series, launched in 2012, the IMFS aims to present interdisciplinary work crossing the boundaries between monetary economics, financial economics and central bank and financial law. It serves as a first outlet for joint work by IMFS faculty and researchers. The series is open to contributions to basic research as well as writings providing new policy advice. Importantly, it also provides a vehicle for disseminating the results of IMFS research and policy conferences that are joint initiatives of IMFS faculty. Copyrights remain with the authors. The series is edited by Volker Wieland.

Previous Issues

1/2017, Quantitative Easing in the Euro Area: Its Record and Future Prospects

Over the past years, the ECB's expansionary monetary policy has reached an unprecedented scale. The aim of the study is to shed some light on the risks and a possible exit strategy. It contains contributions by Peter Praet (ECB), Julian Callow (Element Capital), David Folkerts-Landau and Stefan Schneider (Deutsche Bank), Alex Cukierman (formerly Tel Aviv University) as well as Günter Beck and Volker Wieland.

About "The ECB and Its Watchers"

At "The ECB and Its Watchers," central bankers, financial market participants, and academics discuss current issues of monetary policy and financial stability. Since 1999, when the European Central Bank took up its mandate, about 400 ECB watchers from all over Europe, North America, and Asia regularly come to the conference to get first-hand information and to debate with ECB Governing Council members, representatives of international organizations, market professionals and renowned academics. The conference series was initiated by Axel Weber during his time as Director of the Center for Financial Studies (CFS) in cooperation with Otmar Issing, then Member of the ECB Executive Board. Volker Wieland has organized "The ECB and Its Watchers" since 2004, first as CFS Director and then, from 2012, as Managing Director of the IMFS. It is supported financially by donations from the Foundation of Monetary and Financial Stability and the Circle of Friends of "The ECB and Its Watchers."

Introduction

In January 2020, the European Central Bank (ECB) and the nineteen national central banks of the euro area, which together form the Eurosystem, launched a review of their monetary policy strategy. This review aims to make sure that the strategy is fit for purpose, both today and in the future and we are pleased to have an opportunity to contribute to it.

In a comprehensive approach, the ECB invited citizens, academics, Members of the European Parliament, and civil society organizations from across Europe to share their opinions. At IMFS, we were delighted to be invited to solicit expert views on the ECB's strategy at the 21st edition of our conference series "The ECB and Its Watchers" on September 30, 2020. The conference was organized in the form of three debates. ECB President Christine Lagarde gave the opening speech. Governors Pablo Hernández de Cos, François Villeroy de Galhau and Jens Weidmann chaired the three sessions and ECB Chief Economist Philip Lane concluded the event. This IMFS Interdisciplinary Study presents the written contributions of the economists, legal scholars and former central bankers who discussed the ECB's mandate, instruments, and monetary policy strategy at the conference.

When no stone is supposed to be left unturned, as President Lagarde put it, there is a lot of room for debate. Should the ECB's raise its inflation aim? What kind of inflation should the ECB take into account, and how should inflation be measured? Does it have the right instruments to achieve its objective? And what is the mandate of the ECB in the legal sense? These and other questions are addressed from a variety of perspectives in this conference volume.

To bring together a diversity of views for discussion was the reason why "The ECB and Its Watchers" was initiated in 1999 by Axel Weber, then a Professor at Goethe University, and Otmar Issing, then the ECB's Chief Economist. Since then, it has served as a platform for ECB watchers to review the central bank's decisions and strategies, talk about new research findings, and provide recommendations to improve policymaking in the euro area. In 2003, Otmar Issing presented the results of the ECB's first strategy review at the conference. Continuing this tradition, we hope that you will find the contributions in this report useful and illuminating.

Yours sincerely,

Volker Wieland
Organizer of the conference "The ECB and Its Watchers"
Endowed Chair of Monetary Economics and Managing Director at the Institute for Monetary and Financial Stability (IMFS)

Contributions to the Strategy Review of the European Central Bank

A Report from The ECB and Its Watchers XXI Conference*

This study brings together contributions from The ECB and Its Watchers XXI conference on September 30, 2020 at Goethe University Frankfurt, which was organized by the Institute for Monetary and Financial Stability. This conference served as one of the listening events with academics by the European Central Bank (ECB Press Release, February 24, 2020).
https://www.ecb.europa.eu/press/pr/date/2020/html/ecb.pr200224~752f11038e.en.html

Debate 2: The ECB's Instruments for Crises and Normal Times

Debate 3: The ECB's Monetary Policy Strategy: Lessons From the Financial Crisis, Debt Crisis, and Double Recession

Conference Wrap-Up

Summary President's Address
The Monetary Policy Strategy Review: Some Preliminary Considerations

Christine Lagarde, European Central Bank

In her speech at the conference "The ECB and Its Watchers," Christine Lagarde, President of the ECB, shared some preliminary considerations regarding the monetary policy strategy review. In this context, she also referred to the Federal Reserve's strategic shift to let inflation overshoot to compensate for periods when inflation was below the Fed's target.

"Now is the time for listening and reflecting," she said in her first appearance at the event. She emphasized that her speech had nothing conclusive except being "decisive" to explain the ECB's tasks better to the people, including those that they "do not normally reach," and to incorporate issues that people care about, such as climate change and inequity.

In the first part of her speech, in which she addressed the ECB's inflation objective, President Lagarde pointed out current discussions on letting inflation overshoot after "quite some time" when central banks miss their inflation targets. She pointed to research that such a shift in monetary policy strategy, if credible, can help stabilizing the real economy in the era of low interest rates, and indicated that the "usefulness of such an approach could be examined."

President Lagarde also mentioned that the ECB's principle to maintain price stability in the medium term, rather than expecting monetary policy to take effects in the short term, gives the flexibility to deal with real-economy issues, including employment and growth. However, she suggested that a "persistent failure" to achieve the inflation target may well call for shorter policy horizon to be considered.

In recent years, prices have apparently become less responsive to developments in the real economy, President Lagarde said, yet the empirical Phillips curve remains intact but "may be rather flat." In the second part of her speech, she suggested three factors contributing to that discrepancy: Economic slack larger than previously expected owing to difficulty in measuring economic activities relative to their potential; structural forces such as globalization which distorts historical regularities; and the loosened anchoring of inflation expectations.

In the last part of her speech, President Lagarde brought up two questions arising in the context of a low natural interest rate that leads to central banks frequently resorting to balance sheet policies. She first asked what the standardized toolkit should be when unconventional policy becomes "normal," and indicated that the key is to further understand the transmission channels of different instruments and evaluate their side effects.

The second issue concerns the interactions between monetary and fiscal policy that are also a focal point in the ECB's current strategy review. Although recognizing the benefits of these two policies complementing each other, President Lagarde underscored potential problems to be examined, such as high-level public debts and an appropriate design of the EU's fiscal framework.

Summaries Debate 1
The ECB's Mandate: Does It Need to Be Modified to Be Fit for the Future?

Jens Weidmann, Deutsche Bundesbank

Jens Weidmann, President of the Bundesbank, identified the risk of blurring lines between monetary policy and fiscal policy amid central banks' efforts to boost inflation by launching large-scale asset purchases. As chair of the first panel discussion on the ECB's mandate, Weidmann took the chance to express his concern over a wider interpretation. "The more widely we interpret our mandate, the greater the risk that we will become entangled with politics and overburden ourselves with too many tasks," Weidmann said in his introduction.

Citing a speech by the ECB's first president Wim Duisenberg in 1998, Weidmann pointed out the clarity of the mandate and concluded that it had been a key element in achieving price stability since then. He pointed out questions to be examined such as how to define and measure price stability, and how to specify a hierarchy of monetary instruments to fulfil the mandate.

Referring to the Federal Reserve's recent strategy shift, Weidmann compared it with the ECB, highlighting the former's dual mandate which "cannot simply be transferred" to the euro area.

Despite his cautious attitude toward multiple mandates, Weidmann suggested that a monetary policy strategy should be "flexible enough" to deal with long-term risks to price stability that result from the build-up of imbalances in the financial system. He noted that such imbalances could be fueled by an "enduring easy-money" policy.

Weidmann discussed the problem of coping with disinflation by pushing the real interest rate below the natural rate of interest, or "r-star." He mentioned the difficulties in measuring r-star given different methods and datasets, and attributed the problem to r-star's variant nature shaped by fundamental forces such as demographic trends or productivity growth. He illustrated how "central banks around the world are searching for ways to respond to the decline in the natural rate."

Christian Noyer, Banque de France

In his speech, Christian Noyer, former Governor of the Banque de France, discussed whether the ECB should have a single, dual, or multiple mandate, and interpreted the mandate. He investigated the quantitative definition of price stability as well as possible changes to the definition by elaborating on their main advantages and disadvantages. He argued that, "having an objective in the medium term and the possibility of forward guidance gives the best flexibility that the ECB can have."

In the first part of his presentation, Noyer reminded the audience that the ECB has one primary objective: price stability. However, the ECB should support the objective

of the Community, which includes, according to Article 2, low unemployment and growth. Noyer had objections to formally incorporating these elements as secondary objectives of the ECB as price stability and monetary policy are forward-looking, while unemployment and growth are a short-term concern. Furthermore, price stability tends to stabilize output growth around its potential and tends to stabilize unemployment around its natural rate. According to Noyer, in contrast to the Fed, the ECB should not incorporate full employment in its mandate. Due to structural differences in the euro area, full employment means different unemployment rates in each country – a phenomenon that is hard to explain to the public. Some central banks include financial stability in the mandate as a secondary objective.

Noyer pointed out that effective monetary policy required financial stability of the ECB. Otherwise, there would be deficiency in its transmission channel at banks or the market. Consequently, for price stability in a meaningful sense, which he described as relatively close inflation rates in the whole euro area, there is the need of an effective transmission everywhere in the euro area to avoid excessive segmentation. In Noyer's view, this is already implicitly included in the ECB's mandate. Although climate change affects the long term and, conventionally, monetary policy has no impact on long-term growth, Noyer argued that climate change risk was already considered in the natural equilibrium interest rate, which affects the medium term. He also explained that extreme weather events have consequences on the short term by negatively influencing supply and by that affecting output and prices. However, the ECB would already consider this in its mandate.

Regarding the definition of price stability, Noyer commented on the price index, the time horizon, and the definition of price stability. He argued that inflation is defined in the medium run, so volatile components should not influence the price index, unless there are structural changes. In his view, the ECB could use core inflation, which is more stable, provided one could incorporate the missing components. He proposed to take a moving average of the volatile components in the price index to reduce their volatility. The time horizon of price stability is around two years and there is no need to change it.

Finally, Noyer explained the historical validation of the "below but close to 2 percent" target. An important point is that the measurement bias in inflation of the new price index of the EU would not overshoot inflation by 1.1-1.3 percent but below 1 percent. Not stating a precise range of the inflation target aimed at ensuring flexibility in monetary policy. According to Noyer, there is no need for strongly revising the definition of price stability. It is true that the natural inflation trend of the last decade seems to be closer to 1-1.5 percent, but there is no evidence of a permanent shift. In his view, it is dangerous to regularly change the definition of price stability, which would reduce the credibility of the ECB. Although logical given the natural variations of inflation during an economic cycle, a range of admissible variations has drawbacks. If the range were too broad, then the ECB could be perceived as tolerating inflation too much. If, in contrast, the range is too narrow, the ECB might reach its inflation target range infrequently, which would reduce its credibility. Noyer warned that an average inflation target was extremely risky because periods of low inflation must be followed by periods of very large inflation, and then, the transition back to 2 percent inflation would be extremely costly. Consequently, in his opinion, any change should be weighted with extreme caution.

Jordi Galí, CREI, Universitat Pompeu Fabra, and Barcelona GSE

In his speech, Jordi Galí, Senior Researcher at the Center for Research in International Economics (CREI), Professor at Universitat Pompeu, and Fabra Barcelona GSE, discussed four possible changes in the strategy of the ECB, with the first two likely to be less controversial than the last ones. He called for an open discussion about all possible strategies and requested that the ECB clearly explain why each strategy or element of a strategy is implemented or averted.

Galí proposed the adoption of a symmetric inflation target as a first desirable change. He argued that the "downward bias" in the current target specification is hard to justify given that by now we have learned that low inflation is at least as bad as high inflation. The announcement of a symmetric inflation target may, by itself, raise inflation expectations a bit. In addition, Galí believes that the ECB could consider an inflation target band, possibly a narrow one. That option would give clarity to the meaning of "close to 2 percent."

The second aspect of the ECB strategy that, in Galí's opinion, requires a change is the two-pillar structure. He reflected that the ECB has established a good reputation after twenty years. Therefore, in his view, there is no need for the monetary pillar anymore, on the grounds of continuity with historical Bundesbank practice. Also, the monetary pillar was originally introduced on the basis that there is a fundamental direct relationship between monetary aggregates and price level. He argued that this view is at odds with modern monetary theory. According to the latter, monetary policy influences inflation only indirectly, through its impact on aggregate demand, output, employment, and marginal costs, which eventually influences the price level. On the other hand, the monetary pillar has not been harmful either in practice. Galí reminded the audience that large growth in M3 had no significant effect on monetary policy decisions. But the ECB always had to struggle to justify large fluctuations in monetary aggregates. Galí argued that the ECB should monitor financial indicators rather than monetary aggregates, given their ability to predict financial crises, and that any necessary asset purchase programs should not be precluded by constraints on monetary aggregates.

A third desirable change would be the introduction of an average inflation target (AIT). Galí views average inflation targeting as "systematic forward guidance" because it should reduce the uncertainty about the future monetary policy stance. Galí proposed asymmetry in the implementation of AIT, which should be adopted only when inflation undershoots the target, but not in the case of overshooting. Another feature he proposed is "double contingency." This means that the ECB adopts AIT only when the Effective Lower Bound (ELB) is binding. Otherwise, it would stick to flexible inflation targeting. In addition, the ELB would not be abandoned until the average inflation target was reached. This feature clarifies the amount and duration of an overshoot. Without this clarification, average inflation target may have little impact. Galí warned, however, of a trade-off between how specific the details about the AIT adopted were and the ability to attain the target. Furthermore, an AIT strategy requires "near-surgical" capabilities on the part of the ECB to steer inflation towards the desired rate, which may raise some eyebrows.

A final and possibly more controversial change, according to Galí, would be the adoption of a higher inflation target. Theoretically, a higher inflation target is desirable in response to a permanently lower r*. If the inflation target remained

unchanged, the average nominal interest rate would be lower and the incidence of a binding ELB would be higher. On the other hand, the estimated costs of inflation were almost marginal at this relatively low level of inflation, compared to the benefits of having more policy space. Galí believed that introducing a higher inflation target in the current period of undershooting would raise some credibility issues. For him, it would make more sense to first announce that the ECB may consider increasing the target in the future. The ECB should announce the higher target when inflation will have been persistently above the current target. Galí reflected that this way, the ECB would not be accused of "trying to manipulate the target to be closer to current inflation."

Helmut Siekmann, Institute for Monetary and Financial Stability (IMFS)

Helmut Siekmann, Distinguished Professor at the IMFS, discussed the legal aspects of the ECB's mandate. He used the asset purchase programs of the ECB as an example of discord between different courts. The discussion included how much leeway executive bodies of the EU should have in defining their competences. Siekmann argued that the mandate, in a strict interpretation, needed to be amended. He concluded that the primary law neither acknowledged an average inflation target nor supported the fiscal needs of sovereigns in the EU.

At the start, Siekmann discussed the mandate of the European System of Central Banks (ESCB), whose legal limits, mainly its tasks, objectives and competences, have been "object of fierce legal dispute," referring to the Outright Monetary Transactions (OMT) and the Public Sector Purchase Programme (PSPP). Depending on volume and timing, the purchases are judged as either monetary policy, which is an exclusive competence of the EU and hence legal, or as economic policy, which is a competence of the member states. Despite concerns of the German Federal Constitutional Court (GFCC), the Court of Justice of the EU (CJEU) did not see a "transgression of competences nor a prohibited monetary financing of government deficit." Due to this statement, a deficit in fulfilling its tasks and a transgression of competences by the Court of Justice has been considered by the German Court in view of the principles of conferral and proportionality.

Regarding the amount of leeway the Eurosystem should have in defining its tasks and competences, Siekmann pointed out that although the framers of the Treaties have implemented precise primary law, representatives of the ESCB use the term "mandate" when referring to its competences. In his view, this term has room for interpretation. He warned that the "CJEU has further diluted the legal rules on the distribution of competences by conceding a wide margin of discretion to the ESCB in deciding on the limits of its competences." This would turn the strict rules of the primary law into non-binding guidelines, which widely lack judicial control. The principal objective of the ESCB is price stability. To achieve this, the ESCB is confined to monetary policy. Although it can support the member states' economic policy, the ESCB is not allowed to pursue its own economic policy, including fiscal policy. Siekmann expressed reservations against a "situation-oriented understanding" of the terms "monetary policy" or "maintaining price stability." Concerning the question whether the "mandate" of the ESCB needed a modification, Siekmann distinguished between the term "mandate" in a wide understanding and a strict understanding. In the first case, the ECB would operate in discretion, as mentioned

above. In Siekmann's view, there would be no necessity for a modification of the legal framework. In the case of a strict understanding of the competences of the ESCB and an effective control by the judiciary, "an amendment of the Treaties would appear to be indispensable."

Regarding the legal aspect of two possible new competences of the ESCB, average inflation targeting and monetary financing of sovereign debt, Siekmann argued that setting an inflation target by an executive body like the ECB hardly be compatible with the primary law of the EU if it is understood literally, regardless of the numerical value. Since the ESCB was strictly bound to maintaining "price stability," an average inflation target had no legal basis. Siekmann reminded the audience that "price stability" was established by German law as "0 percent inflation" as a target. Without changing the treaty, the GFCC would not accept switching to an average inflation target. Siekmann argued that without a defined exit, the PSPP comes close to monetary financing, which is not allowed. Moreover, it can be costly, "even in an environment of real and nominal negative interest rates." Siekmann was concerned that the ECB might lose its independence because it might be dominated by fiscal policy. Furthermore, the distributional aspects of this policy are often not sufficiently considered.

Summaries Debate 2
The ECB's Instruments for Crises and Normal Times

Lucrezia Reichlin, London Business School

In the second panel on the ECB's instruments, Lucrezia Reichlin pointed out that in order to frame any discussion on the effectiveness and the risks of non-standard policies, it is important to understand that the consensus on how monetary policy is to be conducted and how it works has changed since 2007. She argued that non-standard policies have become standard, not only for the reason that central banks had to implement certain measures but also because the financial crisis taught us that the interaction between economic policy, monetary policy, and financial markets must be understood in a different way than in the 1990s. According to Reichlin, it is now understood that financial frictions are pervasive not just in crisis times, that the central bank's market-maker role can go beyond the traditional lender of last resort function, and that balance sheets can be used pro-actively also away from the Zero Lower Bound. Central banks now have more instruments than just the short-term interest rate. Moreover, they now have new responsibilities. She was convinced that there is a new reality and no way back for many reasons: excess demand for safe assets is going to continue to be large because of precautionary savings; demographic changes; deleveraging; new risks including climate change, technology, health as well as large legacy public debt.

Reichlin asked three main questions: First, is there any quantitative evidence for the effectiveness of unconventional monetary policy and its transmission mechanism to the economy? Second, what are the risks involved? Third, what would be an adequate institutional design acknowledging the "new normal" but being coherent with price stability and allowing managing risks associated with balance sheet monetary policy?

As concerns effectiveness, Reichlin mentioned two rationales for implementing non-standard policy measures: The first stresses complementarity between balance sheet policies and interest rate policy: central bank intermediation serves as a substitute for private market activity when financial markets dry up. The second stresses substitutions: balance sheet policy replace interest rate policies when interest rate has reached the effective zero lower bound.

Are these policies effective? While in many of the standard economic models unconventional policies do not work due to "irrelevance theorems," Reichlin argued that recent research shows that these irrelevance theorems break down once financial frictions were taken into account. The underlying key mechanism is the compression of spreads which, by reducing the borrowing costs of both firms and government, relaxes financial constraints. These effects have large distributional consequences (they are "non-neutral") which, given the size and the composition of the central bank balance sheet today, are larger than those implied by standard interest-rate policy.

Coming to the empirical literature focusing on the euro area, Reichlin pointed to three lessons. First, the presence of multiple equilibria. In her view, evidence pointing to that was the powerful effect on the sovereign spreads of the 2012 Draghi's speech in which he pledged to do "whatever it takes to save the euro," and announced the OMT program. The different degree of effectiveness of the OMT and the Securities Markets Program (SMP) could be explained by the fact that, while in announcing the OMT, Draghi could speak with the backing of the fiscal authorities and on the basis of an agreement that had been reached by major euro area governments to support the integrity of the euro, two years earlier, when he launched the SMP, Trichet could not rely on this support. As a consequence, the SMP program lacked the

credibility of the OMT. The lesson – according to Reichlin – is that the credibility of monetary policy largely depends on general "fiscal backing," namely the support by the political and fiscal authorities. Another piece of evidence – according to Reichlin – is based on a study by Leombroni et al. which shows that in the period between 2012 and 2015, before quantitative easing (QE) was introduced, monetary easing policy announcements resulted in increased credit risk premia and amplified sovereign yield volatility, in contrast with the pre-crisis period and post-QE sample. This suggests that the market interpreted ECB announcements as signaling a lack of consensus for QE. In such a situation, forward guidance and other policies were interpreted as lack of commitment to protect the integrity of the euro, resulting in undesired effects on spreads. Indeed, after the implementation of QE, central bank communication started to deliver benign effects again.

The second lesson, according to Reichlin, is that asset purchases can be very powerful and have large effects on term spreads, credit spreads, and the exchange rates, but it is difficult to identify large effects on inflation and output or at least results on those are not sufficiently robust. In Reichlin's opinion, the latter discrepancy is worth to be investigated further. A conjecture is that the macro effects of these non-standard monetary policy shocks are not well-captured in empirical models which do not allow for changing trends (for example, the decline in potential output and long-run inflation expectations) and changes in regimes due to multiplicity of equilibria.

For Reichlin, the third lesson is that in the euro area, unlike in the United States, trend inflation declined since mid-2011 and stabilized only after the implementation of QE. This decline was associated by both a shrinking of the Eurosystem balance sheet and fiscal consolidation.

She argued that these three lessons carry the message that balance-sheet policies can be powerful when they are implemented but also when they are not. Their effect depends on communication and credibility which, amongst other things, depends on the relationship with the sovereign, or the sovereigns in the case of the Eurosystem.

Considering the risks of non-standard policies, Reichlin acknowledged that mostly the national central banks are bearing the credit risks, and argued that it is important to consider the implicit risk-sharing mechanism in the euro area in case a member state defaults. These risks are particularly high when the level of debt is high and central bank balance sheets are large. Furthermore, there is a risk of moral hazard, crowding out of market activity and the central bank being overburdened. However, these risks have to be compared to what would have happened if this tool had not been used.

As the present setting becomes the new normal, Reichlin emphasized the necessity for an agenda that recognizes that innovative monetary policy is necessary, that monetary policy may have distributional effects, and that explicitly acknowledges that the interaction between monetary and fiscal policy is relevant. But to maintain the credibility of the price stability objective, this would have to be associated with a commitment by both fiscal and monetary authorities to a target which would serve as a nominal anchor.

Furthermore, the objective of price stability requires coordination of monetary and fiscal policy to avoid fiscal policy undoing the impact of monetary policy. To achieve this in the monetary union, the central bank would need a federal fiscal agency to function as counterparty. This is difficult to achieve with fiscal sovereignty still at the national level. Reichlin concluded that this discussion went beyond what the ECB could address in its revision of the strategy and related to the broader agenda regarding the governance of the euro area.

Athanasios Orphanides, MIT Sloan School of Management

For Athanasios Orphanides, Professor of the Practice, Global Economics and Management at the MIT Sloan School of Management, the ongoing policy strategy review is a unique opportunity for the ECB to examine how to adapt its policies to better serve the people of Europe. At present, he sees two main challenges for monetary policy: First, the low interest rate environment — a challenge common with other central banks. Second, the incomplete nature of the Economic and Montary Union (EMU) — a challenge unique to the ECB. In addition, Orphanides cited two issues still unresolved from the euro crisis: First, "lowflation," related to the reluctance of the ECB to implement policies other central bank did more promptly. Second, the impairment of monetary policy transmission mechanism relating to implementation aspects of monetary policy strategy. According to Orphanides, a main question to be asked is whether the ECB has the authority and the tools to fulfill its mandate under the current circumstances.

In a low interest rate environment, the Zero Lower Bound (ZLB) constrains policy easing. The literature related to the ZLB, motivated by the Japanese experience since 1999, suggests that the efficient response to the ZLB is the prompt adoption of Quantitative Easing (QE) . The risks are asymmetric calling for action even before the ZLB is reached with normal policy. Yet policy multipliers are uncertain, and QE can have side effects which make policymakers uncomfortable. Sometimes this may lead to inaction or hesitation — a policy error. In the 2000s, the Bank of Japan hesitated to adopt forceful QE and undershot its price stability goal. Similar to Japan, hesitation by the ECB in the 2010s resulted in "lowflation."

A glance at the Fed and ECB balance sheets since the Great Financial Crisis (the Great Financial Crisis) suggests that while the Fed substituted rate cuts for QE systematically, the ECB has been relatively timid. From 2012 to 2015, the ECB reduced its balance sheet by one third, a significant quantitative tightening. From 1999 to 2011, the annual rate of euro area inflation was 2 percent on average. Since 2012, it has only been 1.1 percent on average, raising the question what is the ECB's goal. According to Orphanides, this is one of the most important elements that must be clarified with the policy strategy review. Under former president Jean-Claude Trichet, the ECB kept reiterating a symmetric inflation target of 1.9 to 2.0 percent. During the GFC, and early in the euro crisis, the ECB benefited tremendously from this commitment. However, this subsequently changed. Inflation swaps and survey data suggest a disanchoring of inflation expectations occurring precisely in the period of missing QE. Unfortunately, while in 2014/15 the ECB recognized the problem, it did not follow up with decisive action. The ECB adopted QE timidly and discontinued QE before sufficient progress on inflation was made. Comparing the experience of the euro area with that of the U.S. suggests that a clear communication of the central bank's inflation goal and the adoption of a systematic policy in line with this goal has important benefits. To answer the question whether the ECB has sufficient authority to meet its mandate, Orphanides referred to its statute, which suggests that it has the authority to carry out any necessary asset purchases, even in foreign currency, and has tremendous flexibility to define collateral policy. Furthermore, the Governing Council is entitled to adopt new measures "as it sees fit" which other central banks do not have at their disposal, implying a larger discretionary authority than most central banks.

In Orphanides' opinion, a further important issue that required attention in the ongoing policy strategy review relates to the impairment of the monetary transmission mechanism. He argued that the key problem with the ECB's monetary policy implementation strategy is the excessive reliance on "markets" and private credit rating agencies. Since the euro crisis, this aspect of ECB policy strategy has had inadvertent adverse consequences: It has induced debt roll-over crises and has validated adverse expectational equilibria in sovereign debt markets.

A key question is whether the ECB has made satisfactory use of the authority delegated to it. Judging from sovereign spreads and repeated episodes of market tensions, it is clear that this was not the case during the euro crisis. Yet, following the outbreak of the current pandemic, the ECB has made better use of its authority. The response to the pandemic started with a communications mishap and market tensions that impaired monetary policy, but the ECB quickly recognized that it needed to act. It first reacted with asset purchases. Although the announcement of the Pandemic Emergency Purchase Program (PEPP) on March 18, 2020 played a crucial role, asset purchases proved insufficient to deal with the underlying concerns as they did not address the cliff effects in the ECB's collateral framework and potential debt roll-over crises. A more important decision followed on April 22, 2020: The ECB decided to suspend the role it had given to private credit rating agencies to determine collateral eligibility. In this manner, the ECB provided collateral certainty and succeeded in diffusing market tensions. Before the pandemic, the ECB embarked on a welcome strategy review. The pandemic delayed some of the work on the review, but it also made improvements to the pre-pandemic monetary policy strategy more urgent. To limit the lasting damage from the pandemic, and to make current policy more effective, Orphanides named two issues to be urgently addressed. First, it is important to adopt a clear symmetric 2-percent inflation goal and calibrate QE in a systematic matter to achieve this goal. Providing ECB Governing Council inflation projections similar to other central banks would buttress the ECB's commitment to implement policies consistent with its 2-percent inflation goal. These steps would help re-anchor inflation expectations and improve economic outcomes. Second, and even more important, the ECB must correct the fragility-inducing aspects of ECB's policy implementation strategy. It can draw on the success of the temporary measures adopted in response to the pandemic to eliminate cliff effects in the collateral framework on a permanent basis, and end the delegation of policy implementation to private credit rating agencies.

According to Orphanides, the ECB has the authority and the tools to deliver on its mandate better than in the past. Improvement of the ECB's policy strategy is a matter of urgency.

Claudio Borio, Bank for International Settlements

To begin with, Claudio Borio briefly retraced the extraordinary monetary journey since the Great Financial Crisis (GFC). In particular, he stated that it was a sign of the extraordinary times that the central bank tools for normal and crisis times are increasingly hard to distinguish. Formerly, in "normal time," central banks would steer the market overnight rate within a positive range, while in crisis times they would actively use their balance sheet in order to stabilize financial markets and the system as a whole, typically through emergency liquidity assistance to banks. However, following the eruption of the GFC, central banks started to actively deploy their balance sheet, push interest rates into negative territory, provide forms of subsidized lending to banks, and rely heavily on forward guidance, upending the simple world from the past. As a response to the Covid-19 crisis, central banks have done even more, in terms of both scope and amounts, thereby crossing a number of red lines with their eyes wide open. Looking forward, if the post-GFC experience is anything to go by, it is not inconceivable that some of these tools will survive and become part of the normal toolkit.

In the remaining part of the speech, the focus was on three issues: the lessons, the caveats, and the challenges. The main lesson to be learned is that unconventional monetary policies (UMPs) have been much more successful than generally expected. The instruments can have a substantial impact on financial conditions, through which monetary policy influences economic activity. Testimony to this power is the strong market rally triggered in April during the Covid-19 crisis. In fact, the rally has been so strong that it has raised questions about a possible disconnect between asset valuations of both equities and corporate bonds, on the one hand, and the underlying economic reality, on the other.

The main caveat is that UMPs are neither a panacea nor come for free. First, the tools may have diminishing effectiveness, as there are limits to how far interest rates can be lowered and credit spreads compressed. In addition, the compression of banks' interest margins can weaken their lending capacity. Ongoing work finds some evidence that the lower interest rates are, the smaller the effect is on economic activity. Moreover, the impact of the duration of low rates is also worth examining. Secondly, there is a consensus that, while effective, the tools have limitations. In particular, there is agreement on four issues. First, unusually easy financial conditions can spur excessive risk-taking. Second, they can sap the resilience of financial intermediaries, not just banks but also insurance companies and pension funds. Third, they may contribute to the misallocation of resources, essentially by softening budget constraints. Fourth, they raise questions about the relationship between the central bank and the government, as the risk of fiscal dominance and loss of autonomy may be material. According to Borio, the challenges ahead follow from the caveats. The wide-ranging and forceful measures recently put in place have narrowed the room for policy manoeuver, and economies with small safety margins are exposed and vulnerable. The major challenge of the decade ahead will be to rebuild monetary policy buffers, alongside those for prudential and fiscal policies.

As regards monetary policy, in order to succeed in normalizing, there is a need to address both economic and intellectual issues. The well-known economic issue is the limited responsiveness of inflation to monetary policy: a number of central banks, including those in the leading economies, have tried very hard to push inflation up to target, and they have failed. The two underlying reasons are that the Phillips curve has proved

to be very flat and that inflation expectations appear to be rather backward-looking. Peering into the future, the picture is unlikely to change significantly.

The main element of the intellectual issue concerns the notion of r* – the real interest rate that equilibrates the goods market – which is regarded as independent of monetary policy. The notion implies that the only way to gain policy headroom in the future is to reduce it today, i.e. to ease the policy stance in the expectation that inflation will rise so that nominal interest rates can increase alongside it. Given the difficulties in raising inflation, this could perversely end up narrowing the headroom. And coupled with the view that the long-term side effects of unusually and persistently easy monetary policy are not significant or can be effectively managed through other policies, it could contribute to the build-up of vulnerabilities that could weaken the economy's ability to withstand higher rates – a kind of "debt trap."

This implies that there is a need to recognize the limits of monetary policy as well as the importance of flexibility in the framework, allowing sufficient weight to be placed on the longer-term factors on which monetary policy has a significant influence. In addition, it has to be ensured that for both prudential and fiscal policies, adequate buffers are in place. Last but not least, while policy buffers promote badly needed economic resilience, the key to more robust and sustainable growth is structural reforms, which have lost momentum. To conclude: building policy buffers is essential – ahead is how to achieve this.

Summaries Debate 3

The ECB's Monetary Policy Strategy: Lessons from the Financial Crisis, Debt Crisis, and Double Recession

Otmar Issing, Center for Financial Studies

Otmar Issing, President of the Center for Financial Studies at Goethe University, stressed the importance of monetary analysis as part of the ECB's two-pillar approach in its monetary policy strategy. As the first speaker in the third discussion panel, Issing also questioned the ECB's de facto adoption of the policy of inflation targeting.

Issing urged the ECB to "think twice" before following the new strategy recently adopted by the Fed. Its average inflation targeting concept would entail serious risks and is not an appropriate way to anchor inflation expectations. So far, no model of inflation targeting exists which integrates the risks from the banking system and financial markets with all their dynamics, non-linearities and overall complexity. Acknowledging that the ECB's pivot toward inflation targeting was supported by the "observational equivalence" between economic and monetary analyses – which refers to the latter's long-run approach sending no signal of risks over the past decade, compared with the former's short to medium-run orientation – Issing argued that such a "coincidence" could result from the horizon covered so far not long enough, and extending the scope would enable the incorporation of financial stability into ECB's monetary policy framework.

In response to President Lagarde's reference point of the strategy review set at 2003, Issing suggested that the ECB should go back to 1998 when the strategy he had proposed found the "full support and confirmation" by the Governing Council and considered the "special circumstances" when the euro was introduced. He explained that minor adjustments were made in the 2003 strategy review.

Issing, then chief economist of the ECB, recalled that the entire Governing Council of the ECB was against his idea of the below-2-percent definition of price stability proposed in 1998 as he traced the origin of this threshold: "Otmar, you are crazy!" Issing cited the response from his colleagues, as some opponents worried that announcing such a concrete number would only create problems to the ECB, some thought the number was too "ambitious," even at the Bundesbank standard, and some were puzzled by this definition since the inflation was falling towards 1 percent back then.

"It is extremely important that we explained to achieve price stability only in the medium term," Issing added. When he testified at the European Parliament, as Members questioned the exact definition of medium term, he explained that this was a "moving timeframe" according to incoming shocks.

The strategy announced in 1998 received sharp criticism and eventually prompted the creation of "The ECB and Its Watchers," which, Issing said, provided an opportunity to explain and defend the strategy.

Petra Geraats, University of Cambridge

Petra Geraats, Senior Lecturer at the University of Cambridge, objected to the adoption of an average inflation target, a move made by the Federal Reserve in the coronavirus crisis. She also called for a faster release of the ECB's account of monetary policy meetings to improve transparency. In her response to recent debates on whether or not the ECB should follow the Fed's decision to adopt an average inflation target, Geraats said, as the second speaker of the third panel discussion, that "I do not think this is a good idea."

Geraats pointed out that an average inflation target is "very attractive in theory" but poses four risks. According to her comments, aiming for higher inflation may be hard to achieve, as the world has seen in the case of Japan, and an average inflation target could create uncertainty about the size and duration of inflation overshooting. This also risks loosening the anchoring of inflation expectations and thereby further increasing volatility. She also warned that, if average inflation targeting were introduced, inflationary supply shocks would require even more painful monetary tightening.

Instead, Geraats suggested, the ECB should first focus on improving the fundamentals of the European monetary union, including a proper banking union with effective supervision and resolution to prevent another debt crisis, along with effective macroprudential policy to manage the risks created by loose monetary policy, as well as a fiscal policy framework that allows greater flexibility and more public investment.

"When it comes to macroeconomic policy, it takes two to tango," said Geraats, who urged ECB President Lagarde to persuade governments that expansionary fiscal policy needs to "play its part" in stimulating the economy and enabling structural reforms, alongside the ECB's monetary policy stimulus, as governments appeared "too afraid to do it."

Specialized in the research of monetary policy transparency, Geraats recommended a more timely release of the ECB's account of its monetary policy meeting, within two weeks instead of three to five, especially in a period with "lots of volatility and uncertainty" that could make information "stale" quickly. However, she opposed the Bank of England's decision to release its minutes at the same time as the monetary policy announcement, because it requires distorting the monetary deliberations process. Geraats also recommended greater clarity about the ECB's "fuzzy" goal of inflation "below, but close to 2 percent."

Given the topic of the panel discussion, Geraats said a major lesson learned from the debt crisis is the "power" of central bank communications as she cited the "whatever it takes" speech from the previous ECB President Mario Dragh, and the mere announcement of the OMT program, as an "incredible" example.

Regarding lessons learned from the financial crisis, Geraats noted that the ECB's longer-term refinancing operations were effective at providing cheap and ample liquidity for the banking sector with a fixed horizon, while allowing gradual or natural unwinding. However, this liquidity may not be passed on to bank lending and the real economy, and could even increase financial fragility through purchases of risky assets, like euroarea periphery sovereign debt. This liquidity, said Geraats, has also pushed Eurozone interbank rates close to the ECB's deposit rate such that the ECB's main refinancing rate no longer indicates its monetary policy stance, leading to "monetary policy easing by stealth."

John B. Taylor, Stanford University, Hoover Institution

John Taylor, Professor at Stanford University and Senior Fellow at the Hoover Institution, urged a more rules-based monetary policy as central banks around the world scramble to rescue the economy damaged by the coronavirus pandemic. He also criticized the "vagueness" in the Federal Reserve's recent announcement on its shift to average inflation targeting.

"Stick with what works. Don't throw out things that are working as you modify to get a better system," Taylor said during the third panel discussion. He pointed out that previous Monetary Policy Reports released by the Fed had a section of monetary policy rules, which are "gone" in the most recent publication.

Taylor took the financial crises in the euro area's peripheries as an evidence of deviation from monetary policy strategy, namely interest rates lower than what policy rules suggested, but he emphasized that this example by no means referred to the famous "whatever it takes" speech made by fomer ECB President Draghi since that was "a matter of communication."

Several positive aspects of the ECB's policy strategy were acknowledged by Taylor, including its emphasis on transparency and clear communications about monetary policy, the goal of price stability, frequent endorsement of structural and market-based reforms in member states, the principle that automatic fiscal stabilizers and sound budget policy are complementary parts of macroeconomic policy, as well as the encouragement of open capital markets.

Speaking of the Fed's shift to the flexible form of average inflation targeting, Taylor called for further clarity on how long "this average" will last. He also criticized the vagueness in the Fed's announcement on not tying to a "particular mathematical formula."

"If you don't like formulas, I think this is fine," said Taylor in response to the Fed's decision on not to be "dictated by any formula." However, he reminded the participants of President Lagarde's speech delivered at the conference, in which the ECB president put an emphasis on formulas and techniques. "That is how various policies have been evaluated," he added.

Taylor suggested having more discussions on how and when the monetary policy should return to normal as the recent pandemic shock has taken the attention away from these issues. When pointing out that the Fed's balance sheet has bloomed since the coronavirus crisis, Taylor asked "how long that should continue?" He believes there is a time to adjust to bring monetary policy back to "some kind of strategy."

"You need to be concerned about that," warned Taylor when he presented two charts that showed surges in the U.S. money stocks, which did not occur when the Fed launched quantitative easing to cushion the impact from the 2008 financial crisis. He encouraged further examinations on this phenomenon, which, he indicated, is related to the banking system and different policies.

Taylor hinted that the economic recovery from the pandemic is likely in "V shape" and therefore recommended that monetary policy should return to a "strategy that works."

Birgitta Wolff, President, Goethe University Frankfurt
Welcome

Dear President Lagarde, dear ECB Board Members, dear Governors, ladies and gentlemen,

I am very pleased to welcome you to this conference today, which brings together "The ECB and Its Watchers" since 1999. Goethe University is delighted to host this event that has developed into a platform where the ECB President, Board and Governing Council Members meet financial market participants and academics to discuss current issues in monetary policy and financial stability at the invitation of the Institute of Monetary and Financial Stability.

At Goethe University, we are proud of gathering economic expertise in various research areas under the roof of the House of Finance. For more than ten years, the IMFS has worked out clearly its focus on central banking based on interdisciplinary research in economics and law.

This year, the conference is a special event in many respects. This year's "The ECB and Its Watchers" will contribute to the strategy review of the European Central Bank. The ideas presented here, the discussions and arguments will be taken into account in this process of making sure that the ECB will be able to fulfill its mandate of keeping prices stable in the future.

Secondly, although this is the 21st edition, this year's "ECB Watchers" conference is taking place in a new format. Instead of 300 or 400 participants, we can only welcome a small number of you on-site. Due to the coronavirus pandemic, several speakers and most of the audience will take part remotely. Nevertheless, we are happy we could find a way to let this event take place at all.

Thirdly and finally, I am very pleased to welcome ECB President Christine Lagarde to this conference. Since she took up office in November, as all of you know, this is the first time we have the honor of introducing her at this conference. She has visited us before on our Campus; however, it is her first visit to us in her new office. Since her professional career is well-known to all of you, I would particularly highlight only the most recent steps. As a trained lawyer, she became chairperson of an international law firm, then was appointed Minister of Trade of France and, later on, Minister of Economy and Finance. Then she moved on to Washington, D.C., where she was the Managing Director of the International Monetary Fund. In many of those positions, she was a forerunner, being the first woman to head the IMF and the first woman to be at the helm of the ECB.

Madame Lagarde, you once said in an interview with the Washington Post that you "have a theory that women are generally given space and appointed to jobs when the situation is tough. In times of crisis, women eventually are called upon to sort out the mess, face the difficult issues and be completely focused on restoring the situation." With the coronavirus pandemic, we are right in the middle of such a difficult issue. Therefore, I guess, all of us are eager to learn more about the message President Lagarde has brought along with her.

Without further ado, let me hand over to President Lagarde who will speak to us via video. I wish all of us a fruitful debate and new insights here at "The ECB and Its Watchers"!

Christine Lagarde, President, European Central Bank

The Monetary Policy Strategy Review: Some Preliminary Considerations

Thank you for inviting me to address this conference. This morning, I would like to speak to you about the ECB's strategy review, the reasons we are conducting it, and our expectations as a result of it.

Since 2003, when we last conducted a strategy review, the euro area and the world economy have undergone profound changes. The consensus that has governed monetary policy worldwide has been challenged on a number of fronts.

Most importantly, the last decade has been defined by a persistent decline in inflation among advanced economies. In the euro area, annual inflation averaged 2.3 percent from 1999 to the eve of the great financial crisis in August 2008, but only 1.2 percent from then until the end of 2019.

This environment poses fundamental questions for central banks. We need to thoroughly analyse the forces that are driving inflation dynamics today, and consider whether and how we should adjust our policy strategy in response. To inform this analysis, we also want to hear from a wide variety of stakeholders – including citizens, academics, parliamentarians and civil society organisations – about how they perceive our goals and actions. This is why we have launched the "ECB Listens" programme, in which we will aim to listen to as many voices as possible.

As we have just restarted our strategy review – we put it on hold when the coronavirus (COVID-19) pandemic struck – I will not be presenting any conclusions today. Now is the time for listening and reflecting. But I will discuss the main issues we are looking at and some of the key questions we will be asking.

In my remarks today I will cover three topics: first, the definition of our inflation objective; second, the relationship between inflation and the real economy; and third, the transmission and effectiveness of monetary policy. None of these issues can be considered in isolation and we need a well-rounded view of all elements in order to draw conclusions for the strategy review.

The Inflation Objective

I start with the inflation objective because it anchors the inflation process for the whole economy. Three issues will feature particularly prominently in our review.

The first is how to formulate the inflation aim.

The arguments in favour of central banks aiming for positive inflation rates with a sufficient buffer away from zero were articulated during our strategy review in 2003. It compensates for possible measurement bias, helps countries rebalance their economies within a monetary union and creates a buffer against deflation, as well as leading to higher nominal interest rates over the medium term. That helps ensure that monetary policy is not forced too often towards the effective lower bound – the level of interest rates at which further cuts do not have the desired positive impact – when faced with shocks that push inflation too low.

Since 2003, the ECB has used a double-key formulation to set our objective, defining price stability as a year-on-year increase in inflation of "below 2 percent," while aiming for inflation of "below, but close to, 2 percent." This formulation was appropriate at a time when the ECB was seeking to establish credibility and too-high inflation was its main worry. As our research shows, it was a key factor in successfully capping inflation expectations.[1]

But in the current environment of lower inflation, the concerns we face are different and this needs to be reflected in our inflation aim. Ensuring that there is sufficient space above zero to re-empower conventional monetary policy becomes more important. And, to underpin inflation

[1] *Rostagno, M., Altavilla, C., Carboni, G., Lemke, W., Motto, R., Saint Guilhem, A. and Yiangou, J. (2019), "A tale of two decades: the ECB's monetary policy at 20", Working Paper Series, No 2346, ECB, Frankfurt am Main, December.*

expectations, we need to ensure that our aim is perceived to be symmetric by the public. So we should have an inflation aim that the public can easily understand.

The second issue is the horizon over which price stability should be achieved, which is captured by the ECB's "medium term" orientation. This forward-looking orientation reflects traditional and well-established principles of prudent monetary policy, which is consistent with the notion that monetary policy works with a lag and can influence inflation over the medium term rather than the near term.

But within the ECB's framework, the medium-term orientation has also been a way for the Governing Council to take into account what is happening in the real economy, including employment. We have a hierarchical mandate with price stability at the top. But the medium term, which is a flexible concept, allows us to avoid unnecessarily constricting jobs and growth in the event of a supply shock which temporarily pushes up inflation and generates an economic slump.

The low inflation environment creates some new questions about how to operationalise the medium term. For instance, the existence of large and persistent disinflationary shocks related to, say, the ability to compare prices more actively via the internet and diversify suppliers is likely to call for more flexibility. But a persistent failure to meet the inflation aim can feed into inflation expectations and would call for a shorter policy horizon.

We also need to reflect on our two-pillar approach for assessing developments in the economy, which uses both economic and monetary analysis. Cross-checking between the two helps determine the risks to price stability. The monetary pillar could in principle be enhanced to provide information on financial stability which – over longer time horizons – could be relevant for the inflation outlook.

Central banks have also considered adding a backward-looking element to the policy horizon in response to the low inflation environment. In the ECB's case, the reference to underlying inflation dynamics in our forward guidance means that we already look at the past when deciding whether to change policy. The wider discussion today, however, is whether central banks should commit to explicitly make up for inflation misses when they have spent quite some time below their inflation goals.

If credible, such a strategy can strengthen the capacity of monetary policy to stabilise the economy when faced with the lower bound. This is because the promise of inflation overshooting raises inflation expectations and therefore lowers real interest rates.[2] While make-up strategies may be less successful when people are not perfectly rational in their decisions[3] – which is probably a good approximation of the reality we face – the usefulness of such an approach could be examined.

The third issue is the measure of inflation that lies behind our inflation aim.

The Harmonised Index of Consumer Prices (HICP) has served us well so far and is continuously being improved. Examples of these improvements include how it accounts for quality change, annual changes in consumption weights, more granular categories of expenditure and more timely data.

At the same time, our economies are changing increasingly quickly. We need to keep track of broad concepts of inflation that capture the costs people face in their everyday lives and reflect their perceptions, including measures of owner-occupied housing. This is not about moving the goalposts for monetary policy. It is about future-proofing how we measure inflation. But we also need to recognise that adjustments will present issues in terms of reliability and frequency of the data.

[2] *Budianto, F., Nakata, T. and Schmidt, S. (2020), "Average inflation targeting and the interest rate lower bound", Working Paper Series, No 2394, ECB, Frankfurt am Main, April.*
[3] *Gabaix, X. (2020), "A Behavioral New Keynesian Model", American Economic Review, Vol. 110, No 8, pp. 2271-2327.*

Likewise, to get a better sense of the evolution of the HICP over the medium term, we need to complement our analysis also by looking at more cyclical and less volatile measures of inflation, such as underlying inflation. The public rightly expects us to defend the purchasing power of money and that is why we target the overall HICP. But underlying inflation measures are more responsive to economic slack and tend to better predict inflation over the medium term.

The Relationship Between Inflation and the Real Economy

If the anchor for inflation is the inflation aim, the Phillips curve – the link between the real economy and inflation – plays a central role in allowing central banks to steer inflation towards that aim. But in the low inflation environment, prices appear to have become less responsive to the real economy. ECB research suggests that the empirical Phillips curve remains intact, but it may be rather flat.[4]

Broadly speaking, three factors might explain why inflation responded so weakly to improvements in the economy in the run-up to the pandemic.

The first possibility is that economic slack – the amount of underused resources in the economy – was larger than we thought. The second possibility is that the relationship between slack and inflation was obscured by persistent structural forces. And the third is that the anchoring of inflation expectations might have loosened, affecting where inflation settles when both demand and supply shocks have passed and slack converges at zero.

The intuition behind the first factor is that the Phillips curve is alive and well, but the euro area faced a series of large shocks that made it harder to measure economic activity relative to potential. Since it is the distance from full employment that matters in terms of moving inflation in the Phillips curve, if that distance is underestimated, inflation may remain subdued even as measured slack gets smaller.

There are numerous potential causes of this mismeasurement, including: measures of unemployment that ignored the effects of part-time work and underemployment[5]; revisions to potential output which mistook cyclical changes for structural trends[6]; or a failure to fully account for external factors that added to euro area slack, such as relative demand imbalances linked to the trade surplus.[7] Research supports such a role for "hidden slack." Since 2011, studies that assume that the output gap has been much larger have, in general, outperformed those that use traditional estimates.[8]

What is striking, though, is that in the run-up to the pandemic we saw labour market slack diminishing and wages finally rising, but without inflation picking up. In fact, ECB research finds that there was no missing wage inflation in recent years. What we saw instead was a slower pass-through from wages to prices, because companies preferred to compress margins rather than pass on cost rises.[9] For monetary policy, it matters whether firms did this because they expected slowing demand, or because they were affected by persistent structural changes that distorted historical regularities.

[4] *Eser, F., Karadi, P., Lane, P.R., Moretti, L. and Osbat, C. (2020), "The Phillips Curve at the ECB", Working Paper Series, No 2400, ECB, Frankfurt am Main, May.*
[5] *Conti, A.M., Guglielminetti, E. and Riggi, M. (2019), "Labour productivity and the wageless recovery", Working Papers, No 1257, Banca d'Italia.*
[6] *Coibion, O., Gorodnichenko, Y. and Ulate, M. (2017), "The cyclical sensitivity in estimates of potential output", NBER Working Paper, No 23580.*
[7] *Galstyan, V. (2019), "Inflation and the current account in the euro area", Economic Letter, Vol. 2019, No 4, Central Bank of Ireland.*
[8] *Jarocinski, M. and Lenza, M. (2018), "An inflation-predicting measure of the output gap in the euro area", Journal of Money, Credit and Banking.*
[9] *Bobeica, E., Ciccarelli, M. and Vansteenkiste, I. (2019), "The link between labor cost and price inflation in the euro area," Working Paper Series, No 2235, European Central Bank, February; Hahn, E. (2019), "How are wage developments passed through to prices in the euro area? Evidence from a BVAR model", Applied Economics, preprint, published online on 1 November; Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.) (2019), "Understanding low wage growth in the euro area and European countries", Occasional Paper Series, No 232, ECB, Frankfurt am Main, September.*

This brings me to the second factor: long-running structural forces. How could they have weakened the link between the real economy and inflation and thereby require a revised approach to monetary policy?

It is clear that globalisation lifted the global labour supply, sharpened competition and caused firms to set prices more strategically. Globalisation also went hand in hand with digitalisation, which increased price transparency and enabled many industries to reduce costs. In theory, all these factors could have depressed price inflation, even as wage growth was being supported through productivity gains from technology. In parallel, adverse demographics in advanced economies may have led to higher saving rates and structurally weaker demand.[10]

Research suggests that these forces have affected inflation in the euro area in recent decades. A recent study finds that global factors, such as global commodity prices, global slack and producer price competition, can all significantly affect inflation.[11] ECB research also finds that digitalisation has been disinflationary in the euro area: since 2006, e-commerce has led to an average yearly decrease in non-energy industrial goods inflation of 0.06 percentage points.[12] And empirical evidence suggests that a shrinking working-age population may depress inflation.[13]

At the same time, structural forces need not be net deflationary, particularly in the aftermath of the COVID-19 pandemic. While globalisation and digitalisation have tended to pull in the same direction over the past 20 years, it is conceivable that they might now pull in opposite directions. The pandemic might both trigger de-globalisation – as protectionism rises and firms shorten supply chains to increase operational resilience – and accelerate the expansion of the digital economy. Changing global demographics might also reduce the global labour supply.[14]

In addition, a more active countercyclical role for fiscal policy after the pandemic may strengthen inflation dynamics. And we have to factor in a renewed focus on mitigating climate change, too, which could have an impact on inflation through progressive changes in the energy mix as we transition towards a carbon-neutral economy. Climate change affects all aspects of monetary policy: output and inflation, long-term interest rates and policy transmission. That is why we are carefully studying the implications of climate change for our primary objective as part of our strategy review.

In any event, structural factors can only have a lasting negative impact on inflation if they seep into inflation expectations. This leads me to the third factor that may explain the apparent disconnect between the real economy and inflation. Empirically, it is not straightforward to gauge the anchoring of inflation expectations. There can be differing interpretations depending on the approach used to define anchoring, as well as the measure and horizon of inflation expectations considered.

That said, market-based measures of longer-term inflation expectations have fallen notably, even when adjusted for various risk premia that can distort the picture. Those measures have also become more responsive to short-term news, which can be interpreted as a sign that their anchoring has softened.

[10] *Lis, E., Nickel, C. and Papetti, A. (2020), "Demographics and inflation in the euro area: a two-sector new Keynesian perspective", Working Paper Series, No 2382, ECB, Frankfurt am Main, March; Bobeica, E. et al. (2017), "Demographics and inflation", Working Paper Series, No 2006, ECB, Frankfurt am Main, January.*

[11] *Forbes, K. (2019), "Has globalization changed the inflation process?", BIS Working Papers, No 791, Bank for International Settlements.*

[12] *Anderton, R., Jarvis, V., Labhard, V., Morgan, J., Petroulakis, F. and Vivian, L. (2020), "Virtually everywhere: digitalisation and the euro area and EU economies", Occasional Paper Series, No 244, ECB, Frankfurt am Main, June.*

[13] *Bobeica, E. et al., op. cit.*

[14] *Goodhart, C. and Pradhan, M. (2020), The Great Demographic Reversal: Ageing Societies, Waning Inequality, and an Inflation Revival, Palgrave Macmillan.*

Survey-based measures remain more or less within a range consistent with the ECB's aim (i.e. 1.7-1.9 percent), but they have also moved to the bottom of that range since 2019.

For the actual process of setting wages and prices, it is the expectations of the public that matter most. Since our last strategy review there has been more research on how consumers and firms form their inflation expectations. While data are still scarce and noisy, the general picture is that consumers hold very diverse expectations about inflation that appear far less well anchored to our aim than other measures of inflation expectations. In 2015 average perceived inflation among euro area households was just under 5 percent, while actual inflation was 0.3 percent.

The generally higher level of household expectations is not necessarily a cause for comfort, however. What emerges from the research in this area is that households take a long time to absorb new information on inflation, but when their expectations do adjust they can be hard to dislodge – and the direction in which people perceive inflation to be heading can affect their economic decisions.[15]

This process is of course not exogenous to monetary policy: it is greatly influenced by the central bank's objective and how policy is conducted and communicated in the pursuit of that objective. This is why the discussion about the numerical definition of price stability and the instruments that can support it over time is so important.

Clearly, the three factors I have discussed are not mutually exclusive. So it is crucial that we gain a much deeper understanding of their relevance and interactions in order to draw appropriate conclusions for how we conduct our monetary policy. As part of this, we need to understand how they might have interacted with monetary policy approaching the lower bound. This brings me to the final area I would like to discuss today: monetary policy transmission and effectiveness.

Monetary Policy Transmission and Effectiveness

As monetary policy everywhere has approached the lower bound, all major central banks have faced questions about their policy space and the traction of their tools on the economy.

A key challenge has been the long-term fall in estimates of the natural interest rate. The natural rate is the unobservable interest rate that brings desired saving and investment into balance, or to put it another way, that brings output close to its potential. Monetary policy is accommodative when the policy rate is below the natural rate, and restrictive when the policy rate is above it. Estimates for the natural rate in the euro area have dropped from between 0.6 percent and 2.2 percent on average from 1999 to 2011, to between -1.3 percent and 0.5 percent thereafter.[16] This has required progressively lower policy rates in order to ease monetary policy – or even to prevent an unchanged policy stance from becoming more restrictive.

Central banks around the world have shown that this is not a barrier to stabilising the economy. Before the pandemic, the ECB was able to offset the effects of a declining natural rate by taking its deposit facility rate into negative territory and by deploying forward guidance and asset purchases to ease financing conditions at longer maturities. Indeed, asset purchases – by compressing longer-term bond yields – can induce an easing of financial conditions that can partly compensate for the diminishing scope for conventional rate

[15] *Candia, B., Coibion, O. and Gorodnichenko, Y. (2020), "Communication and the beliefs of economic agents", paper presented at the 2020 Economic Policy Symposium, Federal Reserve Bank of Kansas City; Duca, I.A., Kenny, G. and Reuter, A. (2018), "Inflation expectations, consumption and the lower bound: micro evidence from a large euro area survey", Working Paper Series, No 2196, ECB, Frankfurt am Main, November.*

[16] *Brand, C., Bielecki, M. and Penalver, A. (2018), "The natural rate of interest: estimates, drivers and the challenges to monetary policy", Occasional Paper Series, No 217, ECB, Frankfurt am Main, December.*

cuts. We also launched a series of targeted longer-term refinancing operations (TLTROs) to strengthen the pass-through of these measures via banks to the real economy.

The effect on both financial conditions and the real economy was significant. Considering all the measures taken since mid-2014, the overall impact on euro area real GDP growth is estimated to have been between 2.5 and 3 percentage points cumulatively until 2019, and the impact on inflation is estimated to have been between 1.7 and 2 percentage points cumulatively over the same period.

The response to the pandemic has provided further evidence of effectiveness. Our Pandemic Emergency Purchase Programme (PEPP) and the new series of TLTROs have proven to be powerful tools for stabilising financing conditions and stimulating credit growth.[17] According to ECB staff estimates, the measures we have taken since March this year will increase inflation by around 0.8 percentage points cumulatively between 2020 and 2022, and GDP growth by around 1.3 percentage points.

However, we have to reflect on what will happen if natural rates remain low and inflation stays subdued – meaning central banks have to continue to resort frequently to balance sheet policies to deliver on their mandates. This scenario throws up two issues that we need to consider more deeply.

The first is what should be the standardised toolkit for a world where unconventional policy is "normal." The implicit assumption since 2008 has been that policy "normalisation" will mean returning mainly to interest rate policy and winding down unconventional policies. But if "normal" is closer to what we saw before the outbreak of the pandemic and, I am afraid, what we are seeing even more vividly now, we need to be prepared. We need to have a clear consensus – agreed within the Governing Council and understood by the public – on what tools are available to us when inflation is too low, and how they should be systematically deployed in response to different types of shock.

So we need to further our understanding of the transmission channels of our different instruments, and to evaluate their relative side effects, both intended and unintended, as they work their way through the economy. A central question is the extent to which different tools are substitutes or complements and their potential non-linearities – that is, how their effectiveness might change over time or in different economic conditions.

We already have some evidence on substitutability. For example, ECB research finds that without the use of large-scale asset purchases since 2015, our deposit facility rate would have had to fall to around -2 percent to achieve the same path of inflation we observed. This is a level that would probably have triggered "reversal rate" dynamics, a situation where a rate cut would become contractionary because it harms the business models of financial intermediaries and disrupts monetary policy transmission.[18]

Conversely, other instruments have displayed complementarities. Think, for example, of our TLTROs and our negative rate policy. The former have been able to leverage the power of the latter by channelling the stimulative impulse associated with sub-zero rates directly to banks. Unlike in a "reversal rate" scenario, this promotes credit creation – because banks can borrow at very low interest rates under TLTROs only on the condition that they lend on – without hurting banks' profitability and impairing monetary transmission.

The second issue we need to reflect on is interactions between monetary and fiscal policies. When central banks have to use balance sheet policies extensively, there is an

[17] *Altavilla, C., Barbiero, F., Boucinha, M. and Burlon, L. (2020), "The great lockdown: pandemic response policies and bank lending conditions", Working Paper Series, No 2465, ECB, Frankfurt am Main, September.*
[18] *Rostagno, M. et al., op. cit.*

inevitable strengthening of the interplay between monetary and fiscal policies. This interaction works both ways.

Fiscal policy empowers monetary policy by fostering demand, which brightens economic prospects for firms. This encourages them to borrow and allows them to fully benefit from monetary policy stimulus. And monetary policy makes fiscal policy more effective, because when monetary policy is at the lower bound – and committed to staying there via forward guidance on rates and asset purchases – fiscal multipliers are higher.[19]

Indeed, one explanation for the superior inflation performance of the United States relative to the euro area in recent times is that monetary and fiscal policies were more aligned. From 2013 to 2018, fiscal policy in the euro area tightened by around 2.5 percentage points of GDP, compared with a loosening of around 0.8 percentage points in the United States. ECB analysis for the euro area finds that, while monetary policy was supporting inflation during this period, it was being offset by demand headwinds.

The implication is that, in the current environment, both policies must remain expansionary for as long as necessary to achieve their respective goals. And, in disinflationary conditions when the economy is running short of its potential, the goals of each policy are naturally aligned.

But if monetary and fiscal policies are interacting more closely, it also raises important questions – questions that will become even more acute in the aftermath of the pandemic. These include how to set policy in a world of possibly permanently higher levels of public debt, and the appropriate design of Europe's fiscal framework.

Since restarting our strategy review, we have introduced a new work stream on monetary-fiscal interactions precisely to address such questions.

Conclusion

Let me conclude.

Today I have laid out some preliminary considerations that are guiding our strategy review. At this stage, it is too early to draw any firm conclusions. Rather, I have attempted to identify some of the key issues the Governing Council will aim to address.

There is one issue, however, on which I can be decisive today: we must explain much better to the general public what we are doing and why, and we must talk to people that we do not normally reach. This imperative has to cascade through all the elements of our review: our inflation aim, our inflation measure, our tools and their effectiveness, and how we take into account new challenges that people care about, like climate change or inequality.

I am fully committed to this vision. Monetary policy can only be credible if we ensure that our goals are truly understood and shared by the people we serve. As an independent central bank, we are and will remain accountable to them.

[19] *Blanchard, O. (2019), "Public Debt and Low Interest Rates", AEA Presidential Lecture, January.*

Jens Weidmann, President, Deutsche Bundesbank
Introductory Statement

Chère Christine, good morning ladies and gentlemen,

I am delighted to moderate the first debate today. Dear Volker, thank you very much for your invitation and for organising this conference as a hybrid event. In times like these, we are becoming more and more experienced in communicating virtually. Nevertheless, there is always a lingering sense of uncertainty about whether the technical set-up will work properly.

Before our single monetary policy started, there may also have been doubts about whether the Eurosystem could fulfil its mandate to maintain price stability. Looking back now – on more than 21 years of monetary policy and also "ECB watching" – the Eurosystem has delivered on the promise made to the people of Europe to keep prices stable. This has been a truly remarkable success. One key element in this has been the clarity of the mandate itself. In late 1998, the ECB's first president, Wim Duisenberg, outlined the strategy for the single monetary policy in a speech. He started from his conviction that, by maintaining price stability, "monetary policy makes the greatest possible contribution towards raising the standard of living of Europe's citizens and improving growth and employment prospects."[1] This fundamental tenet also inspired the European Treaties, which enshrine price stability as our primary objective.

So to answer the question raised in the title of our session: the mandate needs no modification when viewed from this perspective. At any rate, the Eurosystem takes its mandate as a given. And our actions will continue to be geared towards achieving our overriding objective of price stability. However, the Treaties are silent on how to define or measure price stability. Nor do they specify a reaction function for monetary policy or a hierarchy of instruments needed to ensure price stability. Nor do they tell us how to communicate with the public. Choices like these constitute the monetary policy strategy. Given the profound changes in our economies over time, every now and then, the Governing Council needs to consider the merits of the strategy it is pursuing. In this context, the guiding question is how we can fulfil our mandate in the best possible manner.[2]

The last time the Governing Council evaluated its strategy was in 2003. Back then, the risk of inflation approaching very low levels was already on the minds of Council members. As Otmar Issing stressed at that time: "We have both eyes […] watching deflationary as well as inflationary developments."[3]

Since then, the ability of central banks to prevent very low rates of inflation through the conduct of interest rate policy has weakened. From a theoretical point of view, monetary policy needs to push the key interest rate in real terms below the natural rate of interest, or r-star, in order to achieve an expansionary stance. Thus, r-star is often regarded as a navigational guide for monetary policy, just as celestial stars used to guide sailors across the seas. But unlike the stars above our heads, the natural rate isn't something we can observe directly. Instead, we must resort to models and econometric methods to estimate it. Often, r-star can only be gauged with very wide uncertainty bands, while the estimated level may vary greatly across the methods and data used. Moreover, r-star is not fixed over time. Fundamental forces such as demographic trends or productivity growth may shift it. Indeed, the empirical evidence across advanced economies points to a secular decline in the natural rate of interest that started back in the 1980s and has continued since 2003.[4]

[1] *Duisenberg, W. F. (1998), The ESCB's stability-oriented monetary policy strategy, speech delivered at the Institute of European Affairs, 10 November 1998, https://www.ecb.europa.eu/press/key/date/1998/html/sp981110.en.html*
[2] *Weidmann, J. (2020), Change and continuity, speech delivered at Deutsche Börse's New Year's reception, 3 February 2020, https://www.bundesbank.de/en/press/speeches/change-and-continuity-824754*
[3] *Issing, O. (2003), Press seminar on the evaluation of the ECB's monetary policy strategy, European Central Bank, 8 May 2003, https://www.ecb.europa.eu/press/pressconf/2003/html/is030508_1.en.html*
[4] *Deutsche Bundesbank (2017), The natural rate of interest, Monthly Report, October 2017, pp. 27-42.*

The resulting implications for monetary policy are challenging. At last year's Jackson Hole Conference, Philip Lowe, the Governor of the Reserve Bank of Australia, referred to them as "the difficulty of navigating when the 'stars' are shifting."[5]

In particular, central banks around the world are searching for ways to respond to the decline in the natural rate. Since policy rates may hit the lower bound more and more frequently, the leeway of traditional interest rate policy has diminished. In this context, the Federal Reserve's shift to a variant of average inflation targeting and the clarification regarding the high importance it attaches to its employment objective grabbed the headlines recently.[6] It is worth highlighting that we do not have a dual mandate like the Federal Reserve. That is one reason why the decisions the Fed takes with regard to its monetary policy strategy cannot simply be transferred to the euro area, even though they may still enrich our own deliberations.

Another response to the decline in r-star could be a make-over of our monetary policy toolkit, such as incorporating asset purchases as standard instruments. Clearly, large-scale purchases of government bonds can be a legitimate and effective tool of monetary policy. But, as I have stressed numerous times, they risk blurring the lines between monetary policy and fiscal policy. This is a particular problem in the context of monetary union, where fiscal policy largely rests with the 19 Member States. In a similar vein, we should also pay close attention to how we interpret our mandate. The Eurosystem was granted independence in order to achieve its primary objective. The more widely we interpret our mandate, the greater the risk that we will become entangled with politics and overburden ourselves with too many tasks. As a consequence, our independence might be called into question, and rightly so.

Some have suggested that monetary policy should also aim for financial stability as an additional objective, on a par with price stability. For others, that might be a mistake. Certainly, we need to reflect on what we've learned not only from the recent years of low inflation and low interest rates, but also from the financial crisis. Indeed, we should not forget that an enduring easy-money policy can contribute to the build-up of imbalances in the financial system. In the long run, these imbalances could pose a threat to price stability. Thus, a monetary policy strategy would need to be flexible enough to account for such long-term risks to price stability.[7]

Finally, new developments have an impact on how we can deliver on our mandate. Clearly, climate change is a pressing challenge that we all face. How will climate change alter our ability to safeguard price stability?[8] Questions like these will feature prominently in the Governing Council's strategy review, but also in our discussions today.

And now I would like to introduce the first speaker on this panel. Who doesn't know Christian Noyer? He was the European Central Bank's inaugural Vice-President in 1998. In 2003, he was appointed Governor of the Banque de France, and later he additionally became Chairman of the Board of Directors of the Bank for International Settlements, a capacity in which I eventually succeeded him. Moreover, we can both look back on a long period of close cooperation in the ECB's Governing Council. He is now Honorary Governor of the Banque de France and continues to play an active role in the world of finance, including as a member of the French High Council of Public Finance or the Board of Directors at BNP Paribas.

Christian, you have steered the Banque de France with a steady hand through times of financial and economic crisis in

[5] *Lowe, P. (2019), Remarks at Jackson Hole Symposium, 25 August 2019, https://www.rba.gov.au/speeches/2019/sp-gov-2019-08-25.html*
[6] *Powell, J. (2020), New Economic Challenges and the Fed's Monetary Policy Review, speech delivered at Jackson Hole Symposium, 27 August 2020, https://www.federalreserve.gov/newsevents/speech/powell20200827a.htm*
[7] *Deutsche Bundesbank (2015), The importance of macroprudential policy for monetary policy, Monthly Report, March 2015, pp. 39-71.*
[8] *Weidmann, J. (2020), Introductory comments at the press conference to present the Deutsche Bundesbank's annual accounts, 28 February 2020, https://www.bundesbank.de/en/press/speeches/introductory-comments-at-the-press-conference-to-present-the-annual-accounts-826490*

Europe. As Christine Lagarde (then Managing Director of the IMF) highlighted at your farewell symposium, you came to be known as the "banquier anti-stress."[9] Maybe your love of sailing helped you navigate the rough economic waters. That said, I am very pleased that you are not navigating the high seas today, but have chosen instead to share with us your profound assessment based on your wealth of professional experience.

For a change of perspective, we turn to the point of view of a renowned researcher: Jordi Galí. Jordi is a professor at Pompeu Fabra University (UPF), a research professor at the Barcelona Graduate School of Economics (GSE), and a senior researcher at the Centre for Research in International Economics (CREI). Previously, he held academic positions at New York University and Columbia University, after earning his Ph.D. at the Massachusetts Institute of Technology (MIT).

Jordi, your list of professional activities and publications is impressive. You are one of the leading proponents of New Keynesian economics, pushing the research frontier on the analysis of business cycles, monetary and fiscal policies. Together with Richard Clarida and Mark Gertler, you synthesised your thinking in a widely studied paper entitled "The Science of Monetary Policy: A New Keynesian Perspective." You wrote that article more than two decades ago, and your work since then has continued to provide policymakers with valuable new insights. I have come to know you and hold you in high regard from various research conferences, and I am very grateful to you for being a member of the Bundesbank's Research Council. I have always enjoyed our discussions so far, and look forward to hearing the "food for thought" you have brought for us today.

This is something of a home game for Helmut Siekmann, as, for many years, he held the Endowed Chair of Money, Currency and Central Bank Law at the IMFS here at Frankfurt University, who are kindly hosting today's event. For some time, Helmut Siekmann also headed the Institute as its Managing Director, and, since 2018, he has been Distinguished Professor at the IMFS. His body of research spans the entire spectrum of public law. Furthermore, Helmut Siekmann has lent his expertise to legislative projects and also represented both Federal and state governments before constitutional courts.

He has also written and contributed to numerous publications, and his 2013 Commentary on European Monetary Union, which he edited, carries special weight among his works. And the reason is not only that the book counts more than 1,500 pages, which makes it well visible on my bookshelf. Much more importantly, it has become a standard work for legal experts. Professor Siekmann, you have also undertaken extensive work on non-standard monetary policy – for instance, most recently, concerning the ruling of the Federal Constitutional Court on the public sector purchase programme (PSPP) of May this year. It's no secret that you hold a critical view of the Eurosystem's asset purchases. But I don't want to give away too much.

[9] *Lagarde, C. (2016), The Case for a Global Policy Upgrade, speech delivered at the farewell symposium for Christian Noyer, 12 January 2016, https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp011216*

Christian Noyer, Banque de France

Some Thoughts About the ECB's Mandate

In this presentation, I will start by discussing the mandate itself, and in particular whether the ECB should have a single or a dual mandate, or even a mandate with several objectives, and whether the contents of the treaty already implicitely assign several objectives assigned to the central bank.

I will then turn to the question of the interpretation of the mandate, i.e. the quantitative definition of price stability, and discuss the definition of price stability established by the Governing Council of the ECB.

1. A Single or a Dual Mandate?

There is often criticism, particularly from American circles, but not only, regarding the fact that the ECB has been assigned by the Treaty a single mandate, as stated in Art. 105(1): "The primary objective of the ESCB shall be to maintain price stability." Reference is made to the mandate of the Fed, which has received from the U.S. Congress a dual mandate: to achieve price stability, and at the same time to seek full employment. It could easily be claimed that a discussion on this issue is pointless – a change would require unanimity, therefore there is no prospect of such a change. It could also be seen as quite natural for a central bank to preserve the value of the money it puts into circulation.

But the issue is more complex than that. Because this statement in the Treaty is immediately followed by another one: "without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the community with a view to contributing to the achievement of the objectives of the community as laid down in Article 2." And Art. 2 mentions inter alia as objectives "a high level of employment, sustainable and non-inflationary growth, […] and convergence of economic performance." Therefore, the Treaty does not ignore growth and employment in setting the objectives of monetary policy: simply, it establishes a clear hierarchy of objectives, and assigns an overriding importance to price stability. And according to the rationale of the authors of the Treaty, growth and employment are not secondary concerns in Europe, but rather it is believed that ensuring price stability is the most important contribution that monetary policy can make to achieving a favourable economic environment and a high level of employment. So why not accept the idea that the ECB, or the Eurosystem – as we would call the European System of Central Banks (ESCB) today – has received a secondary mandate, indeed to be pursued only subject to achieving and not endangering price stability? This issue was heavily debated towards the beginning of the monetary union, circa 2000, in the Governing Council of the ECB. In the end, four arguments prevailed for not calling the objectives of Art. 2, or a selection of them, a "secondary mandate," even if it is clear that the ECB has to take them into account.

The first objection is that having two objectives is a theoretically weak case. There is a famous saying "you cannot kill two birds with one stone," or as stated in the "Jan Tinbergen rule": you can only achieve one objective with one instrument (and more generally, the number of objectives must be equal to the number of instruments assigned to a given policymaker). Otmar Issing proposed another way of looking at it which is based on temporality: achieving price stability is always forward-looking (monetary policy of today provides price stability tomorrow, because of the lags in its transmission); whereas trying to influence the level of output or of employment would be a short-term objective.

A second objection was that it is unnecessary, and would simply add confusion, whereas the two objectives usually lead to the same policy. Because over the economic cycle, when output growth diminishes, and unemployment tends to increase, price pressures also diminish, and monetary policy tends to loosen; and the opposite is true, when in the peaks of the cycle, price pressures augment, leading to a tightening of monetary policy, but this reflects the fact that growth is moving above the potential, and employment is close to its maximum. In other words, when monetary policy aims to provide price stability, it tends to stabilize output around its potential growth, and therefore delivers maximum employment, and the exact level of employment only depends on the actual potential that is linked to the structural framework delivered by other policies.

A third objection concerned communication. Since the euro area is not an integrated political entity, there are differences in the economic potential across countries, which are related to different structural conditions and policies, and therefore the natural level of unemployment (that which is compatible with non-inflationary growth at potential) is different across countries. Therefore, how can we explain that full employment may be 4 percent in one country, and 10 percent in another?

Finally, it was observed that most countries have a single mandate, i.e. price stability. The U.S. is the exception, not the rule: and when you take all the countries that have developed over the last decades a so-called inflation objective (New Zealand, Australia and Canada, then the UK, and many other advanced and emerging economies), the U.S. exception seems relatively marginal. This confirms that the European reasoning is based on solid foundations.

Today, I believe that we should consider two additional questions in this debate about the secondary mandate. One concerns financial stability. This objective is sometimes in the mandate of central banks, independently or not from the main objective of monetary policy. In fact, there is a clear link with the objective of maintaining price stability, since the effectiveness of monetary policy in achieving this goal requires that the central bank is able to maintain a sufficient degree of financial stability. Otherwise, there will be deficiencies in the transmission mechanism (banks and financial markets) that will prevent the achievement of price stability. And it is no coincidence that banking supervision was invented by central banks.

In the case of the euro area, one clear lesson from the crises of 2009-2012 has been learned: if we want to achieve price stability in any meaningful sense, i.e. ensuring that average inflation does not mask a dispersion that would signal regions of deflation and regions of very high inflation, it is necessary for transmission to be effective across the whole area. And in order to achieve this, the ECB needs to ensure that there is not excessive segmentation across the various euro area Member States. Therefore, financial stability is, in my view, part of the mandate to achieve price stability. The fact that it is not expressly stated does not matter.

A second question concerns climate change. Indirectly, climate change does matter for price stability via the risks for financial stability that it may trigger. But can there be a case for considering possible direct implications for achieving price stability? In a first approach, the link is weak. Conventional wisdom is indeed that monetary policy has no impact on long-term growth, and is only effective over the medium term, and climate change is all about the long term. But climate change risks should be incorporated in the assessment of potential growth and output, and in the calculation of the natural equilibrium interest rate. At the other end of the time spectrum, in the short term, the increased frequency of extreme weather events would constitute negative supply shocks with effects on output and prices. Therefore, it seems to be an aspect that needs to be incorporated into the economic analysis of the central bank. Furthermore, "a high level of protection and improvement in the quality of the environment" is one of the "objectives" of the community. But none of this seems to require any change in the wording of the mandate.

2. The Quantitative Definition of Price Stability

There are, in fact, three questions that we should consider. The first one concerns the instrument of measure, i.e. the price index. The one used by the ECB is the HICP, the Harmonised Index of Consumer Prices, developed by Eurostat and the group of national statistical offices. It was natural for the ECB to adopt it, since it was the only way to use a harmonised measure. As it was quite a new index at the time of its adoption by the ECB, it could be considered a good measure of price developments, incorporating the best of the knowledge of statisticians. For years, certain details of the index have been discussed, such as whether or not it is necessary to take into account the implicit cost of homeowners' dwellings, but in general, the index seems robust and on a par with the state-of-the-art understanding of price developments, incorporating wherever possible the quality of goods in price changes.

Like most central banks, the ECB uses a consumer price index, simply because it is what matters to the people. But the question has been raised as to whether we should use headline inflation, which is subject to significant variations in both directions from one month to the next, or rather core inflation, or as the ECB would call it, an index of inflation without the most volatile components, i.e. essentially fresh food and energy.

The headline index was chosen by the ECB for reasons of accountability, given that what people look at is actual inflation and not a calculated theoretical inflation stripped of components considered volatile by experts. It is already difficult to convince the public that the HICP reflects true inflation, since what many people look at is a limited set of goods and services that they regularly purchase, which comprise in particular food and petrol. If an index without such components had been used, it might have damaged the credibility of the central bank. And since the objective is to be attained in the medium term, volatile components should not distort the index at that horizon, or if they do, it would imply a structural change in the index (relative prices of fresh food and/or energy have changed vis-à-vis the rest of the index). If this were the case, it would be legitimate to take them into account.

Nevertheless, it remains a real issue, since the arguments of the proponents of "core inflation" have some weight. As an index without the more volatile components is more stable, it has advantages in terms of communicating with financial markets, thus reducing the pressure from markets to overreact to short-term developments. It has also been observed that the Fed, which uses a core index, seems to have managed to educate the public in America. And one could even say that it would be good to educate consumers about the reversibility of short-term movements (in oil prices) and the seasonality of movements of food prices, which occur essentially because modern consumers want to have access to food irrespective of that which is normally seasonally available.

To reconcile those two concerns, I would suggest that we could explore the feasibility of keeping all the components with their normal weight, but use a moving average of the most volatile components. That would make it possible to reduce the volatility of the price index, without "missing" any component of consumption, or any long-term change in relative prices that warrants consideration when measuring the public's purchasing power.

A second question is the time horizon at which price stability is to be pursued. I will be brief, noting simply that it is generally recognised that monetary policy actions have a full effect after around two years, or between 18 months and two years. This is why price stability is to be pursued "in the medium term," recognising that the central bank cannot eliminate short-term price fluctuations, and should not seek to do so, since that would trigger a succession of absurd stimulating and dampening actions that would not only severely endanger the economy, but also price stability at the medium-term horizon.

It is often thought that the only way to analyse whether the policy stance can be expected to achieve the desired result is via economic forecasts, derived from a mathematical model. However, the ECB does not rely on a single model and the so-called economic projections derived from it for deciding on its policy stance. In the end, the only way to see if the policy followed was appropriate to maintain price stability is to look at the results over a long period. And the ECB was rightly proud that during the first twelve years of its existence, the average rate of inflation was close to 1.99 percent....

The third question is the most important: the numerical definition of price stability.

This warrants a more in-depth analysis. I will focus on three issues: Why 2 percent and why "below but close to 2 percent" were chosen? Given the experience and the present context, should the definition be significantly reviewed? Or, is there room for a limited clarification?

Why 2 percent and why "below but close to 2 percent"?

There are basically three arguments that led to the initial choice in 1998 (less than 2 percent), and to the clarification in 2003 (less than but close to 2 percent).

The first reason for the choice was simply the legacy. The Bundesbank had set historically its interpretation of what price stability meant at less than 2 percent, and later, between 1 and 2 percent. The Banque de France, when it became independent in 1993, made the same choice of less than 2 percent. And the Bundesbank was the de facto anchor in the European monetary system, so that many central banks that were primarily following an exchange rate objective, were implicitly linked to the same price stability objective. And in effect, inflation had converged towards 2 percent during the last phase of the convergence set up in the Treaty for the start of the monetary union and the introduction of the euro.

The second reason was that the figure of 2 percent seemed to be quite consensual in all countries that decided to explicitly assign a price stability objective to their monetary policy. In particular, all advanced economies that had been pioneers in inflation targeting had chosen 2 percent. They considered that it struck the right balance between ensuring that a too high level of inflation would not be resented by economic agents and distort their behaviour to the extent that it endangered economic growth, and the opposite risk of falling into deflation each time the economy slowed down at the low point of an economic cycle. More specifically, in most cases, central banks set a range around their target, most often between 1 and 3 percent. However, this does not change the fact that the objective to be reached in the medium term is 2 percent, but in these countries it was considered to provide some flexibility, or less "nervousness," about the speed at which you need to move towards the target.

The third reason was the economic rationale, and that is probably what led other central banks to reach the same conclusion about this figure of 2 percent. In 1996, the Boskin report in the U.S. established that inflation as measured by indexes might be overstated by 1.1 to 1.3 percent (meaning that when you read 2 percent, the true inflation might be only around 0.8). In the case of the euro area, it was felt that the new HICP index was less biased than the older American one, and, therefore, that if a similar bias existed, it should be smaller. However, to be on the safe side, and to be sure not to be in deflation when reading a positive figure in the index, a safety margin of close to 1 percent seemed appropriate. Then there are natural fluctuations in inflation over the economic cycle or due to the impact of different shocks, even if often limited and short-term. That again seemed to warrant another safety margin, and again 1 percent seemed reasonable. Therefore, to be sure not to move into true negative inflation in normal times, you need to target around 2 percent and not zero.

Then why "less than 2 percent"? The economic reasoning showed that we could choose either 2 percent or slightly less. The choice was then simply made to take the legacy definition that was consistent with this analysis, with a view to inherit the credibility of the predecessor central banks, and of the Bundesbank in particular.

And then why "close to 2 percent"? In order to understand why the ECB decided to clarify the definition in 2003, it should be recalled that during the first years of the euro, it was accused of having an asymmetric objective, and the argument was often made that the Governing Council was ready to accept deflation! Gradually, we explained in speeches that this was untrue, and that our objective in the medium term was indeed close to 2 percent. This constant pressure led the Governing Council in 2002 to undertake a review in order to decide on how to clarify the symmetry of its objective.

The choice seemed to be essentially between setting a range around the numerical objective (the choice made by several inflation targeters), or simply to set explicitly the objective as "close to 2 percent." Among the arguments for not setting a range, was the fear that indicating a ceiling of the range at 3 percent might be considered in some countries to mean that the ECB was willing to tolerate a high level of inflation. Another consideration was that, as the objective was to be attained in

the medium term, inflation could naturally be accepted to fluctuate around 2 percent without triggering an excessive reaction, whereas setting a range could paradoxically lead to less flexibility and increase the risks of being pressured by markets to overreact to economic shocks.

Should the definition of price stability be reviewed?

A number of economists and former policymakers have spoken in favour of changing the definition in one direction or the other. In both cases, the main argument put forward is based on the experience of the last decade, with an inflation that has tended to remain extremely low compared to the price stability objective, despite the extremely loose monetary policies conducted by central banks.

Should the definition be set higher? This has been proposed by some economists, e.g. Olivier Blanchard, at 3 percent or even more, and the argument is to provide a bigger safety margin to avoid the risk of deflation in the event of a big shock, such as the financial crisis of 2008-2009. In my view, there are two serious objections against moving in that direction. On the one hand, the experience of the 2000s shows that above a level well below 3 percent, around 2.5 percent probably, in the euro area, the behaviour of businesses and consumers changes and they start to incorporate inflation into their economic choices and decisions. As a result, the risk that inflation moves higher and requires strong action by the central bank increases to the extent that it can damage potential output. And, around that level, the general public starts to feel that the central bank is not providing price stability. On the other hand, it seems strange to set a higher target when inflation remains persistently lower and you are desperately trying to move inflation upwards towards your objective: this would be detrimental to credibility.

Should the definition be set lower? This was proposed by Jacques de Larosière in particular, with the observation that there may be clear reasons why inflation is persistently languishing below 2 percent, in particular the structural effects of globalisation and population ageing in developed economies. That would explain why all the efforts of central banks via extremely loose monetary policies have not yielded the desired results, whereas the negative side effects of such policies tend to increase over time. The argument is that if the objective were changed to 1 or 1.5 percent, it would correspond to a natural pace of inflation in the present context, and therefore be easier to attain for central banks without the need to conduct extreme unconventional policies over a long period of time. Two other arguments could be added to support this view: if the measurement bias does not exist, or is likely to be very small, or perhaps reversed, then setting the objective at 1 or 1.5 percent might fit better than "close to 2 percent." And if we observed over several years, a situation where inflation or core inflation is more or less stable in the range 1 to 1.5 percent, with growth and output close to potential, then the economic rationale of defining price stability at between 1 and 1.5 percent might be strong.

Nevertheless, I believe that there are strong arguments for not changing this numerical reference of 2 percent. First, there is a problem of credibility with changing the definition of price stability, and therefore your target. If you change once, what would prevent you from changing twice, or even several times? That is especially true in times when the central bank has difficulties in reaching its objective, and could therefore be seen as changing it to reach its goal more comfortably. The risk of a loss of credibility is huge.

Second, the lack of a strong rationale. At the moment, we do not understand why inflation is so low: there are partial explanations, such as globalisation, population ageing, or technology, but no comprehensive answer. Some of these forces, like globalisation, with its direct effects on the prices of imported goods, and indirect ones on wages, might come to a halt or fade away over time. There is also a mystery about technology. We see it everywhere – except in the statistics. It is not impossible that we are not measuring it properly, and underestimating productivity growth, and that this hidden productivity growth is exerting a downward pressure on inflation.

All those questions lead to a third argument against changing it: the question of consistency over time. If the phenomena that are currently pushing inflation down are reversed over time, the ECB might have to change its definition again over time (to move it back to where it was) with an increased problem of credibility.

Is there room for clarification?

The question is therefore whether, without changing the mandate, or changing much of the interpretation, there is room for a clarification that could give the Governing Council more leeway to withstand the present period of prolonged low inflation.

The fact that the objective of price stability is to be pursued in the medium term already provides some flexibility and allows us not to overreact to external shocks. The same can be said of the expression "close to" that does not specify a strict limit for deviations from (below but close to) 2 percent. Still, there are several possibilities that warrant consideration, even if none of them appears to be an obvious and totally convincing solution.

The first possibility would be to specify clearly a range within which the Governing Council would feel comfortable in accepting deviations over the cycle, while reaffirming that the objective is unchanged in the medium term. For instance, in a situation where inflation remains lower than the objective despite a very accommodative policy, it might be easier to communicate on the need to be patient, and explain that the right policy is to keep a high degree of accommodation, but not to seek a continuous increase in the degree of accommodation. But the choice of a range might not be easy, as it should be large enough to accommodate normal fluctuations, and that strong external shocks could always create short-term deviations beyond the range. We could choose a range of 1 to 3 percent, although 3 percent may be considered as very high in some countries. Or 1 to 2.5 percent, with the risk that markets might consider that the central point is 1.75 percent and that the ECB has lowered the objective compared to their previous interpretation.

The second possibility would be to drop the term "below," and simply interpret price stability as being "close to 2 percent." That would, once and for all, put an end to the discussion about an alleged asymmetry, and might eventually give paradoxically a little more leeway in the event of persistent deviations, since the "close to" could no more be interpreted by markets as meaning precisely 1.99 percent. Such a move could also be combined with a range, with the same difficulties as previously discussed, if the range is 1 to 3 percent. An alternative would be 1.5 to 2.5 percent, but that seems very tight for normal fluctuations over the cycle, and could expose the ECB to pressures for policy actions much too often.

The last idea, which is currently being put forward in some circles, would be to move to a multi-year average, or to targeting an absolute level of price developments in the long term. I see some serious risks in going in such a direction, since it would oblige the central bank to compensate exactly for deviations even if they came from external shocks, and trigger in turn internal shocks to the economy. To illustrate this, suppose that due to a succession of crises, e.g. financial crisis, pandemic crisis, etc., the average level of inflation over a decade stands at 1 percent, the central bank would have to seek an average inflation of 3 percent for the following decade, triggering all the risks associated with the reaction of economic agents to a perceived too high inflation. It would then have to force inflation back to 2 percent, probably having no other choice than to adopt an extremely tight monetary policy during a sufficiently long period of time to restore its credibility. And the opposite would be true, i.e. if external shocks trigger an inflation that is higher than the objective, the central bank would need not only to push it back to the objective, but lower in order to compensate. And contrary to some comments by Fed watchers, I do not interpret the concept of patience expressed by the Fed as meaning it would seek to target an average or an absolute level, but as a need for flexibility around 2 percent in order to better anchor the objective in the public and in financial markets.

In conclusion, any change has to be weighted with extreme caution!

Jordi Galí, CREI, Universitat Pompeu Fabra, and Barcelona GSE

Remarks on Four Changes in the ECB Strategy

Good morning. Thanks a lot, President Weidmann, for your kind introduction. It's a pleasure to be back at this event.

The outline of my presentation is straightforward. I will just go over a list of four changes in the ECB strategy that I think are warranted. The four changes are ordered from less to more controversial, as I perceive them. Here is the list:

1) Adoption of a symmetric inflation target
2) End of the two-pillar structure
3) Adoption of average inflation targeting
4) Adoption of a higher inflation target

Why a symmetric inflation target? I think it's pretty hard to make a case for the current asymmetry in the "below, but close to, 2 percent" formulation of the ECB inflation target, and for the downward bias that it implies for inflation. I think the experience of the past decade with very low inflation and a policy rate close to or at its effective lower bound (ELB) over the more recent period has made it clear that low inflation can be at least as problematic as high inflation. On the other hand, I don't think there is an obvious drawback for adopting a symmetric target. In practice, the ECB seems to have made decisions in a way consistent with such a symmetric target. Given the current circumstances in which inflation has been persistently below the 2 percent target, an announcement of a symmetric target going forward could only help raise inflation expectations, even though the impact is likely to be marginal. In addition to a symmetric target, I think the ECB should consider the adoption of a (symmetric) target band. The latter would make precise what is meant by inflation "being close to" the chosen numerical target. Currently, this is not the case, which prevents an external observer from judging whether the ECB is meeting its objective or not at any point in time. Again, I don't think the adoption of a target band would make much difference in practice, but it would render the ECB target more transparent and facilitate its accountability.

Let me turn to the second change I propose, namely, the elimination of the two-pillar structure of the ECB strategy. The existence of the monetary pillar that may have been justified in the early years on the grounds of continuity with the practices of the Bundesbank, a central bank that had a solid reputation at that time. But after two decades, the ECB has established a very good reputation on its own. I don't think these legacy issues should be a consideration anymore. Furthermore, the monetary pillar was introduced on the grounds that there is a fundamental direct relationship between monetary aggregates and the price level. According to that view, a central bank that aims at stabilizing prices must necessarily stabilize monetary aggregates to attain that goal. I think this view is over-simplistic. Modern monetary theory certainly doesn't endorse a direct link between monetary aggregates and the price level. Instead, monetary policy affects prices only indirectly, through its effects on aggregate demand, output, employment, marginal costs and, eventually, the pricing decision of firms. There is no direct link whatsoever between monetary aggregates and the price level.

Now, in practice, I don't think the existence of this monetary pillar has been harmful in a significant way. I don't have time now to elaborate on this. I have a paper[1] that was published in 2012 called "The Monetary Pillar and the Great Financial Crisis," published in an online volume edited by the ECB, in which I make the case that despite the large fluctuations in M3 growth, no significant monetary policy decision taken during the financial crisis or earlier hinged in a significant way on those monetary developments. On the other hand, the monetary pillar may have been a "distraction": given its central role in the formal definition of the strategy, the ECB felt compelled to justify the deviations of monetary aggregates from their reference trajectory, having to rely on a variety of ad-hoc factors, even though those deviations were arguably irrelevant for any developments in the real economy.

[1] *Galí, Jordi (2012): "The Monetary Pillar and the Great Financial Crisis," in The Great Financial Crisis: Lessons for Financial Stability and Monetary Policy, European Central Bank, 74-95.*

The review of 2003 both broadened the content of the monetary pillar, while downplaying its reference value. In particular, it put more emphasis on financial indicators and the study of the components and counterparts of M3 rather than M3 itself. Variables like the growth of loans to households and firms are important indicators that the central bank should follow and monitor closely, especially to the extent that they have been shown to be early warning signals for financial crises. From that point of view, it is important that the central bank monitors those indicators. In the case of ECB, this is particularly true given its role in the monitoring of financial system vulnerabilities. Yet, from the point of view of monetary policy proper, I think those financial indicators can be subsumed in the so-called economic analysis, as indicators that provide evidence on likely evolution of aggregate demand and hence on output, employment, costs and eventually on prices, as it is the case for other variables, e.g. business confidence indexes or the evolution of energy prices, that the ECB monitors continuously.

Finally, I think it's very important to note that any formal or informal bounds on the evolution of monetary aggregates could impose undesirable constraints on the asset purchase programs currently in place, since those programs, generally viewed as highly desirable in order to avoid the fragmentation of euro area financial markets, can potentially imply large fluctuations in monetary aggregates.

A third change I would propose is the adoption of some form of average inflation target, whereby in the face of a persistent shortfall of inflation from target, the central bank should aim at overshooting the target for some time. Average inflation targeting (AIT) is an interesting idea. It has been shown to have very nice properties in our theoretical models. One may interpret it as a way of formalizing forward guidance, thus reducing the uncertainty about the intended outcomes of the latter.

I think it's important if some average inflation targeting AIT strategy is adopted that this is done in a way as informative and transparent as possible. I don't think the Fed's recent announcement was very successful in this respect. So let me mention some desirable features that, in my opinion, an AIT strategy should have and that should be made explicit at the outset if that strategy is adopted. First, I think the ECB should make clear that this AIT strategy would be asymmetric, in the sense that it would not aim at lowering inflation below target after a period in which the inflation has overshot the target. Among other things, this would not be credible: No one believes that the central bank would engineer a recession just to make up for inflation having overshot the target in the past. Secondly, I think the AIT strategy should be "double-contingent." Firstly, it should come into effect only when the ELB is binding; otherwise the ECB should just pursue a conventional flexible inflation targeting strategy, letting bygones be bygones. Secondly, the policy rate should remain at the ELB until average inflation remains above the target over a specified period of time and/or by a given (cumulative) amount. Both benchmarks could be specified as function of the duration and/or size of the previous undershooting. In the absence of these clarifications, I think the adoption of AIT is bound to have very little impact, as it has been the case with the recent Fed announcement.

What are the weaknesses of an AIT strategy, if any? A first limitation is that it hinges critically on anticipation effects, which work well in our theoretical models, but it's not so obvious that they would work so well in practice. Secondly, it requires near-surgical capabilities from the central bank in order to steer inflation towards the desired levels. Given the flatness of the Phillips curve, that requirement might raise some doubts about the ECB's ability to deliver its AIT-related commitments. From that viewpoint, I think it is clear that there is a trade-off between how specific are the details of an AIT strategy, and the central bank's ability to implement it successfully, with the consequent credibility risks. Choosing a suitable degree of detail in the specification of the AIT strategy may thus prove as important as the decision to adopt it itself.

The final modification to the ECB strategy that I would

propose is the adoption of a higher inflation target. From a theoretical point of view, the adoption of a higher inflation target is a logical consequence of a permanently lower r*, the real interest rate consistent with a long-run equilibrium with full employment and inflation at its target level. If the ECB believes that r* has gone down as a result of factors independent from monetary policy, as it has recognized repeatedly, the case for a higher inflation target is very hard to avoid. If the inflation target remains unchanged, the average nominal interest rate will be lower than it has been historically, and the incidence of binding ELB episodes will increase accordingly. Of course, that implication has to be counterbalanced with the costs of the higher average inflation that would presumably accompany the adoption of a higher inflation target.

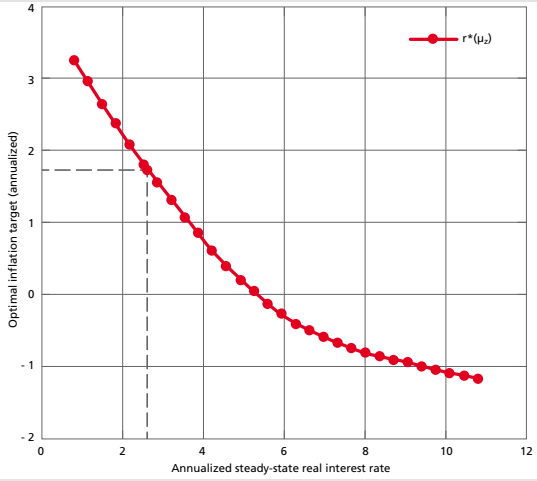

Figure 1: r* and the optimal inflation target. Source: Andrade et al. (2020)

Let me show you a picture (Figure 1) from work in progress with Philip Andrade, Hervé le Bihan, and Julien Matheron based on the welfare analysis of an estimated DSGE model for the euro area[2].

The figure displays the optimal inflation target (vertical axis) as a function of r* (horizontal axis). The dashed vertical line marks the estimate of r* before the financial crisis, a value slightly above 2 percent. Note that the implied optimal inflation target delivered by the model corresponding to that value of r* is below but close to 2 percent, which happens to be consistent with the ECB target. As you can see, if we allow r* to go down to, say, 1 percent, that implies an optimal inflation target of about 3 percent. The near one-for-one relation between the two variables implied by our analysis for low levels of r* suggests that the costs of marginally higher inflation are small relative to the benefits of having more policy space in order to respond to adverse shocks.

Of course, the problem with a higher inflation target is the transition, especially given the persistent undershooting of the 2 percent target over the past few years. Thus, an announcement today or in the near future of a higher inflation target may be little credible.

In my view, transitional considerations should not be an impediment to the adoption of a higher inflation target if the latter is viewed as desirable in the absence of those considerations, i.e. if the strategy was to be designed from scratch, with no history record. In that case, the ECB could time the adoption of a higher inflation target on the basis of two principles: gradualism and opportunism. Gradualism means that the ECB could announce that it may be open to consider the possibility of revising the numerical inflation target upward, due to the decline in r*, sometime in the future. Opportunism comes into place through the adoption of that higher target at a time when inflation has been persistently above the current target and closer to the new desired target. Given that the

[2] *Andrade, Philippe, Jordi Galí, Hervé le Bihan and Julien Matheron (2020): "Should the ECB Adjust its Strategy in the Face of a Lower r*?," work in progress.*

change would have been announced earlier, there should be no suspicion the ECB is trying to manipulate the target to match current inflation.

Let me conclude. I have put forward four elements of the ECB strategy that are worth reconsidering: the asymmetry of the target, the two-pillar structure, the specifics of the inflation targeting strategy and the numerical target for inflation. Other central banks that have undertaken strategy reviews like the one that the ECB is undertaking now, have preempted discussion on certain aspects of the strategy by treating them upfront as being off limits. I very much hope that this is not the case for the ECB. Furthermore, it is important that all the key elements of the new strategy are properly justified and explained, independently of whether they have been changed or not in the context of the current strategy review.

Helmut Siekmann, Institute for Monetary and Financial Stability

The ECB's Mandate: Does It Need to Be Modified to Be Fit for the Future?

My talk will not paint the big picture of the present and future role of monetary policy but rather concentrate on the ways and means of a modification and its (legal) limits. The big picture should be left to the economists who can much better integrate all aspects in a beautiful model and are free to develop new ideas without the nasty little restrictions of the various legal systems. Before deliberating a modification of the ECB's mandate, it is essential to clarify the starting point, the present-day understanding of the ECB's mandate. In view of the far reaching discord on the legality of the asset purchase programmes of the last years, it has basically to be an abstract of the legal limits of the Eurosystem's (Article 282(1) TFEU) tasks, objectives and competences. In the second section a short look will be taken on the highly controversial question of how much leeway should and may be given to the Eurosystem in defining its competences and objectives. This statement will be followed by some thoughts on the yardstick to be applied for giving an answer to the topical question. The concluding remarks will be devoted to the increasingly advocated "average inflation targeting" and the proposals for a monetary financing of sovereign deficits.

The ESCB's Competences

The so-called mandate of the ECB, or rather more precisely: of the European System of Central Banks (ESCB), has been an object of fierce legal dispute, mainly triggered by the asset purchase programmes of the Eurosystem. Although a fundamental discord could be recognized among economists and a few other academics the focus of the controversies was eventually on legal questions. The different opinions on the concrete substance of the tasks, objectives and competences of the ESCB finally lead to several diverging judgments of the German Federal Constitutional Court (GFCC) and the Court of Justice of the EU (CJEU). The apex was allegedly reached with the outright refusal of the German Court to follow the directions of the (preliminary) ruling of the Court of Justice on the Public Sector Purchase Programme (PSPP) in May of this year.

A transgression of competences by the Eurosystems's outright purchases of public sector debt evolved as the most controversial issue. In the course of the debate, volume and timing of the purchases gained an increasing role in judging it as either monetary policy, an exclusive competence of the EU, Article 3(I) lit c TFEU, or economic policy, left to the Member States, Articles 119, 127 TFEU. Nevertheless, the CJEU dismissed without reservation all concerns of the German Federal Constitutional Court in its referral decisions as unfounded. It did not see a transgression of competences nor a – prohibited – monetary financing of government deficit and judged both the OMT and the PSPP as in conformity with EU law. In its ensuing final judgment on the PSPP, handed down on 5 May 2020, the German Court stated in addition to its prior legal concerns on the actions of the Eurosystem a clear transgression of tasks and competences of another organ of the EU; this time of the Court of Justice. In its opinion, the Court of the EU bluntly failed to properly review the legality of the purchases and to question sufficiently the facts presented by the ECB.

According to its ultra vires judicature, these twofold violations opened the door to ist own review of acts of the institutions and organs of the EU normally reserved to the European Court. In the course of its own review of European Union law, the Court saw a violation of the fundamental principles of conferral and proportionality, Articles 4(1) and 5(1) TEU. The recourse to the principle of proportionality, however, is highly questionable in the context competences but allowed a flexible answer to the opinion of the European Court.

The Softening of the Rules Distributing the Competences Between the EU and Its Member States

Almost relentlessly, the representatives of the ESCB like to reiterate that they are acting "within their mandate." This is nice to hear but of little significance since the term "mandate" is a "weasel word." It is not part of the language of the primary law which is considerably more precise and differentiated. By employing it, the delineation of tasks and competences is already blurred and the question quis

judicabit gains additional weight. The CJEU has further diluted the legal rules on the distribution of competences by conceding a wide margin of discretion to the ESCB in deciding on the limits of its competences. Thus, the institution affected decides almost autonomously on the scope of its competences. The strict rules of the primary law turn into non-binding guidelines lacking widely judicial control.

Such an interpretation is hardly compatible with the intention of the framers of the Treaties to install a clear cut distribution of competences between the EU, and the Member States. In addition, the requirements of the democratic principle and the principle of (limited) conferral, which are all fundamental to the primary law of the EU are jeopardized. Moreover, the crucial stability of the institutional order of a multi-level organization like the EU is severely endangered.

The principal objective of the ESCB is to maintain price stability. Its exclusive competence is confined to monetary policy. Without prejudice to this goal, it may or – perhaps – should support the economic policy of the competent authorities. From this follows that it is not allowed to pursue its own economic policy including fiscal policy. The rationality of this delineation has been frequently attacked from various sides but it is the law of the EU and has to be obeyed no matter how dysfunctional it might be judged by economists.

The attempts to widen the domain of monetary policy at the detriment of economic policy, not least in view of future needs, are legally questionable. Even more questionable is an oscillating interpretation of the term monetary policy corresponding to the respective political goals pursued. Such a situation-oriented understanding almost at will can, however, be noticed in the judicature of the CJEU with a narrow delineation in Pringle and a wide interpretation in Gauweiler (OMT) and Weiss (PSPP).

The same holds for the understanding of the term "price stability." If it is extended to cover almost any inflation rate, the financial stability, the stability of institutions including the banking systems, and the prevention of recessions, the ESCB could pursue almost as wide an objective as the Federal Reserve System. This is, however, based on a distinctively different legal setup with different statutory goals.

The Applicable Yardstick

The necessity of a modification of the ECB's "mandate" hinges in principle on three variables: Firstly, the present delineation of the "mandate," basically a legal assessment, secondly, a normative economic evaluation of central bank tasks, and thirdly, a forecast of future needs. An abstract appraisal of what central banks can and should achieve is not part of my talk. The same holds for the forecast which is by its nature rather unreliable. If the economic analysis, however, leads to the advisability of a modification of the present "mandate," the legal assessment depends to a large extent on the understanding of the objectives, tasks, and competences of the Eurosystem as laid down in the primary law of the Union.

On the basis of the wide understanding as described above, leaving the result in principle to the discretion of the ECB, a modification of the legal framework would hardly be necessary to be fit for any future requirements. On the basis of a stricter understanding of the distribution of competences and its effective control by the judiciary, an amendment of the Treaties would appear to be indispensable. It seems to be safe to forecast strong objections of the German Federal Constitutional Court if it follows its present line of judicature.

New Interpretation of Price Stability and Prohibition of Monetary Financing

Specifically, a restatement of the term "price stability" as an average over a specific period of time defined autonomously by the central bank would be questionable from the legal

point of view. As regards the democratic principle, it is already hard to accept that a numerical limit for an aspired inflation rate with its ramifications for almost everyone is set autonomously by an executive body, like the ECB or the ESCB. In some countries, this decision was even regarded as so crucial that it had to be set by the representatives of the people. In conformity with this view, the primary law of the EU does not acknowledge the setting of an inflation target, not least by an executive body. The term "inflation" is totally foreign to the relevant clauses of the primary law. The ESCB is strictly bound to the maintenance of price stability and not to pursue an inflation target, no matter what numerical value is attributed to it.

Following this line of legal arguing, not only inflation targeting of any kind, but using an average inflation rate as a yardstick even more fails to comply with wording and rationale of the primary law. In the German legal literature at the time of framing the law, price stability meant 0 percent inflation as a target but usually accepting a fairly wide band of numbers as an outcome but not as a goal. It would have to be doubted that the GFCC would accept a switch to such a different regime of measuring consumer price inflation in employing monetary policy or an outright "average inflation targeting" without a treaty change.

Monetary financing of sovereign debt appears to be a viable, almost costless solution of budgetary problems, specifically in time of need. In effect, already the present asset purchase programmes without a defined exit come close to a monetary financing. From an economic point of view they could be consolidated with the sovereign debt of the Member States whose currency is the euro. If this strategy is advisable plays a major role in the economic debate. Even in an environment of real and nominal negative interest rates, it is not sure that the benefits outweigh the costs. Four concerns have to be considered: Firstly, the central bank policy might be dominated by fiscal policy and thus loses its independence. Secondly, the role model of the Bank of Japan casts doubts whether such a policy is suitable to attain the aspired goals. Thirdly, the monetary financing might in the end turn out not to be costless imposing high social and economic costs in a medium range. Fourthly, the distributional aspects are often not regarded sufficiently.

From the legal point of view, it is still the common understanding of Article 123(1) TFEU that it prohibits monetary financing of government deficits. However, Article 127(5) TFEU might serve as a backdoor to the legality of monetary financing in the present situation. The clause allows a contribution of the ESCB to the policies pursued by the competent authorities. The clause restricts the ESCB to an ancillary role, a mere support of the implementation of decisions elsewhere taken, and prohibits an autonomous policy of the ESCB outside monetary policy.

A very wide interpretation of these prerequisites might open the door to some extent. But in substance the allowed contribution is confined to supervisory policies and the stability of the financial system. This obstacle can hardly be overcome to allow general monetary financing even in the time of crisis. Since the clause is lex specialis, and hence the only way for a (limited) transgression of monetary policy, all other sideways or backdoors are closed by it.

Q&A: The ECB's Mandate: Does It Need to Be Modified to Be Fit for the Future?

Jens Weidmann: Thank you very much. Before we start with the lead questions, I'd like to give the panelists a chance to react to what they've just heard.

Christian Noyer: I believe that the three presentations were relatively clear and the differences were quite easy to find out. On Professor Siekmann's presentation, I understand it's something that is felt by many Germans and that's of course important given the importance of the country in the Eurozone.

Apart from the purely legalistic, on which the French have always difficulties to understand why a constitutional court can decide on the interpretation of the Treaty or may decide against the European Court of Justice, which was created by the Treaty by agreement precisely for that, personally, I felt that the judgment by the European Court of Justice was well-balanced.

On the more economic part, if the ECB is confronted, as it has been, with a situation where the actual inflation is persistently, during a decade, very far from the objective – whatever the exact definition is – and confronted with an enormous shock, and interest rates are put in negative territory and we know that it's already starting to be counterproductive in terms of transmission, if you don't do asset purchases, you would have to push them -2 percent to have the same effect or maybe more, we don't know. That's probably a territory where you would have adverse consequences and there is no way the central bank could achieve price stability, whatever the precise definition is. Then if you come to negative territory and you cannot push short-term interest rates further, what are the instruments you may use? Well, move to acting on the shape of the yield curve. How do you do that? Where are the liquid assets, those that will influence the yield curve of all assets and also credit? Unfortunately, the only way maybe is the pool of public assets that you can purchase.

Of course, the members of the Governing Council have been very conscious that it was delicate because of the interdiction of monetary financing so the ECB set up limits and rules to make sure that it would not distort things. Otherwise, if you cannot act on the shape of the yield curve, also if you cannot act on limiting the disruption – like with the Pandemic Asset Purchase Program –, imagine that in Germany at some point in the old times before the euro, you would have had interest rates set up by the Bundesbank at 2 percent. The interest rates in part of the federal states would be in line with that at 2 percent, 2.5 percent, 3 percent or not far from that. In other Länder, the interest would have been 10 percent, 15 percent or 20 percent.

So there would be absolutely no transmission of the policy of the Bundesbank. Do you think that the Bundesbank would have said, "Well, it's bad luck. Part of Germany is moving into deflation and recession but we cannot do anything." No. I'm sure they would have reacted differently because they would have been confronted with an absence of transmission of their policy and the key risk is to miss the objective of achieving price stability. There does not need to be exactly the same numerical number in all federal states but differences limited in a reasonable, balanced way. When a central bank is confronted with a situation like that – between the imperative that you must achieve price stability and the difficult choice of instruments – in my view, it is legitimate to choose to try to achieve the objective as the ECB did.

Jordi Galí: Just a quick comment on Mr. Noyer's reference to the possibility of a changing behavior by the economic agents if inflation was to remain above 2 percent. I think it's very much a quantitative issue how much higher than 2 percent. The empirical evidence that we have, particularly the one that focuses on the behavior of pricing decisions of firms, suggests that for ranges below 4 percent and so on there's no significant difference. It's only when inflation has risen around 7 or 8 percent or above that we observe substantial changes in behavior. From that point of view, having an average inflation rate of around 3 percent would not have a substantial impact in terms of the behavior and perception of economic engines. That's my perspective.

Helmut Siekmann: In my view, the asset purchase program as such is not illegal. It depends on time and volume and on the objective you pursue. For taking care of structural differences inside the currency area, you have a fiscal policy, you have the instruments of equalization, and we have also several instruments on the European level and that's not a part of the objective and the tasks of the monetary authorities, to my view.

Jens Weidmann: Thank you very much. Now I'd like to turn to the lead questions, please.

Thomas M.J. Möllers: I'd like to stress a formal question. The president of the ECB, Mrs. Lagarde, mentioned that the ECB is in a phase of "listening and reflection." Is it just a new style because she's the very first lawyer in office as ECB president, or is this part of a legal question? The Federal Constitutional Court of Germany declared in the PSPP decision that the decisions of the ECB must comply with the principle of proportionality. Third parties such as the European Court of Justice have control the compliance with this principle.

Furthermore, is it necessary that the ECB will change the structure of justification or reasoning of their decisions, elaborating more on the pros and cons of the specific decision in relation to alternatives? For instance, is the consumer price index still sufficient to measure the relevant inflation rate or is the asset price index, including real estate prices or shares of the stock market, the better criterion?

Christian Noyer: I must say during my life as a central banker, I've been confronted hundreds of times – and I'm sure all my colleagues had exactly the same – with the question by varied audiences. We were not always speaking to market players but also to larger audiences and the general public and they perceive, in general, that inflation is higher than we measure it.

The question of housing is important but a limited question. It's only the part of owners' housing costs that is not taken into account and there are ways to include it, at least partly, but that's a refinement of the index, which would not be a big change.

The problem is, more generally, that what the general public are looking at is the price of goods they buy every day. What do they buy every day or every week? It's gasoline, it's coffee in a coffee shop, it's food, especially fresh food, et cetera. Those prices have tended to move higher and they are very volatile.

People are very angry when the price of oil or gasoline comes up. When it goes down, they are not speaking loudly so we have to explain that and that's a perpetual challenge. Should the Governing Council explain to the general public, why it's using which tool? It's difficult of course to explain in detail why you think you need a certain tool. Interest rates is something the general public understands more easily.

If I were a member of the Governing Council today and I heard the question about asset purchases, I would probably say to the general public, "You may not be happy that interest rates are so low and your savings are yielding so little. Imagine that if we were not doing those asset purchases, that, in effect, created downward movement on long-term yields, which are parts of your savings admittedly but otherwise, for your short-term saving accounts, we would have to push interests down to -1, -2, or -3 percent, so it would be much worse." We need to do that to avoid to go into deflation and see horrible developments like before the Second World War. This is a kind of argument the general public may understand.

Jens Weidmann: We actually do explain to the general public why we choose specific instruments over others and what their effects and side-effects are. It's just a different tone that is needed to explain it to the general public compared to a more specialized audience.

Elga Bartsch: More than a marginal change in the mandate, the ECB needs to meet its current one. In the face of a

negative level of r-star, inflation expectations firmly stuck below the objective and a deep COVID recession, are the chair and the panel concerned about eroding policy space threatening ECB independence?

Jordi Galí: It is clear that the current situation poses a challenge to the ECB to the extent that the inflation target remains unmet for many years. This may call into question its credibility, and of course, this is something that affects not only the ECB but many central banks around the world, which are in the similar situation. It's not specific to the euro area. It's worrisome and I think that central banks and the ECB, in particular, are making a great effort to overcome the current situation.

I don't see how this could lead to questioning the independence of central banks because it's not obvious to me that a dependent central bank would act more differently, especially given the current mindset of policymakers in terms of the desirability of a stable economy. I don't think that's the case. It's true that some of the decisions and policies that central banks are adopting have effects that have an impact on income and wealth distribution.

It's only natural that the public wonders why unelected officials can make such decisions that affect not only the unconventional monetary policies but also changes in interest rates, which have a distributional impact. This calls for strengthening the need to explain why those decisions are made and the benefits they bring about for the society as a whole in terms of microeconomics stability. That's the message that should be conveyed.

Jens Weidmann: I couldn't agree more, Jordi. That brings us to the question from Jörg Zeuner.

Jörg Zeuner: Professor Siekmann said that it was not worth looking at the Fed because it was ruled on a different legal basis. I would nevertheless put the discussion about the mandate and the strategy of the ECB in the global context and then it's worth looking at the Federal Reserve. When I look at what's happening around the Eurozone I see interest rates falling to zero, very firmly anchored at zero, major central banks moving to unconventional policies and revising their targets. We're seeing the effect on the euro exchange rate and following that on the inflation numbers in Germany and Europe and the Eurozone as a whole. This worries me because, as President Lagarde said, there are a number of structural forces in the Eurozone relative to the rest of the world, perhaps even stronger, that are working against inflation. I would be interested in the panel's view on how many degrees of freedom does the ECB actually have in revising its mandate?

Isn't it being forced into pushing up the inflation target while at the same time we have structural forces here that may be stronger than elsewhere making the problems of ECB monetary policy in the future and the credibility of these policies more difficult? Aren't we setting ourselves up for disappointment here, especially when we are restricting monetary policy instruments on a legal basis further and further? In particular those instruments that are the ones left flexible and open in other major monetary policy areas like the United States where asset purchases is exactly the part of monetary policy that is not being tied down but left open. Do you see those risks? Aren't we setting ourselves up, unless we start talking about exchange rate policy, but that was not a topic today. Nobody brought it up as one of the areas for a new mandate of the ECB.

Christian Noyer: Comparing the ECB with the Fed with today's mandate and looking at the last strong declaration of policy of the Federal Reserve and its president, one thing the ECB could not say is, "We're going to give prominence to full employment." That would be outside the mandate and clearly outside the Treaty and that's impossible.

The ECB has probably the possibility of saying something like, "We want to move to price stability," whatever the exact definition, and "We want to be sure given the long period of time we've been undershooting our objective because of shocks coming from outside," which you can

explain. "Once we are there, we want to be sure that we are firmly anchored around our objective, and then we will be patient before we actually move policy too much," letting understand that around 2 percent can be slightly above or slightly below, but something not very far from what the Fed said on the price stability objective.

Jordi Galí: As long as we do not adopt the very strict definition of the price stability mandate as suggested by Mr. Siekmann, the ECB has a good amount of flexibility, the same it had in 1998 when it designed its strategy and when it established the quantitative objective for inflation.

That freedom or flexibility should be the same that it back then. If for legal reasons or legal considerations the ECB is to have less flexibility than other central banks in the advanced economies with respect to serve their unconventional monetary policies and so on, that would be very bad for Europeans.

Helmut Siekmann: I would like to clarify that asset purchases as such are not illegal. They are perfectly legal instruments, but my doubts are on the objective that is pursued with it, and to try to achieve a certain inflation rate is not clearly founded in the primary law. There's no way to find inflation as such and inflation targeting. This is not what is written in the primary law.

The second point is how much freedom may you leave to an executive body to define its own competencies, objectives, and tasks. That is the crucial point. The central bank independence is guaranteed to a very large extent, and I think it was well done to do it, but this also has to be confined to a very close task and competencies.


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Pablo Hernández de Cos, Governor, Banco de España
Introductory Statement

After discussing the ECB's mandate in the first of today's debate, we are now moving to another very important subject that has of course received also a lot of attention over the last years in general, that is the ECB's instruments for crisis and normal times.

It's obvious to everybody that the great financial crisis a decade ago has enlarged the ECB toolkit with new policy instruments including for sure asset purchases, lending programs, negative rates or forward guidance, among others. The outbreak of the pandemic this year led the ECB to even step up some of these tools, for instance by introducing the Pandemic Emergency Purchase Program and by introducing changes in others. Of course, there are many questions related to these instruments that need to be addressed, e.g. how effective these instruments are, how they have enforced each other, what the potential side effects are or which of them will become or should become part of the ECB's toolkit in normal times. I am pretty sure that our colleagues in the panel will try to answer all of these questions.

Let me just briefly introduce our three speakers. We have Lucrezia Reichlin, who is a Professor of Economics at the London Business School, Athanasios Orphanides, who is, among other responsibilities, a Professor of the Practice, Global Economics and Management at the MIT Sloan School of Management, and, last but not least, Claudio Borio, who has been leading the Monetary and Economic Department at the Bank for International Settlements over the last seven years.

Lucrezia Reichlin, London Business School

Non-Standard Monetary Policy Instruments: Effectiveness and Risks[1]

1. Introduction

Since the 2008 crisis, all central banks have expanded the instruments through which they conduct monetary policy beyond the conventional one of the setting of the short-term interest rate.

These new tools – which we call "unconventional" – have now become conventional. The balance sheets of central banks are large by historical standards and used proactively for both financial stability and monetary policy objectives.

Many questions are relevant for the ECB strategy review and, beyond that, for central banks in general. Do these policies only work in exceptional circumstances when financial markets are disrupted or should they be considered part of the regular toolkit of monetary policy? Do they act as a complement to conventional interest rate policies or should they be thought of as a substitute for those policies when the interest rate reaches the effective lower bound? What are their channels of transmission to the economy? What undesirable effects do they have – e.g., in terms of financial stability or market distortion?

In addressing these questions, we should recognize that the consensus on which much economic modelling and policy prescriptions are based has changed. This is the result of changed economic circumstances and of the experience of the last twelve years in fighting multiple crises. We used to think that financial frictions were small and the efficient market hypothesis a reasonable working approximation. Consequently, mainstream thinking was that financial quantities in general (and the size/structure of the central bank balance sheet in particular) were irrelevant. Today it has become increasingly clear that financial imperfections are pervasive and not only in times of crisis. This opens up transmission channels for balance sheet policies which were thought of as being absent on the assumption that arbitrage opportunities in financial markets would neutralize them.

The important lesson of the last decade is that, when the economic context changes, policy needs to be creative and reactive. Evidence shows that the equilibrium interest rate has been declining historically and that the forces which have driven it down are likely to remain powerful. There has been a growing preference for safety which is likely to persist in the future due to increasing uncertainty, demographic changes and large legacy debt. New risks are emerging related to technological transformation, climate change and associated mitigation policies as well as the pandemic and the complex relationship it has unveiled between health and economic activity.

As a consequence, the likelihood of reaching the zero lower bound has increased and with it the need to be innovative in the instruments to be used to achieve monetary policy objectives.

Moreover, the great increase in public debt has created a situation where the interaction between fiscal and monetary policy is more visible and material for price stability. The discussion about the relationship between monetary and fiscal policy and the balance between independence and coordination has become more important.

The world of the 1990s – with Chinese walls between monetary and financial stability/liquidity policy and between monetary and fiscal policy – is gone and will not come back. This is a new reality which has to be recognized.

Given this context, we need to understand what works and why. I will briefly address two questions. First, what is the quantitative evidence on the effectiveness and the transmission mechanisms to the economy of balance sheet policies and other so-called unconventional monetary policy instruments? Second, what are the risks involved and how can we manage them?

[1]This short paper is an extended version of my panel intervention at the conference "The ECB and Its Watchers" and at the virtual ECB Forum on Central Banking 2020. Although I refer to a large literature, I do not attempt to review and cite it systematically.

2. Effectiveness of Non-Standard Monetary Policies

We can categorize different types of unconventional monetary policy instruments according to the rationale for their use.

The first type is central bank intermediation when financial markets seize up ("market maker of last resort"). This type of intervention is complementary to conventional short-term interest rate policy and can be defined as "passive" in the sense that the central bank's balance sheet size increases endogenously as a consequence and not because there is a target size in relation to a price stability objective.

The second type are measures designed as alternatives to conventional interest rate policy when the short-term interest rate has reached the Zero Lower Bound. Once the scope for conventional monetary easing (i.e., lowering the level of short-term interest rate) is exhausted, asset purchase programs are alternative measures to ease the financial constraints faced by the private sector. These policies are therefore seen as a substitute for standard policies and can be defined as "active" because the central bank acts deliberately to change the size of its balance sheet. This type of intervention is aimed at lowering yields on safe assets, pushing investors further along the risk and maturity spectra. They address the macroeconomic implications of crises.

Forward guidance and negative interest rates could be identified as further categories of unconventional monetary policy. However, they are complementary to asset purchases as they act on different parts of the yield curve (indeed, the ECB has stressed their complementarity) and for the purposes of this discussion they can be considered as part of the same category of intervention.

In the euro area the first type of policy prevailed in the years following the financial crisis. Examples include the LTRO program implemented in 2008-2009: the central bank effectively replaced the inter-bank market by making special loans to banks at fixed rate and in full allotment. The central bank's balance sheet expanded endogenously by increasing reserves on the liability side against (largely) conventional assets (repos) on the asset side. Other examples are the longer term and targeted refinancing operations, such as TLRO-I, LTRO-II and TLTRO-III, that were implemented later; the pandemic emergency longer-term refinancing operations (PELTRO) also fall into this category and have considerably expanded the role of the ECB as an intermediary.

The second type of policies were implemented later: the corporate bond purchase program in late 2014 and then the government bond purchases (APP) in early 2015, although a limited experiment had been tried in 2010-2011 with the Securities Market Program (SMP); the Outright Monetary Transaction (OMT) program was announced in 2012 but never implemented. The recent Pandemic Emergency Purchase Program (PEPP) also falls into this category.

In general, with "passive" policies the central bank acts as a market maker and by doing so increases the liquidity of the assets, while with "active" policies the central bank acts as a market participant – an investor with inelastic demand – and by doing so absorbs risk from the market, swapping safe reserves for risky debt securities. The latter causes a compression in interest rate spreads which reduces borrowing costs for firms and/or governments. This may be particularly relevant when those governments are under a spending constraint.

In theory, it is not difficult to explain the effectiveness of the "market maker" type of policy since, in that case, the central bank effectively removes a friction which has been produced by market disruption. In so doing it supports channels of financial intermediations which are important for both financial stability and macroeconomic objectives.

Explaining the effectiveness of "active" policies is more problematic – both in theory and in practice. In theory, a change in the relative supplies of various assets in the hands of the private sector should have no effect on equilibrium quantities and asset prices. However, if there are mechanisms

that make assets of different maturities imperfect substitutes or if there are credit constraints this neutrality proposition breaks down. For example, asset purchases can affect long-term interest rates by reducing the risk premium therefore relaxing financial constraints when they would otherwise be binding. Another important mechanism which could explain the effectiveness (or otherwise) of asset purchases is signalling. As pointed out by Woodford[2], asset purchases can be effective in reducing long-term interest rates if they signal that the central bank will keep the short-term interest rates low once the zero lower bound ceases to be a constraint.

In practice, notwithstanding a large number of studies, it remains unclear the extent to which these "active" policies can affect inflation and macroeconomic conditions in situations in which financial markets are not in a deep state of disruption. This is despite the fact that the empirical evidence points to asset purchase programs having large effects on credit and sovereign spreads.

In the euro area it is particularly difficult to assess the empirical evidence, partly because asset purchases have only been part of the regular monetary policy toolbox since late 2014, but also because of the additional role these policies have played in the context of the monetary union.

On the other hand, it can be argued, that both "active" and "passive" balance-sheet policies have had a particularly strong stabilizing influence in the euro area due to its special characteristics as an asymmetric federation with one central bank and 19 debt issuing authorities.

2.1 Special Role of Balance Sheet Policies in the Euro Area

Since member states do not issue their own money, the euro area is vulnerable to self-fulfilling liquidity crises and redenomination risk. When liquidity crises become self-fulfilling, the central bank has an important role to play in communicating commitment to the integrity of the monetary union. The literature has characterized this as a problem of multiple equilibria in which the central bank, by acting or signalling that it will act, switches the economy from a bad to a good equilibrium.[3]

Moreover, in the absence of a euro area safe asset, in periods of stress – large recessions or financial crises – the flight to safety takes the form of a flight to German bunds, leading to anti-cyclical behaviour in sovereign spreads. This in turn, because of the close relationship between banks and their sovereigns' creditworthiness (the "doom loop") leads to financial market fragmentation. Again, in these cases, the central bank will from time to time have a natural rationale – indeed, a pressing imperative – to intervene with actual asset purchases and/or appropriate signalling.

Let me stress that the signalling effect associated with communication about QE in this European context is quite different from the signalling effect emphasized by Woodford mentioned earlier. Here the signalling consists in communicating to the market is that the central bank is prepared to act as emergency lender in crises or act to correct sovereign spreads to the extent to which those are explained by redenomination risk.

Central bank action is motivated by financial stability concerns in the first case while, in the second, the objective is restoring the transmission mechanism of monetary policy

[2] *Woodford, M. (2012),Methods of Policy Accommodation at the Interest-Rate Lower Bound, in: The Changing Policy Landscape, Federal Reserve Bank of Kansas City, 35.*
[3] *Corsetti G.C.and Dedola, L. (2016), The mystery of the printing press: monetray policy and self-fullfilling debt crises, Journal of the European Economic Association, vol. 14, Issue 6,1, p. 1329-1371.*

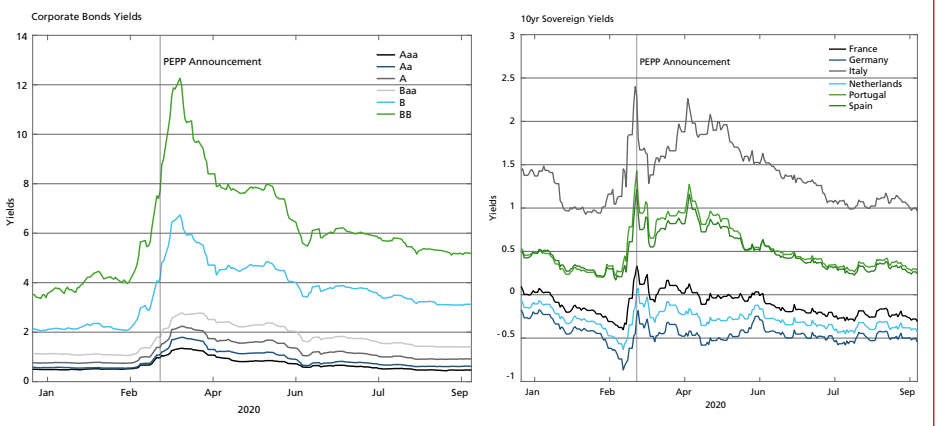

Figure 1: The effect on corporate spreads (left) and on 10yr sovereign yields (right) of the PEPP announcement

throughout the union in order to achieve the goal of price stability.

The justification in both cases is the correction of a negative externality leading to an inefficient allocation of resources but it is nonetheless controversial. It has distributional consequence, it has credit risk implications for the central bank and may induce moral hazard.

Therefore, although balance sheet intervention and especially the associated signalling effect maybe very powerful in the euro area, it also has costs.

2.2 The Importance of Effective Signalling

To understand the power and the conditions for effectiveness of balance sheet policies in the euro area it is interesting to discuss some recent events.

In the history of the last decade we have seen episodes in which signalling with or without associated actual purchases has had a successful impact on markets and also episodes in which reluctance to act or delaying action has been costly.

Willingness to act as in 2012 (Draghi's speech pledging to do "whatever it takes to save the euro" and announcing the OMT program) or the PEPP program during the pandemic are examples of effective signalling of commitment to intervene in the market in "bad states." At the outbreak of the pandemic, the ECB intervened exactly when, in that bad state of the world, governments had to issue a huge amount of debt and it was costly to access the market.

The announcement of that policy had a powerful effect both on credit and sovereign spreads as illustrated by Figure 1.

On the other hand, from 2012 to 2015, the ECB hesitated to implement QE and instead launched other non-standard policies (open ended forward guidance in 2013 followed by targeted long term refinancing operation programs and negative deposit rates in 2014). We can call this a period of transition towards a new monetary policy framework which eventually also included asset purchases. But it can also be characterized as a period of hesitation. While the central bank balance sheet was shrinking – as a consequence of banks deleveraging – and inflation was trending down, QE was delayed until early 2015.

This hesitation was costly. Delaying QE was perceived by markets as showing a lack of commitment to act as emergency lender of last resort. Leombroni et al.[4] show that in the period 2012-2015, before QE was introduced, monetary easing policy announcements – relative to the other policies that were designed in that period – resulted in increased credit risk premia and amplified sovereign yield volatility, in contrast with both the pre-crisis period and the post-QE sample. In other words, those policies were interpreted as a poor substitute for

[4] *Leombroni M., Vedolin, A., Venter, G. and Whelan, P. (2020), Central Bank Communication and the Yield Curve, Journal of Financial Economics.*

QE, signaling constraints on ECB action rather than a well thought through policy strategy.

There is also evidence that inflation expectations declined persistently from 2012, stabilizing only after the implementation of QE.[5] The persistent decline in inflation expectations is associated with deleveraging in the banking sector and increased preference for safety that had resulted from the debt crisis. We can conjecture that the latter drove the natural interest rate downwards while the effective financing conditions, caused by inadequate policy and delayed implementation of QE, did not accommodate that change and, as a consequence, long term inflation expectations started trending down. While inflation expectations weakened also in the U.S., the decline in the euro area was sharper. Indeed, a gap between inflation expectations in the U.S. and the euro area emerged in that period and has persisted since (see Figure 2).

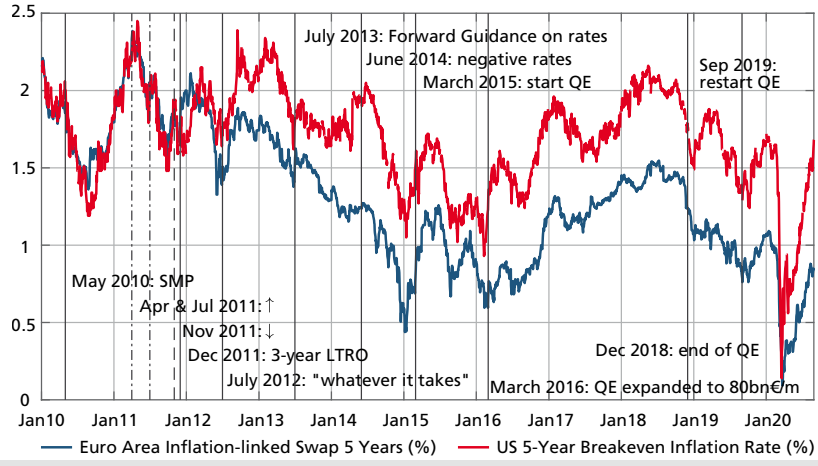

Figure 2 : Inflation expectations in the euro area and in the U.S.

These examples indicate that balance sheet policies in the euro area have potentially large effects on both financial stability and price stability. They also suggest that these effects are dependent on effective – credible – communication, and that this communication effectiveness may be undermined when political (and fiscal) backing for asset purchase programs is called into question. Notwithstanding the independence of the ECB, which is guaranteed by the Treaty, asset purchases inevitably have fiscal consequences so it is unrealistic to suppose that uncertainty about political backing can always be avoided. This uncertainty could in some circumstances impair the effectiveness of such policies as is powerfully shown by the case of the SMP program during the 2010-2011 debt crisis (see Reichlin for a discussion on this point).[6]

For the future, the continuous effectiveness of the new ECB toolbox will depend on clarification of the principles guiding balance sheet policies and possibly the development of rules on which to base the operations while recognizing that the quasi-fiscal effects I described are inevitable and the risks have to be managed. I return to this last point in Section 3.

2.3 The Fiscal Transmission Channels

Another feature of the euro area that has to be considered when analyzing the effect of monetary policy, is how the latter interacts with fiscal policy in the determination of inflation. Given the decentralized nature of budgetary decisions but also the nature of the fiscal rule, it is not clear whether monetary and fiscal policy have been coherent or whether crosswinds have prevailed.

Monetary policy – standard or unconventional – has implications for fiscal policy and fiscal policy has implications for price stability.

[5] *Hazensagl et al. estimate that inflation decline in that period is to be attributed to the long trend of inflation rather than cyclical behaviour. Hasenzagl, T., Pellegrino, F., Reichlin, L. and Ricco, G. (2019),The inflation puzzle in the euro area – it's the trend not the cycle!, VOX EU, 16 October.*
[6] *Reichlin, L. (2019), La Banque Centrale Européenne et la Crise de l'Euro, Fayard Paris, September 2019.*

The Maastricht Treaty was designed to ensure a rigid separation between monetary and fiscal policy. The framework corresponds to the idea that monetary policy can always control the price level, no matter what fiscal authorities do. The consequence of this idea is the belief that in an asymmetric federation, with a single monetary policy authority and nineteen fiscal authorities, macroeconomic stability can be ensured by a combination of a credible and independent central bank targeting price stability, and fiscal rules setting public deficit and public debt limits. Coordination between monetary and fiscal policy was deemed not necessary to pin down the price level and not desirable provided that all authorities followed the rules.

Fiscal-monetary interactions, however, naturally arise via the general government intertemporal budget constraint. This is true in general and even in a frictionless model: the price level is determined by both fiscal and monetary action.

At zero interest rate the central bank buying bonds and issuing reserves is equivalent to government issuing short term debt since both reserves and short-term bonds yield zero interest rate. From the perspective of the consolidated government – central bank and treasury – QE is just an exchange of one type of government paper for another. However, as long as QE consists in buying long-term government bonds, it shortens the maturity of government debt held in the market other things being equal (i.e. not considering the potential positive effects on the maturity of newly issued debt).

There are two considerations which are relevant here. First, monetary policy easing, and especially sovereign bond purchases, reduce the cost of debt refinancing and frees fiscal space for governments. Governments may respond by reducing the primary surplus (let's call this "coordination") or by increasing it (let's call this "crosswinds"). In Antolin-Diaz et al.[7] we provide some empirical evidence on the four largest countries of the euro area and show that, in response to a non-standard monetary easing (decline of the yield curve slope), primary surpluses have hardly adjusted except for Germany where crosswinds have prevailed. This is a topic that has to be explored further because monetary-fiscal policy coordination may be desirable especially at the zero lower bound and crosswinds could impair the effectiveness of expansionary monetary policy in relation to price stability.

Second, a key effect of QE, is that, by absorbing maturity risk, the central bank is shifting that risk from the government to its own balance sheet. From the point of view of the general government the total amount of risk is unchanged but it is redistributed from Treasury to the central bank. In the euro area these redistributional effects have also a geographical dimension which depends on the risk sharing arrangements within the Eurosystem.

With high levels of public debt, and with large central bank balance sheets, both potential risks and fiscal-monetary interaction are more visible.

3. Financial Stability Risks

The policies we are discussing here as well as standard interest rate policy have implications for the total supply and demand for risk in the economy as well as for the distribution of this risk amongst the central bank, the banks and the government balance sheet.

We have discussed fiscal risk in the previous section. Let us now discuss how risk taking in general may have implications for financial stability.

[7] *Antolin-Diaz, J., Reichlin, L. and Ricco, G. (2020), Monetary-fiscal crosswinds in the monetary union, paper prepared for the 2020 BIS Annual Conference.*

Take the example of central bank asset purchases and maturity risk. Purchases have two effects. The first is redistribution of risk: by purchasing long term assets the central bank removes maturity risk from banks and other investors and transfers it to its own balance sheet. The second – which is not assured – is an increase in the total risk in the economy. This may or may not happen and the outcome essentially depends on how investors react to the increased incentives to take more leverage or to invest in riskier assets.

Both supply and demand matter for the amount of risk in the system. If the central bank buys risky assets and the supply of risk does not adjust, in equilibrium agents have to hold the same amount of assets as before minus what the central bank has bought. Intermediaries must become less risky but the total amount of risk in the economy is unchanged, just redistributed. Only if there is a larger supply of risk in the system is there an increase in risk in the economy. In other words, the total amount of risk in the economy changes only if supply responds.

QE aims at increasing the total amount of risk in the economy. It may or may not succeed and, as we have seen in Section 2, the evidence is mixed. To the extent to which it succeeds the desirable (for macroeconomic purposes) increase in the supply of risk may lead to financial instability. Trade-offs between macroeconomic and financial stability may therefore arise.

This is not the case for "market-making" type of policies. In that case the central bank intervenes to support financial intermediation by replacing the market in the intermediation chain and becoming a sort of intermediary of last resort. Complementarities between macroeconomic and financial stability should dominate in this case.

Indeed, the experience of the financial crisis shows that complementarities were strong and stronger than they were thought to be in the first years of the crisis when the ECB emphasized the so-called "separation principle" between liquidity and macroeconomic policies. The idea at the time was that the goal of macroeconomic stability could be achieved by use of the conventional interest rate instrument while the goal of financial stability was a separate objective, to be achieved via innovative liquidity policies.

Although financial stability risks may arise as the unintended consequence of monetary policy aimed at price stability, they can in principle be handled as long as another policy instrument is available; this is the motivation for the development of macroprudential tools. This is a truism: multiple objectives can be pursued only with multiple instruments. In practice, however, we still have to learn how effective macroprudential policy is and what are its fiscal implications.

4. Managing Credit Risks

I have made the point that monetary policy – in particular "active" balance sheet policies – act by redistributing risks and often fiscal/credit risks. I have also argued that there is evidence that they are necessary for both monetary and financial stability although they may also create incentives for "bad" risk taking.

The recent history, however, has also shown that these policies were necessary for both macro and financial stability and will continue to be so. With the increasing size of central bank balance sheets and a change in their asset composition towards risky assets, the issue is how the associated risks can be managed.

This raises the question of what the right level of capitalization of the euro-system of central banks is but also what should the rules be for distributing risks among national central banks. Today, 80 percent of the assets purchased under the APP and PEPP programs are risk activities of the national central banks (the potential losses related to those purchases are not shared among national central banks and neither are the profits). Moreover, Emergency Liquidity Assistance (ELA) operations are not

subject to the risk sharing rule at all. In principle, a central bank which develops capital losses must be recapitalized by its own government, but if that government is itself insolvent, that crisis will inevitably lead either to a bailout or to a fatal crisis for the single currency.

In principle, a coherent system would be one in which monetary operations involving risks would be guaranteed by national governments with adequate capital. Capital contributions and profits and losses would be shared according to the capital key.

Clearly such a system implies a level of risk sharing which is more akin to a fiscal federation than the one we have now. However, the present arrangements would not provide a viable solution in case of large losses by a national central bank. If those losses were caused by insolvency of the central bank's home country, there would be no recapitalization and the national central bank would lose eligibility to be a counterparty in Target2, with the inevitable consequence of crashing out of the Eurosystem. But that crash would imply large losses for those national central banks which hold claims in Target2. Under these circumstances, a system of full risk sharing, with appropriate rules on capital adequacy, seems a better alternative.

5. Conclusions

The use of non-standard monetary policy is necessary for financial stability and macroeconomic objectives. In the monetary union there is even a stronger motivation due to the vulnerability to liquidity strikes in peripheral countries and the anti-cyclical dynamics of the spreads of peripheral governments bonds' yields with respect to the German bund.

As the new instruments developed in the last decade become part of the standard monetary policy framework, there is a need to develop a framework recognizing that, while innovative monetary policy is necessary, it may imply credit risk for the central bank and have distributional effects.

Active balance sheet policies act by redistributing risk from markets to the central bank and by encouraging an increase in the total supply of risk. While the latter effect can be addressed – at least in principle – by macroprudential policies, the former has to be managed by governing the relationship with the fiscal authorities.

The clarity of this relationship is also a key ingredient for the effectiveness of central bank policies since it is a condition for credibility and of course legitimacy. To achieve this clarity will require a review of risk sharing arrangements and of the rules guaranteeing the commitment by governments to provide the necessary capital to absorb the risks associated with the new policy framework. Any step in this direction, however, is a step towards some form of fiscal federation and will require a political process. In the meantime, the single currency remains fragile.

Athanasios Orphanides, MIT Sloan School of Management

Considerations for the Policy Strategy Review

I. Introduction: The ECB's Multiple Challenges

The ongoing policy strategy review presents a unique opportunity for the ECB to examine how to best employ its immense power to serve the people of Europe. Much has changed since the ECB last reviewed its policy strategy in 2003. Adaptation is urgently required to address a number of challenges that have become apparent since the Global Financial Crisis (GFC) and pressing problems that have arisen as a result of the ongoing pandemic.

My focus will be on two challenges faced by the ECB: The first relates to monetary policy in a low interest rate environment, when the space for monetary policy accommodation through adjustment of the short-term interest rate is constrained. This challenge is common with other central banks in advanced economies. The second challenge is unique to the ECB and reflects the incomplete nature of the Economic and Monetary Union (EMU). For the ECB, two key problems associated with these challenges have remained unresolved for many years and have complicated the policy response to the pandemic. The first is lowflation: The systematic pursuit of overly tight policies that allowed inflation to drift considerably below 2 percent over the past several years. The second is the impairment of the monetary policy transmission mechanism in the euro area – a key factor behind the divergence of economic performance of different Member States that threatens the viability of the EMU. These problems suggest inadequacies in the calibration and implementation of monetary policy in the euro area. They also raise questions about the ECB's policy strategy and about possible constraints faced by the ECB. Does the ECB lack the authority or instruments to fulfil its mandate? Or could the ECB better fulfil its mandate simply by adjusting its policy strategy and making better use of its existing authority?

In this contribution, I address these questions and offer suggestions on what could be done to address the ECB's multiple challenges. As I explain, the ECB does have the authority and tools to address its multiple challenges, but doing so successfully requires corrections to its policy strategy. The analysis draws heavily on earlier work, in particular, work about monetary policy design in a low interest rate environment from two decades ago[1] and recent work on the ECB's strategy review[2].

II. The Low-Interest Rate Environment and the ZLB Challenge

Let me start with a brief review of the Zero Lower Bound (ZLB) challenge. Low interest rates have become a challenge for many advanced economy central banks since the GFC, but this was already a challenge for Japan in the late 1990s. Faced with low inflation and a weak economy, the Bank of Japan (BOJ) became the first central bank to encounter zero interest rates in the post-World War II era. The Japanese experience in the late 1990s prompted research at the Federal Reserve and other central banks, to examine how they should think about monetary policy if they were to encounter a similar challenge. The joint work with Volker Wieland, from which I draw here, was part of the Fed's research program at the turn of the century.

At the time, macroeconomic models used for monetary policy analysis focused on the short-term interest rate as an instrument, and many did not even include any other instruments. But what is the proper response of the central bank in the face of a recessionary shock, if it cannot reduce the short-term interest rate below zero? To address this, we introduced balance-sheet policies in the analysis, which could be activated as needed to preserve price stability.

[1] *Orphanides, Athanasios and Volker Wieland (2000). "Efficient Monetary Policy Design near Price Stability," JJIE, 2000.*
[2] *Lengwiler, Yvan and Athanasios Orphanides (2020). "Options for the ECB's Monetary Policy Strategy Review," Study for ECON Committee, European Parliament, September.*

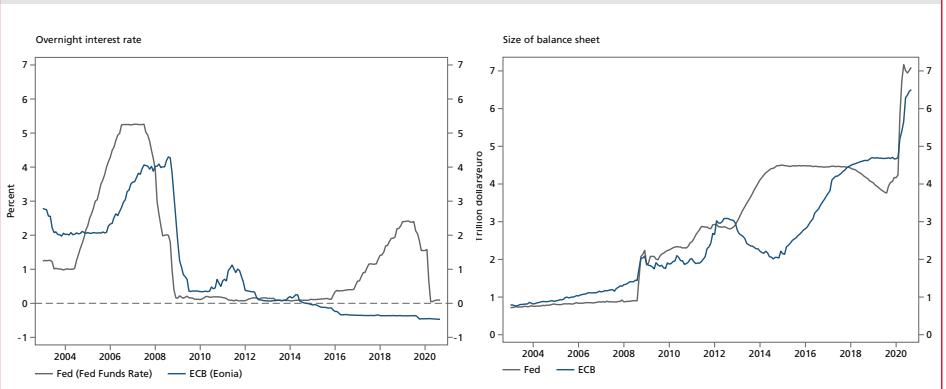

Figure 1: ECB monetary policy compared to Federal Reserve

The ZLB constrains interest rate policy in an asymmetric manner. Policy can be tightened by raising rates in the face of inflationary threats, but not eased sufficiently in the face of disinflationary threats. Monetary policy remains effective, but policy accommodation must be provided by other means such as quantitative easing. When the short rate is constrained, the central bank must shift its attention to balance sheet policies: To provide additional policy accommodation the central bank must expand its balance sheet through purchases of long-term bonds, depressing term premia and longer-term interest rates. Yet, the multipliers and potential side effects associated with quantitative easing are uncertain, which can make policymakers uncomfortable. This may lead to inaction or hesitation to adopt quantitative easing.

The efficient response to the challenge, when examined as a dynamic optimal control problem under uncertainty, is exactly the opposite of hesitation and inaction. Addressing the constraint requires prompt and decisive balance sheet expansion, substituting interest rate cuts for bond purchases. And because the risks are asymmetric and the policy multiplier associated with quantitative easing uncertain, policy must be more aggressive than normal when inflation is below the central bank's goal, even before the constraint is reached. By easing aggressively when short-term rates are near the constraint but not yet constrained, the central bank can be more effective in dealing with the disinflationary shock and limit the balance sheet expansion that will be required to restore stability later on. By acting preemptively, with aggressive interest rate cuts, the central bank can avert the need for much larger balance-sheet expansions and thus defend against the associated multiplier uncertainty and potential side effects of a bloated balance sheet.

Hesitation to adopt decisive quantitative easing policies when the short-term interest rate is constrained is a costly policy mistake. Unfortunately, it is a mistake we have observed twice during the past two decades. First, in the early 2000s, we saw the Bank of Japan hesitate to adopt forceful QE and systematically undershoot its price stability objective. And then, over the past decade, we saw the ECB fall into the same trap, failing to embrace QE promptly and decisively, which resulted in lowflation.

To understand the ECB's policy error, a comparison with the Fed is informative (Figure 1). Before and during the GFC, inflation developments in the U.S. and the euro area were similar. The economic shock associated with the GFC prompted a massive easing in both economies. Interest rates were cut to zero (and, later on, somewhat below zero by the ECB). With interest rate policy constrained, both the Fed and the ECB had to rely on QE for additional accommodation. A glance at the Fed and ECB balance sheets since the GFC suggests that while the Fed substituted rate cuts for QE systematically, the ECB has been erratic and relatively timid.

Compare the balance sheet policies of the two central banks since the GFC. While the ECB initially expanded its balance sheet, similarly to the Fed, in mid-2012 the ECB inexplicably started reversing this expansion. The ECB reversed its policy easing even though the euro area economy had not yet recovered from the recession and inflation remained low.

From mid-2012 to end-2014, the ECB reduced its balance sheet by one third, a significant quantitative tightening. In 2015, the ECB started to partially correct this mistake, but subsequently continued to keep policy tighter than was required to raise inflation towards 2 percent.

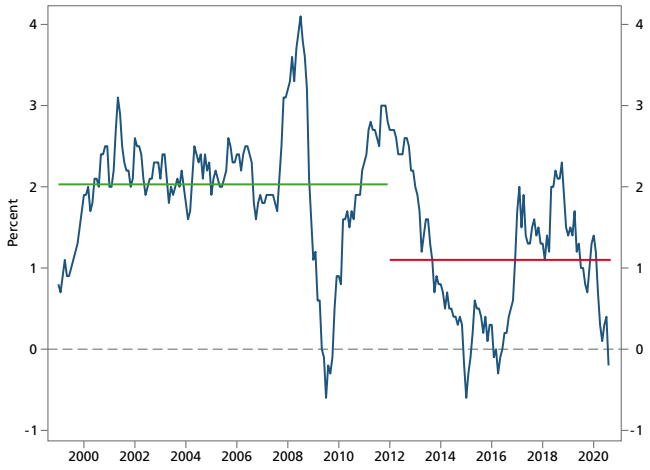

Figure 2: The ECB's lowflation policy: 2012—?; Notes: HICP monthly data.

III. The ECB's Lowflation Problem

The ECB's pursuit of overly tight policy since mid-2012 guided inflation lower – what the International Monetary Fund (IMF) subsequently described as lowflation. Comparing inflation outcomes before and after 2012 illustrates the problem. From 1999 to 2011, the average annual rate of inflation in the euro area was 2 percent (Figure 2). Since 2012, the average has only been 1.1 percent. Is this consistent with the ECB's price stability goal?

The question reflects a basic flaw in the ECB's policy strategy: The ambiguity of its inflation goal. This flaw makes the institution vulnerable to political pressure, especially when the policies needed to deliver on the goal are controversial. The result is suboptimal outcomes for the euro area economy, as observed over the past decade.

To understand the ECB's current predicament, we need to go back to 1998, when the ECB first communicated its definition of price stability. One option was to adopt a clear 2-percent inflation goal. This would have been consistent with the implicit or explicit inflation goal guiding monetary policy in most of the Member States that comprised the euro area. But at the time, recent inflation outcomes in the euro area were somewhat lower, reflecting the temporary drag of the Asian and Russian financial crises. This influenced the discussion and led the ECB to decide in favor of an ambiguous definition of price stability: HICP inflation "below 2 percent." At the time, such ambiguity was not uncommon. Other central banks, including the Fed and the Bank of Japan, also operated with similarly ambiguous definitions of price stability. Of course, such ambiguity imposes an unnecessary cost to the economy. Monetary policy is more effective when inflation expectations are well-anchored, in accordance with the central bank's inflation objective, and inflation expectations can only be well-anchored when the goal is clearly communicated. During the 2000s, and especially after the GFC, attitudes changed and other central banks moved away from the inefficiency of ambiguous definitions of price stability. By 2013, the Fed and BOJ had both adopted a 2-percent symmetric goal as their definitions of price stability, and the ECB was left as the only central bank of an advanced economy with an ambiguous price stability target.

In the meantime, the ECB had partly addressed this flaw by revising its communication following the policy strategy it completed in 2003. The revised communication stated that the goal was to maintain inflation "close to 2 percent." Accordingly, under former President Jean-Claude Trichet, the ECB effectively operated with an implicit symmetric inflation target of 1.9 to 2.0 percent. Before the end of his term in 2011, President Trichet repeatedly described the success of the ECB in maintaining an average inflation rate equal to 1.96 percent, stressing the second decimal which reinforced the ECB's commitment to maintain inflation

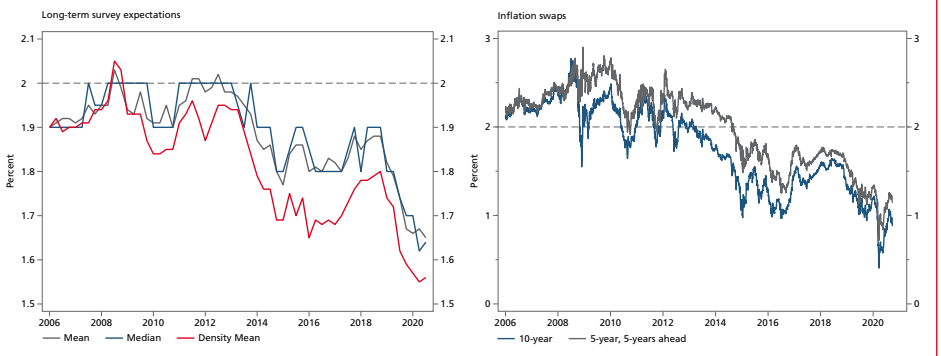

Figure 3: Disanchoring of inflation expectations

very close to 2 percent. During the GFC and early in the euro crisis, the ECB benefited tremendously from this communication and clarity of its commitment.

However, this subsequently changed. The ambiguity in the definition of price stability that was communicated in the formal ECB decision in 2003 implied that the risk of political pressure influencing inflation outcomes remained. By 2012, it had become apparent that QE in the form of purchases of government debt would be needed to maintain inflation close to 2 percent. But QE was controversial in some Member States, and the ECB was subjected to unusual legal challenges and political pressure against it. The discomfort associated with the adoption of the QE policies necessary to guide inflation close to 2 percent made it more appealing to just let inflation drift lower. Since the definition of price stability that had been adopted in 2003 remained ambiguous, the meaning of "close to 2 percent" could be interpreted more flexibly, so that it could include much lower inflation outcomes and allow inflation to drift lower. Ambiguity promotes unaccountability and invites political pressure and policy mistakes.

It is important to understand that the lowflation policy pursued by the ECB, starting with the quantitative tightening in 2012, was not an accident. It was the result of deliberate choices driven by the ECB's hesitation to adopt the QE policies that were necessary to avert it. The ECB's policy error was evident to observers outside Frankfurt. Characteristic is the following advice given to the ECB in April 2014 by then IMF Managing Director Christine Lagarde:

"There is the emerging risk of what I call 'lowflation,' particularly in the Euro Area. A potentially prolonged period of low inflation can suppress demand and output – and suppress growth and jobs. More monetary easing, including through unconventional measures, is needed in the Euro Area to raise the prospects of achieving the ECB's price stability objective."[3]

Unfortunately for the euro area, the ECB did not heed Lagarde's advice and instead continued its quantitative tightening policy. The ECB waited until outright deflation threats appeared in the horizon before embarking on purchases of government debt to expand its balance sheet. And even when it did start these purchases in 2015, the ECB opted for a rather timid expansion that was insufficient to raise inflation consistently towards 2 percent and discontinued the program prematurely.

The lack of clarity about the inflation goal allowed the ECB to deflect criticism that its lowflation policies were inconsistent with its primary objective. Nonetheless, the damage to the euro area economy was done. Demand and output was suppressed, as Lagarde had warned. Restricting nominal GDP growth also worsened debt and deficit ratios, limiting fiscal space in the euro area[4]. And inflation expectations were disanchored. As can be seen in Figure 3, both survey expectations as well as market-based measures drifted lower in the period coinciding with the

[3] *Lagarde, Christine (2014). The Road to Sustainable Global Growth—the Policy Agenda. Speech, 2 April.*
[4] *Orphanides, Athanasios (2020). The Fiscal-Monetary Policy Mix in the Euro Area: Challenges at the Zero Lower Bound. Economic Policy.*

quantitative tightening and then moved sideways when the ECB embarked on its timid QE program in 2015. With the premature discontinuation of QE in 2018, inflation expectations started drifting lower again.

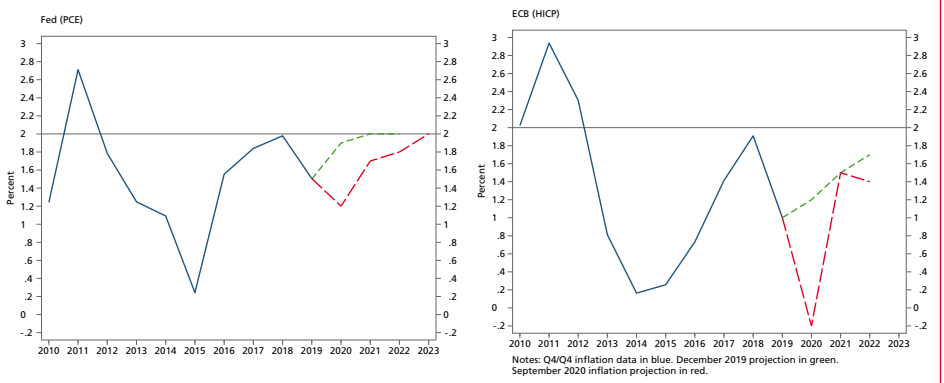

Figure 4: Inflation and recent projections

IV. The Importance of a Clear Symmetric 2-Percent Inflation Goal

The disanchoring of inflation expectations and the costs of lowflation in the euro area could have been avoided had the ECB adopted a clear symmetric 2-percent inflation goal and pursued policies guided by such a clear goal. Returning to our earlier comparison of the Fed and the ECB is useful for illustrating the associated benefits of adopting such a strategy even today.

By adopting a clear symmetric 2-percent goal as its definition of price stability, and calibrating QE so as to consistently aim for 2 percent inflation in the medium run, the Fed managed to promote higher growth and maintain inflation expectations in line with 2 percent consistently over the past several years. By embracing QE promptly, the Fed restored normal growth in the U.S. economy and could start normalizing monetary policy – raising rates and reducing its balance sheet somewhat. Actual inflation in the U.S. averaged somewhat below 2 percent over this period, reflecting the presence of global disinflationary forces that similarly affected the euro area and the U.S. economies. But with monetary policy in the U.S. calibrated consistently with a clear 2-percent objective, inflation outcomes have been closer to 2 percent in the U.S. than in the euro area.

The clarity of the inflation goal and consistent calibration of monetary policy in line with the goal also put the Fed in a better position to respond to the ongoing pandemic. Figure 4 compares recent inflation outcomes in the two economies as well as two sets of inflation projections published by the Fed and the ECB, respectively. The projections shown are from December 2019 and September 2020. To facilitate comparisons, the chart shows Q4/Q4 inflation outcomes and projections for the two economies in each year. For the Fed, the projections correspond to median FOMC projections published in the Summary of Economic Projections. For the ECB, the projections correspond to the ECB/Eurosystem staff projections.

Three points are pertinent: First, a comparison of actual inflation outcomes from 2010 to 2019 confirms that similar disinflationary forces have affected both economies over the past decade but that the Fed managed to keep inflation closer to 2 percent. Second, the December 2019 projections confirm the differences in policy driven by the ECB's ambiguous definition of price stability. Fed policy was calibrated consistent with maintaining inflation close to 2 percent in the forecast horizon and achieving exactly 2 percent by 2021 and staying there in 2022. By contrast, ECB policy suggested no urgency in correcting the lowflation policy error of the previous years. The ECB's policy calibration was consistent with inflation rising slowly but remaining quite a bit below 2 percent even at the end of the projection horizon.

The third point highlights the usefulness of a clear inflation goal for reinforcing policy and its communication in addressing the ongoing pandemic. Compare the policy communication of the ECB and the Fed embedded in the September 2020

inflation projections. The partial shutdown of the economy due to the pandemic induced a sharp economic downturn in both economies in the first half of this year. The shock has been similar in the two economies and prompted a forceful policy response to support the economy and counter disinflationary dynamics. But are the two central banks equally committed to providing monetary policy accommodation? Comparing the September projections suggests an important difference. In the case of the Fed, the September projections forcefully communicate the Fed's commitment to provide as much monetary accommodation as will be necessary to support the U.S. economy and counteract the disinflationary forces of the pandemic. Despite the severe shock, the Fed is communicating that it will act appropriately, aiming to guide inflation close to 2 percent in 2021 and 2022 and exactly in line with 2 percent by 2023. By contrast, in the case of the ECB, and in light of the vague definition of price stability, no similar commitment for policy action is communicated in the ECB's projections. To be sure, policy was eased in response to the pandemic but the projections suggest lower inflation will be tolerated, and they show no urgency to support the economy as needed to raise inflation anywhere close to 2 percent in the projection horizon.

The contrast is striking: Without a clear inflation goal, the ECB once again appears to shy away from the forceful monetary policy response that could better support the euro area economy, without compromising price stability.

V. Does the ECB Lack the Authority to Do Its Job?

Let us return to one of the original questions. Does the ECB lack the authority or the tools to fulfil its mandate? Could this explain the ECB's reluctance to ease policy through quantitative easing and to support the euro area economy better by maintaining inflation closer to 2 percent? Does the Fed have greater authority and more tools than the ECB? Is this the reason why the Fed has been able to implement more supportive policies over the past decade than the ECB?

In fact, the opposite is true. Compared to the Fed, the ECB enjoys greater independence and greater discretionary authority to implement the monetary policy best suited to fulfil its mandate. The ECB's authority is clearly described in the Statute[5]. To highlight the ECB's vast discretionary authority regarding potential monetary policy tools, consider the following four clauses:

1. The ECB may: "operate in the financial markets by buying and selling outright (spot and forward) or under repurchase agreement ..." (Art. 18.1.)

2. The ECB may: "conduct credit operations with credit institutions and other market participants, with lending being based on adequate collateral." (Art. 18.1.)

3. "The ECB shall establish general principles for open market and credit operations ..." (Art. 18.2.)

4. "The Governing Council may, by a majority of two thirds of the votes cast, decide upon the use of such other operational methods of monetary control as it sees fit, respecting Article 2." (Art. 20.)

Article 18 of the Statute gives more than enough authority to the ECB to do its job. It gives the authority to the ECB to purchase assets and implement quantitative easing as needed to raise inflation close to 2 percent, in line with its price stability objective. In addition, it gives the ECB vast authority to engage in credit operations, using its discretion to define what is "adequate collateral" for such operations. And it gives the ECB the discretionary authority to establish the "general principles" for these operations. Asset purchases and collateralized lending operations are the two main tools needed for monetary policy. But just in case the tools described

[5]*European Central Bank (2004). Protocol on the Statute of the European System of Central Banks and of the European Central Bank. In Institutional Provisions. European Central Bank, Frankfurt.*

in Article 18 ever proved insufficient, examine the additional authority provided by Article 20. The Governing Council has the discretionary authority to adopt other tools, "as it sees fit"!

The ECB has greater discretionary authority and more tools to fulfil its mandate than any other central bank I know of. Lack of authority or lack of tools is not the explanation for the inadequacies in the calibration and implementation of monetary policy observed in the euro area.

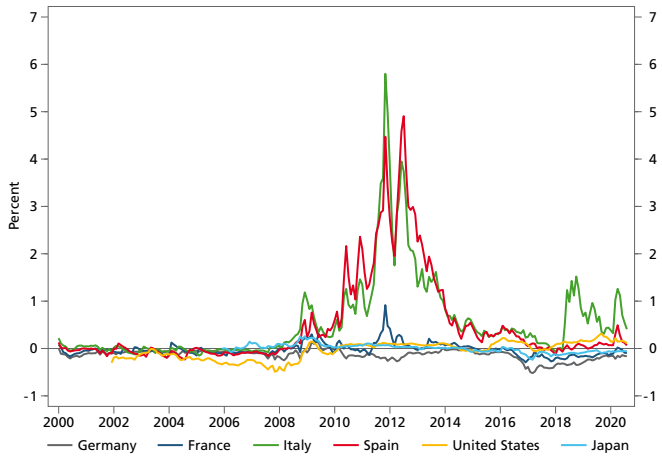

Figure 5: Spreads of two-year sovereign yields from OIS rate

VI. The Impairment of the Monetary Policy Transmission Mechanism

The second issue I want to highlight is the impairment of the monetary policy transmission mechanism observed in the euro area over the past decade or so. As already mentioned, this is a key factor behind the divergence of economic performance of different Member States, which has been a threat to the viability of the EMU since the GFC. Figure 5 shows the spreads of two-year sovereign yields from overnight index swaps (OIS) rates in six advanced economies inside and outside the euro area. It includes the United States, Japan, and the four largest Member States of the euro area: Germany, France, Italy, and Spain. The spread between sovereign yields and OIS can serve as a useful indicator of the functioning of the monetary policy transmission mechanism. When the monetary policy transmission works well, spreads are very small, a few basis points, regardless of the currency or the level of policy interest rates. For the United States and Japan, the spreads confirm that the monetary policy transmission has been working fairly smoothly over the past two decades, including in periods of severe financial stress, as experienced during the GFC. Before the GFC, this was also the case in the four Member States shown in the figure. ECB monetary policy, including easing and tightening cycles, was transmitted evenly across the euro area. Unlike in all other advanced economies, this changed after the GFC, with a severe disruption in the transmission mechanism observed during the peaks of the euro crisis. This proved not to be a temporary problem. As is clearly visible from the figure, the ECB has not managed to address the problem satisfactorily since then.

The impairment of the monetary policy transmission mechanism in the euro area reflects flaws in the ECB's monetary policy implementation strategy that require attention in the context of the ongoing review. The problem can be traced to the ECB's excessive reliance on "markets" and private credit rating agencies for policy implementation, reflecting practices unlike those found in the policy implementation strategy of any other peer central bank. This is the result of past discretionary ECB decisions that have proven highly destabilizing for the euro area and demand closer scrutiny. The underlying issue is associated with the well-known existence of multiple self-fulfilling expectational equilibria in sovereign markets that can arise if the central bank adopts a policy implementation strategy that accommodates them. If the central bank appropriately focuses on economic fundamentals, adverse self-fulfilling equilibria cannot be supported. Unfortunately for the euro area, the ECB has been using its discretionary authority in a manner that can inadvertently have the opposite effect,

validating adverse expectational equilibria in sovereign debt markets for some Member States. (De Grauwe and Yi provide empirical evidence of the adverse outcomes.[6])

In the aftermath of the GFC, the ECB's monetary policy implementation strategy has inadvertently encouraged the appearance of unwarranted debt default scares in several Member States. This has been the main cause of the impairment of the monetary policy transmission mechanism. To improve the functioning of the monetary policy transmission mechanism, it is important to identify and correct ECB discretionary decisions that have contributed to the impairment.

Consider, for example, the framework the ECB has adopted for performing debt sustainability analysis (DSA) for its Member States. Other advanced economy central banks do not typically conduct such analyses. Nonetheless, in the context of the euro area, with the ECB being responsible for the common monetary policy in a monetary union, such analyses can serve a useful role. In principle, it may be sensible to check that the fiscal policy of individual Member States is sustainable over time to avoid concerns of fiscal dominance, and to protect against the deficit bias that might be manifested in monetary unions. However, care is required in such analyses to rely on economic fundamentals so as to avoid encouraging the convergence of beliefs to adverse expectational equilibria. The crucial assumption regards the interest rate adopted for evaluating the cost of refinancing maturing debt. In the presence of multiple equilibria, a Member State's economic fundamentals may support both an equilibrium with negligible credit risk and a low cost of refinancing as well as an adverse self-fulfilling equilibrium with a higher interest rate reflecting significant credit risk that arises because of the higher cost of refinancing maturing debt. To avoid inadvertently validating adverse equilibria, DSA should not rely on market-based interest rate projections. And yet, the ECB has decided to do exactly that. The ECB's DSA methodology relies on market-based interest rate projections, including potentially unwarranted credit spreads, thereby validating adverse expectational equilibria even when economic fundamentals could support equilibria without excessive spreads.

Consider the ECB's decision to delegate the determination of collateral eligibility of government debt of its Member States to private credit rating agencies. This decision introduced a destabilizing cliff effect in the ECB's collateral framework – a unique feature among peer central banks. If a Member State has a rating above some threshold, the ECB considers its government debt eligible collateral. Below the threshold, the debt becomes ineligible, effectively destroying the liquidity value of government debt for that Member State. The destabilizing nature of this decision was not sufficiently appreciated when the decision was made in 2005 but its adverse effects have been repeatedly demonstrated since the GFC. The problem is that the loss of collateral eligibility as a result of a downgrading induces debt roll-over risk. During a panic, fears of downgrades and potential default become self-fulfilling as investors must account for the possibility that the ECB may refuse to accept government debt as collateral, even for sovereigns with sound fiscal fundamentals.

In effect, since the GFC, the ECB's monetary policy implementation strategy has been inadvertently inducing fears of debt roll-over crises that would have been unwarranted had the ECB adopted better practices. As a consequence, monetary policy has been transmitted unevenly across euro area Member States, which in turn has contributed to divergences across the euro area, with some Member States unnecessarily being subjected to severe stress.

Has the ECB made satisfactory use of the authority delegated to it for the implementation of monetary policy in the euro area? Clearly not, judging from the experience of the past decade. However, since the start of the pandemic earlier

[6] *De Grauwe, Paul and Juemei Yi (2013). Self-fulfilling crises in the Eurozone: An empirical test. Journal of International Money and Finance, 34, 15–36, April.*

this year, the ECB has shown a different side, which I examine next.

VII. The Response to the Pandemic

One way to examine the ECB's response to the pandemic is through the lens of government bond markets. This is informative regarding the ECB's relative success to protect against the impairment of monetary policy, compared to other episodes of severe stress observed since the GFC. Figure 6 shows the 10-year government bond yields for the four largest Member States together with the corresponding OIS rate.

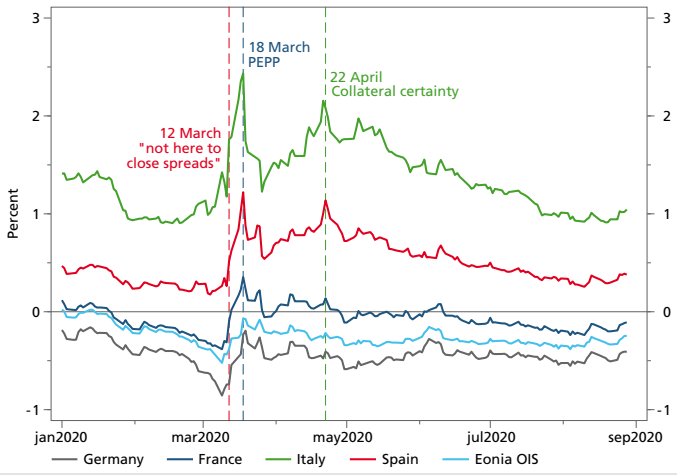

Figure 6: Ten-year yields on sovereign debt and OIS rate

The vertical lines correspond to three dates: The first is 12 March 2020, when ECB President Lagarde stated: "We are not here to close spreads." This communication mishap initially roiled markets, as reflected in the figure. However, the ECB Governing Council and President Lagarde deserve credit for recognizing the vulnerability and taking steps towards restoring stability and improving the transmission of monetary policy.

In subsequent days, conditions in government bond markets deteriorated with the recognition that the pandemic was spreading and was likely to result in a severe contraction in economic activity. The adverse market reaction also suggested concerns among market participants for whether the ECB would take forceful measure to support the economy and government bond markets. The introduction of the Pandemic Emergency Purchasing Program (PEPP) on 18 March was a significant step towards alleviating these concerns. As can be seen, bond markets rallied in response to the PEPP, as reflected in notable declines in yields.

However, the PEPP-induced rally was short-lived. As can be seen in the figure, within a few days yields on the government bonds of France, Spain, and Italy started rising again. One important source of instability remained unresolved. Bond purchases did not address the cliff effects in the ECB's collateral framework and the potential debt roll-over crises that could follow decisions by private credit rating agencies to downgrades Member States with ratings close to the cliff. Fortunately, the ECB preempted the downgrades with a critical decision taken on 22 April: Using its discretionary authority, under Article 18 of the Statute, the ECB Governing Council decided to temporarily suspend the role it had delegated to private credit rating agencies to determine collateral eligibility, until September 2021. In this manner, the ECB provided collateral certainty and finally succeeded in diffusing the tensions that had dominated markets since early March.

VIII. Two Urgent Matters for the Monetary Policy Strategy Review

Before the pandemic, the ECB embarked on a welcome strategy review. On 23 January, it announced the review as follows:

"As our economies are undergoing profound changes, it is the time for a strategy review to ensure we deliver on our mandate in the best interest of Europeans."[7]

The pandemic delayed some of the work on the review and the ECB postponed its completion to mid-2021. But the pandemic also made improvements to the pre-pandemic monetary policy strategy more urgent. It also forced the ECB to embrace temporary deviations from its existing policy strategy to partially address known flaws.

Should corrections to known flaws in the ECB's monetary policy strategy wait another year? To limit the lasting damage also from the pandemic, improvement of the ECB's policy strategy is a matter of urgency.

Two issues stand out and must be addressed to make policy more effective: First, the ECB should adopt a clear, symmetric 2-percent inflation goal and calibrate QE in a systematic manner to achieve this goal. Providing ECB Governing Council inflation projections similar to other central banks, would buttress the ECB's commitment to implement policies consistent with its 2-percent inflation goal. These steps would help re-anchor inflation expectations and improve economic outcomes. Certainly, it would have been better to adopt the 2-percent goal much earlier. That would have better protected the ECB from the political pressure, legal challenges, and policy mistakes that led to lowflation. Regardless, the sooner the ECB adopts a clear, 2-percent inflation goal, the better.

Second, and even more important, the ECB must correct the fragility-inducing aspects of its policy implementation strategy. The ECB can draw on the success of the temporary measures adopted in response to the pandemic. It should eliminate cliff effects in its collateral framework on a permanent basis. It must end the delegation of the determination of collateral eligibility of government debt to private credit rating agencies.

It certainly does not reflect well on the ECB that its monetary policy implementation strategy has been inadvertently inducing instability in government bond markets for so long. The ECB deserves credit for the decision to temporarily suspend the most destabilizing aspect of its collateral framework until September 2021, but must convert the short-term patches to permanent corrections.

The ECB has the authority and the tools to deliver on its mandate better than in the past.

In the best interest of Europe, improvement of the ECB's policy strategy is a matter of urgency.

[7] *European Central Bank (2020). ECB launches review of its monetary policy strategy. Press Release, 23 January.*

Claudio Borio, Bank for International Settlements

When The Unconventional Becomes Conventional[1]

Thank you for inviting me to this event. I am glad to be speaking here again. This session is about the ECB's toolkit for normal and crisis times. I hope you will excuse me if I don't speak about the ECB specifically, but about central banking in general. Of course, some of the points I'll be making are relevant to the ECB, too.

After briefly retracing the extraordinary monetary journey since the Great Financial Crisis (GFC), I would like to focus on three issues: the lessons, the caveats and the challenges. The bottom line is that there are tough policy challenges ahead, and the answers remain elusive.

The Journey

So, let me recap the monetary journey. It is a sign of the extraordinary times we live in that the central bank tools for normal and crisis times are increasingly hard to distinguish. In the "old days," the picture was quite simple. In normal times, central banks would steer the market overnight rate within a positive range. Liquidity management operations would work in the background. They would be designed purely to steer that rate, and carried no signal about the monetary policy stance. In crisis times, central banks would actively use their balance sheet in order to stabilise financial markets and institutions, typically through emergency liquidity assistance to financial institutions, essentially banks. One possible exception to this neat distinction, at least for some of them, most notably those in emerging market economies (EMEs), was FX intervention. This is a type of balance sheet policy in all but name.

Then came the GFC, which upended this simple world. In its wake, central banks started to actively deploy their balance sheet in order to spur aggregate demand, given the proximity of the effective lower bound. The balance sheet became a key tool to set the monetary policy stance. Hence the large-scale purchases of public sector and private sector securities and, in the euro area, public sector securities of different degrees of credit risk as well as special subsidised lending schemes for banks. In addition, central banks began to rely heavily on forward guidance, extending way into the future, as a quasi-commitment device. And some of them also pushed interest rates into negative territory. This was something historically unprecedented and would simply have been unthinkable until then. The cross-country differences that do exist do not invalidate this general picture.

The response to the COVID-19 crisis is yet another step along that path. Central banks have done more, in terms of both scope and amounts; hence the more direct support for firms of lower credit quality. And more central banks have done so; hence, for instance, the unprecedented large-scale purchases of government securities in EMEs. In the process, central banks have crossed a number of red lines, and they have done so with their eyes wide open: emergency times call for emergency measures. We have described and analysed this in detail in a chapter of our latest Annual Economic Report.[2]

Looking forward, if the post-GFC experience is anything to go by, it is not inconceivable that some of these tools will survive and become part of the normal toolkit.

The Lessons

Now for some lessons. Arguably, unconventional monetary policies (UMPs) have been much more successful than generally expected. I still remember the debates over whether large-scale asset purchases of government securities would succeed in reducing bond yields to any significant degree. The Federal Reserve would try to find clues in previous experience with Operation Twist. Then came Ben Bernanke's famous quip: "QE … works in practice, but it doesn't work in theory." So now we know!

[1] *The views expressed are my own and not necessarily those of the BIS.*
[2] *BIS, Annual Economic Report 2020, "A monetary lifeline: central banks' crisis response", Chapter II, June 2020, www.bis.org/publ/arpdf/ar2020e.htm.*

The instruments can have a substantial impact on financial conditions, and financial conditions are the channel through which monetary policy influences economic activity.

During the COVID-19 crisis, we have seen just how powerful UMP instruments can be. Through shock-and-awe tactics, not only did their forceful and large-scale deployment stabilise markets, it also triggered a strong market rally. As a result, risky asset prices are now broadly in line with pre-crisis levels, having on occasion been even higher. Indeed, this has led observers to wonder whether asset valuations are disconnected from underlying economic reality.[3]

Looking further back, there is little question that central banks' accommodative monetary policy stance has been instrumental in supporting the economic recovery post-GFC, in what proved to be extremely challenging conditions.

The Caveats

Now the caveats. The main caveat is that nothing is a panacea or comes for free. Let me highlight a couple of points.

Point 1: There are grounds to believe that the tools have diminishing effectiveness. After all, and without going into details, there are limits to how far interest rates can be lowered and credit spreads compressed. In addition, the compression of banks' interest margins can weaken banks' lending capacity in the longer term (the so-called "reversal rate") even if asset quality is temporarily boosted. Indeed, some work under way with colleagues finds evidence that, the lower interest rates are, the smaller the impact on economic activity. Moreover, the impact of the duration of low rates is also worth examining.

Point 2: There is a consensus that, while effective, the tools have limitations. Again, without going into details, there is a consensus on four issues. First, unusually easy financial conditions can spur excessive risk-taking. There is no doubt that some of the financial vulnerabilities (outside banks) that prevailed pre-COVID-19 crisis, and that amplified its damage, were in part due to the unusually easy and prolonged accommodative conditions that prevailed post-GFC. Second, unusually easy financial conditions can sap the resilience of financial intermediaries – not just banks, but also insurance companies and pension funds. Third, those conditions may contribute to the misallocation of resources, essentially by softening budget constraints. And fourth, they raise tricky political economy questions, not least for the relationship between the central bank and the government. As we have discussed in our latest Annual Economic Report, the risk of fiscal dominance and loss of autonomy is material. The real debate is about the strength of these effects, about how long it may take for them to materialise, and how far they can be effectively addressed through other means (e.g. macroprudential measures).

The Challenges

The challenges follow from the caveats. The wide-ranging and forceful measures necessary to contain the damage of the pandemic have further narrowed the room for policy manoeuvre. An economy with small safety margins is exposed and vulnerable. That's why policies in non-economic areas explicitly build in those margins (transport, health, energy, etc). Arguably, the challenge of the decade ahead will be to rebuild policy buffers – prudential, fiscal and monetary.

To be absolutely clear: withdrawing policy accommodation – the first step in the process – is not for today, tomorrow or even the day after tomorrow. The economy will require support for quite some time. Moreover, there is a natural concern that even talking about withdrawal could reduce the effectiveness of the policies in place by sapping

[3] *See BIS Quarterly Review, "International banking and financial market developments", September 2020, www.bis.org/publ/qtrpdf/r_qt2009.htm.*

confidence. But at some point, as soon as conditions allow, disengagement will be called for. Starting the debate now can get markets, and economic agents generally, ready.

At that point, rebuilding policy buffers will be a major challenge. Let me briefly elaborate with reference to the case at hand: monetary policy. In order to succeed in normalising, monetary policy will need to address two issues, economic and intellectual.

The economic issue is well known and fully appreciated. It is the limited responsiveness of inflation to monetary policy that has prevailed for so long.[4] Especially since the GFC, many central banks, including those in the leading economies, have tried very hard to push inflation up to target, and they have failed.

Two factors underlie the difficulties central banks face.

First, inflation has proved very unresponsive to economic slack. In other words, the Phillips curve has proved to be very flat, and indeed very hard to estimate. That's why, in its recent review, the Federal Reserve has downplayed the role of an unobservable equilibrium rate of unemployment in setting policy.

Second, there is an increasing recognition that inflation expectations are backward-looking. This is indeed one reason why central banks are very concerned when inflation remains persistently below target. The concern is that inflation expectations may become unanchored, as economic agents are convinced only by outcomes, not by announcements.

Looking ahead, the picture is unlikely to change significantly. Disinflationary pressures will probably prevail for quite some time. From a cyclical perspective, economies may well operate persistently below full capacity. Above all, from a secular perspective, some of the forces that have weakened the bargaining power of labour and the pricing power of firms are still with us: globalisation (albeit somewhat in retreat), technology (in full swing) and demography (very slow-moving).

The intellectual issue is possibly less well appreciated. The main element here is the prominence of the notion of the natural interest rate, or r*. This is the real interest rate that defines equilibrium in the goods market and that is generally regarded as fully independent of monetary policy.

This notion, in effect, puts central banks in a straightjacket. It implies that the only way to gain policy headroom is to raise inflation so that nominal interest rates can increase alongside it. In other words, central banks have no option but to cut rates (ease monetary policy) today if they want to raise them tomorrow. Thus, paradoxically perhaps, gaining policy headroom on a sustainable basis tomorrow requires lowering it today.[5]

This notion is especially powerful when coupled with the view that the long-term side effects of unusually and persistently easy monetary policy are not significant or can be effectively managed through other policies. In some respects, this view about the significance of the side effects is not surprising. The costs of failing to rebuild buffers are not highly visible – either ex ante, as they materialise only in the longer term, or ex post, as it will be hard to attribute the costs (e.g. financial vulnerabilities, notably higher debt, private and public, as well as lower growth) to previous

[4] *For an analysis of the factors behind this development that places an emphasis on benign supply side factors such as globalisation and technology, see C. Borio, "Through the Looking Glass", OMFIF City Lecture, London, 22 September 2017.*

[5] *For a critical empirical analysis that casts doubt on the prevailing notion that the natural interest rate is independent of monetary policy regimes, see C. Borio, P. Disyatat, M. Juselius and P. Rungcharoenkitkul, "Why so low for so long? A long-term view of real interest rates", BIS Working Papers, no 685, December 2017. For a theoretical model that illustrates how this can be the case, see P. Rungcharoenkitkul, C. Borio and P. Disyatat, "Monetary policy hysteresis and the financial cycle", BIS Working Papers, no 817, October 2019.*

monetary policy decisions. But these vulnerabilities do weaken the economy's ability to withstand higher rates – a kind of "debt trap." In the case of public debt, this can give rise to challenges for the central bank's independence[6] and credibility.

The implication is straightforward. With inflation rather unresponsive to monetary policy, the risk of depleting buffers is material. The post-GFC experience confirms this.

What does all this mean for policy? I would suggest that it points to the need for a broader view. We need to recognise the limits of monetary policy as well as the importance of flexibility in the framework, which would allow sufficient weight to be placed on the longer-term factors on which monetary policy has a significant influence. And we need to think of what other policies can do. Hence the need to ensure that, for these policies too, adequate buffers are in place.

This applies to both prudential and fiscal policies. Pre-existing buffers in both areas have been instrumental in enabling the necessary policy support in the response to the COVID-19 crisis. Strong bank capital and liquidity buffers have allowed supervisors to encourage banks to keep credit flowing, and those countries with higher fiscal headroom have been able to respond more forcefully.[7]

At some point, though, there will be a need to rebuild the buffers. This is true for banks, as the crisis transitions from the liquidity to the solvency phase; and it is true for fiscal policy, as the imperative is to ensure that it remains on a sustainable path, which is essential for financial, macroeconomic and price stability.

Last but not least, while policy buffers promote badly needed economic resilience, the key to more robust and sustainable growth is structural reforms. Unfortunately, after a brief phase post-GFC, they have lost momentum. The current crisis offers an unexpected opportunity to regain it.

To conclude: building policy buffers is essential – in monetary policy, just as in other areas. The challenge ahead is how. After all, if something is valuable, it must be worth paying a certain price for it.

[6] *For an analysis of central bank independence, past and future, see C. Borio, "Central banking in challenging times", SUERF Annual Lecture, Milan, 8 November 2019.*

[7] *See BIS (2020), op cit; and C. Borio, "The COVID-19 economic crisis: dangerously unique", speech at the National Association for Business Economics, Perspectives on the Pandemic Webinar Series, 2 July 2020 (forthcoming in Business Economics).*

Q&A: The ECB's Instruments for Crises and Normal Times

Katharina Utermöhl: Dual rates are hailed as a "wonder weapon" thanks to fewer legal and political concerns attached while promising endless room for maneuver and strong targeting (green TLTRO). How would you recalibrate this policy tool, i.e. what is TLTRO's r-star? Should the ECB be concerned about fueling risky lending?

Ulrich Kater: More and more market participants are concerned about side effects of unconventional policy instruments: high asset prices, low-risk premia, and high debt levels. The regime of low inflation may change again over the coming years. What are the main challenges in unwinding the current instruments?

Jari Stehn: Policymakers have provided unprecedented stimulus during the COVID crisis, but central banks with positive policy rates have not entered negative territory and ones with negative rates have kept them on hold. Has there been a reassessment of negative rates and what are the implications for the ECB?

Christian Noyer: How do you assess the compatibility of negative interest rates and asset purchases? If a central bank does asset purchases, it injects huge amounts of liquidity. This liquidity comes back to banks. Nobody can reduce that liquidity except the central bank itself. It comes into reserves and if they are at negative interest rates, either they have the consequence of lowering the capital base of the central bank – then the central bank has to take less risk or to lend less, which is contrary to the objective of the central bank – or the central bank transmits this tax to the cost of credit. Then the cost of credit will be higher. In both cases, it seems to be negative. How do you see the compatibility?

Lucrezia Reichlin: I think one should have an overall approach about the risk of the policy package. Regarding the TLTRO, one could argue that sometimes indirectly the ECB supported the institutions that were close to insolvency, and so this is a problem. We know that in real-time it's difficult to discriminate between liquidity and solvency. This is something that should be addressed with different tools, so in principle monetary policy focuses on liquidity or the financial stability authorities look at the solvency. In my view, this is a problem of policy mix. You could argue that, actually, interest rate policy as well implies risk. For example, QE decreases risk if the problem in the market is to match maturity transformation from the financial sectors or because it compresses the spread. We withdraw that risk, while conventional monetary policy actually increases that risk. If one starts tracking risk, it's a very complex thing. Therefore, one should have a risk management approach to this risk and a set of policies that are coherent.

Athanasios Orphanides: First, a sentence responding to one of Claudio's remarks. Of course, I agree that there are side effects to quantitative easing as there are to any other monetary policy that we need to take seriously. The challenge is not to let the side effects keep our eye away from the ball, and effectively let inflation move away from price stability, let tens of millions of people go unemployed because the central bank is worried and is overwhelmed by side effects. That's not good policy. Good policy is to recognize the side effects and see how to respond in a systematic fashion.

I want to connect this to the question on how to unwind QE. The key is to have a systematic monetary policy. This is what Volker and I were trying to describe in our paper for the Bank of Japan twenty years ago. If you cannot do interest rate policy, you can do quantitative easing in a systematic fashion. We could even envision simple policy rules that have quantitative easing respond directly to the shortfall of inflation from the target. Of course, the unwinding will automatically come as the target is achieved and as incipient inflation rises above the target. If a central bank follows a rule that is systematic, it can actually be politically protected and defend its policy much better. One more thing I would like to comment on. This relates to Christian's question and also the question on dual interest rates and so forth. There are fiscal consequences of any monetary policy decision. I know central banks just don't like to talk about them, but they're there, everywhere. Negative interest rates, if they're implemented to be effective, do

have effectively a fiscal component that would depress the capital of the central bank. You can do dual interest rate, the idea was mentioned. You can do dual interest rates to have effective monetary policy in different sectors, if you wish similar to the idea of tiering of reserves. The problem is that if you look at these policies, they have a fiscal component and a monetary component. We need to realize that there is only so much fiscal element that the central bank can do on its own. It would be better to focus on the monetary policy component and effectively tell the governments that there is fiscal policy that needs to be complemented.

My last point is that fiscal and monetary policy, of course, have to be better coordinated, especially in an environment with a zero lower bound, when really there are common elements to what fiscal policy can do and what monetary policy can do. This is very different from what we were used to in a high-interest rate environment 20, 30 years ago.

Claudio Borio: Just some very quick points on the various issues that have been raised. First of all, with reference to the so-called "missing QE" in particular, but also to QE more generally. I know that people tend to say that the missing QE has been one key reason why inflation has been lower and below target. But if you look across the world, inflation has been generally below targets, for many, many years and across many countries, and despite efforts to push it up. This has been true regardless of whether central banks were at the zero lower bound, whether they were doing QE or not, and so on. My sense is that the problems are deeper than just whether one does QE or one doesn't do QE at the right time.

With regards to the question of the cost of these policies, I think that there has been a shift. I remember, including in a chat with Athanasios many years ago, that at the beginning the idea was that these policies were a free lunch. I think that now people understand that they are not a free lunch, but of course there are differences of view about how important these side effects are. Here, let me just say that these side effects can be quite sizeable, but – and let me stress – only in the longer run, not so much in the short run. This ties in also with the question of the unwinding of the measures and how difficult this is going to be. If they are emergency measures, I think it's easier. You can basically say: "This was just an emergency measure; it was always supposed to be an emergency measure; now the emergency has passed, and I will lift it." At least in theory; in practice, of course, it's not that straightforward. If the measures are not emergency ones, matters are much more complicated.

The key problem is that the actions that you're taking today are also making exit harder as time goes on, because you're precisely contributing to the conditions that make it so. For example, financial markets tend to become quite dependent on those policies and therefore very sensitive to any sign that they are going to be withdrawn. Think of this as a form of financial dominance, if you like, as opposed to fiscal governance. This is also true for debt in general and therefore also for government debt. These policies are designed to encourage more borrowing, they are designed to encourage its build up for good reasons – and we all agree on that around the table. But then, when you try to get out of the them, and you raise interest rates, because debt has accumulated in the meantime, the economy is going to be more sensitive to any withdrawal.

Regarding reassessments of negative interest rates, yes, there are differences of view across the world within the central banking community. There is no consensus on their effectiveness, and no one picked up on the points made by Governor Noyer. I would say that the main impact of QE – by that I mean buying long-term assets, and allowing reserves to build up – is on the asset side. The purchase brings bond yields down. On the liability side, maybe if there's quite a lot of tension in markets, then having excess reserves can help the banks. Otherwise, the two mechanisms that Noyer mentioned are present. The measure consumes capital, which is not particularly good for lending, and it may be considered a tax, which is, again, not very good for lending, although banks may try to substitute away from reserves to other forms of investment which, in aggregate, could be positive.


EUROPEAN CENTRAL BANK
EUROSYSTEM

François Villeroy de Galhau, Governor, Banque de France
Introductory Statement

Allow me three very short personal takeaways from Christine Lagarde's impressive speech and our previous panels this morning. First, on our mandate. It puts a clear priority on price stability, and it is not a dual mandate obviously, but it is not either a merely single mandate. I would characterize it as a two-tiered mandate. Second, on our inflation objective being symmetric and medium-term. If credibly, I stress the term "credibly," symmetric and medium-term, it would probably achieve a similar outcome ex post to flexible average inflation targeting. Third and last comment, rethinking the second pillar and tracking a broader set of variables, including assets of financial institutions and nominal GDP, could help the ECB. It could help to cross-check and to reconcile our so-called secondary objectives, starting with financial stability, with our primary mandate of price stability.

Let me now come to the third panel about the crisis that the euro area has faced since the last strategic review 17 years ago and about the possible lessons for the conduct of our own monetary policy. We faced three crises, the great financial crisis of 2008 and 2009, the European sovereign debt crisis of 2011-12 and, obviously, the present COVID shock. Central banks including the ECB have been fast, have been very innovative and have been, yes, effective in their answers to these three crises.

Only two remarks on the present COVID shock. Obviously, it's too early to draw the lessons, but it is indeed armed with the multiple lessons of the previous crises that central banks and the ECB have managed to prevent this health and economic crisis from turning into a financial crisis. Here, so far, we have been successful. Let me also add that contrary to pre-existing fears, central banks did not run, last March, out of ammunition. On the contrary, central banks are by nature never short of ammunition.

There are positive lessons, but there is no room for complacency, and we will discuss that. There are obviously questions, to quote some examples, about financial stability and the possible side effects, about possible exit strategy in the future and, as Christine Lagarde mentioned this morning, about communication with the broad public. I would say that as monetary policy becomes, after this crisis, more sophisticated, more powerful and more central, it is also probably at risk of becoming less understood.

We are fortunate enough to have three very distinguished speakers to put some light on these central issues. I don't need to introduce them, but only to quote the three of them. First and foremost Professor Otmar Issing, who was the mastermind of the last ECB strategic review in 2003, then Petra Geraats from the University of Cambridge and, last but not least, John B. Taylor, Hoover Institution and Stanford University.

Otmar Issing, Center for Financial Studies

The Two-Pillar Strategy

The ECB has announced that it will "examine how the economic and monetary analyses through which the ECB assesses the risks to price stability should be updated, also in view of ongoing and new trends."

The Introductory Statement of the President to the press conference presents the deliberations behind the monetary policy decision, in principle still in the format chosen in January 1999. The only change regards the order of the monetary and economic analyses, which goes back to the review of the strategy in 2003.

This kind of communication masks the fact that the ECB, without a formal decision of the Governing Council, has appeared to have progressively given up the two-pillar strategy and de facto adopted a policy of inflation targeting. In the words of the former Vice-President Vítor Constancio: "I believe that this strategy of flexible inflation target also works for the euro area and can remain central to any future monetary policy framework."

Whatever final decision is taken on the strategy, the ECB now has to clarify its approach. If the two-pillar strategy is (officially) abandoned in favour of the concept of inflation targeting, an explanation is required as to:

Why inflation targeting is the "optimal" strategy for the ECB.

Why the two-pillar strategy is not (any longer) appropriate and why it should be abandoned.

By now, research on the theory and practice of inflation targeting fills libraries. Initially basing monetary policy decisions on a simple forecast of inflation, the concept of inflation targeting has undergone a substantial change culminating in "flexible inflation targeting." After the financial crisis of 2008, the leading expert in this field gave a kind of final verdict: "In the end, my main conclusion so far from the crisis is that flexible inflation targeting, applied the right way and using all the information about financial factors that is relevant for the forecast of inflation and resource utilization at any horizon, remains the best-practice monetary policy before, during, and after the financial crisis."

On the one hand, this statement gives no guidance on how all the information should be organised in order to take the right decision in the context of an undefined horizon. In the end it immunises the concept against any critique and boils down to a tautology. On the other hand, it implies a (unintended) critique of the policy of central banks that followed inflation targeting in the years before the crisis without respecting the information from the development of money and credit – a neglect which was a major factor leading to financial imbalances and ending up in the collapse of the financial system.

To cut it short: No model of inflation targeting exists so far which integrates the risks from the banking system and financial markets with all their dynamics, non-linearities and overall complexity. Central banks should agree that the search for an "optimal" monetary policy regime has not come to an end and inflation targeting might entail risks and shortcomings. From this perspective, one could argue that a situation in which major central banks follow the same strategy might also bring systemic risks and that there are benefits to a more diversified and robust approach. The ECB would be well-advised to think twice before joining the other major central banks.

Consequently, adopting a different strategy needs convincing arguments. The simple question is therefore: Has the two-pillar strategy failed and should it be abandoned in favour of inflation targeting?

Is it simply a matter of fact that the Governing Council has increasingly neglected monetary analysis when taking monetary policy decisions in recent years? Would this be evidence that the monetary pillar has failed? The relevant question is: Would the ECB, over roughly the last ten years, have conducted a different policy by applying the two-pillar approach that ends with a cross-checking of the information from economic and monetary analysis? The answer is

straightforward: Not really. Most of the time, the overall development of money and credit did not send signals for following a substantially different monetary policy. However, such "observational equivalence" by itself would not be an argument to abandon the monetary pillar, as there is no reason to believe that the observed coincidence of the information from both analyses will be permanent. If the future development of money and credit (in a broad sense) did signal inflation risks going beyond the information from the economic analysis, and if this information were excluded in the inflation targeting approach, this might lead to a policy that endangers price stability (in one direction or the other). With the present COVID-19 crisis prompting unprecedented expansion of central bank balance sheets in conjunction with large-scale fiscal accommodation, it might again become more important to pay close attention to the monetary variable.

One reason for such a divergence could be the different time horizon of the economic and the monetary analysis. The monetary analysis is designed to signal risks to price stability over the medium to long term. One reason why the monetary pillar did not signal risks to price stability over the last decade could be that the horizon covered so far has been too short. While the monetary analysis had proved very valuable in the context of the financial crisis and was subsequently substantially enhanced, research, in particular by the BIS, has identified lengths of economic and financial cycles that go beyond the horizon usually covered by the monetary analysis of the ECB included in the Introductory Statement by the President. Based on further research, extending the horizon of the monetary analysis might not only identify future risks to price stability, but also integrate aspects of financial stability into the framework of monetary policy.

There exist convincing reasons for an in-depth review of the monetary policy strategy of the ECB. Confirming the de facto inflation targeting strategy via a simple formal adoption and putting the monetary pillar into the dustbin might turn out to be very risky for price – and financial – stability.

Petra Geraats, University of Cambridge

The ECB's Monetary Policy Strategy: Lessons from the Financial Crisis, Debt Crisis, and Coronavirus Crisis

The monetary policy framework of the ECB has developed a lot during the last two decades as the ECB has made significant changes in response to the 2008-2009 Global Financial Crisis (GFC), the 2010-2012 European sovereign debt crisis and the recent coronavirus crisis. To pursue its primary objective of price stability over the medium term, the ECB uses a two-pillar strategy based on economic and monetary analysis. Its monetary policy stance used to be indicated by the interest rate on main refinancing operations and implemented through liquidity operations. However, the use of large-scale liquidity operations during the global financial crisis has affected the de facto monetary policy stance. And the communication of monetary policy is further complicated by a plethora of large-scale asset purchase programs.[1] So, a review of the ECB's monetary policy strategy is overdue. After considering lessons from the financial crisis, sovereign debt crisis and coronavirus crisis, the ECB's monetary policy transparency and strategy are reviewed and recommendations for improvements are provided.

Lessons from the Financial Crisis

The 2008-2009 global financial crisis has taught central banks the crucial lesson that price stability does not guarantee financial stability. Although the ECB had mostly achieved low inflation close to 2 percent until 2007, this was followed by an episode of serious financial instability.

When the U.S. subprime mortgage crisis led to turmoil in interbank markets on 9 August 2007, the ECB swiftly responded by conducting liquidity injections. It repeatedly stated its aim to keep very short-term money market rates close to the interest rate on main refinancing operations.[2] The latter "constitutes the main signal of the monetary policy stance," so it is important that "very short-term market interest rates remain appropriately aligned with the policy stance signalled by the Governing Council," because an "excessively wide or volatile spread would undermine the clarity of the signal provided by the [main refinancing rate] and, ultimately, the credibility of the operational framework in its implementation of Governing Council decisions" (ECB 2008, p. 69). It was also emphasized that these liquidity operations are conducted to preserve the proper functioning of money markets, but do not influence the determination of the monetary policy stance.[3]

Following the collapse of Lehman Brothers on 15 September 2008, the ECB continued to provide additional liquidity and reduced the main refinancing rate in several steps (of mostly 50 basis points) from 4.25 percent in early October 2008 to 1 percent in May 2009. But its strategy was quite different compared to other major central banks, such as the U.S. Federal Reserve and the Bank of England. The ECB did not engage in quantitative easing (QE) through large-scale asset purchases. Instead, it pursued balance sheet policies by engaging in large-scale liquidity operations through supplementary fixed-rate, full-allotment longer-term refinancing operations (LTROs).

These LTROs allow the ECB to quickly provide cheap and abundant liquidity to the banking sector on demand.[4] Their fixed horizon makes them very suitable for injecting temporary liquidity, while they also allow for a gradual and

[1] *This includes the Securities Markets Program (SMP); Covered Bond Purchase Programs (CBPP1, CBPP2); Outright Monetary Transactions (OMT); Asset Purchase Program (APP), consisting of Public Sector Purchase Program (PSPP), Corporate Sector Purchase Program (CSPP), Asset-Backed Securities Purchase Program (ABSPP) and CBPP3; and the Pandemic Emergency Purchase Program (PEPP).*

[2] *See the ECB's ad hoc communications related to monetary policy implementation, including its general announcements on liquidity policy on 8 October and 30 November 2007, and also on 8 October 2008.*

[3] *See the introductory speech by ECB President Trichet at the hearing of the Economic and Monetary Affairs Committee of the European Parliament in Brussels on 26 March 2008.*

[4] *For instance, the one-year LTRO of June 2009 and the three-year LTROs of December 2011 and February 2012 resulted in allotments of €442bn, €489bn and €530bn, respectively.*

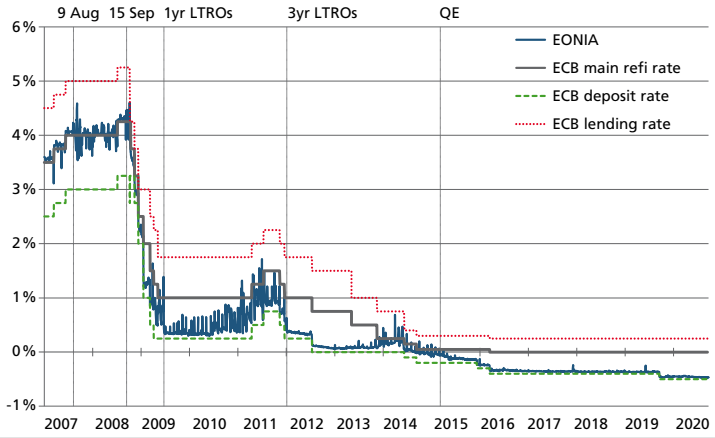

Figure 1: ECB Monetary Policy Easing by Stealth
Notes: EONIA and ECB main refinancing rate, deposit rate and lending rate, 02-01-2007 - 24-09-2020. Source: ECB

natural unwinding through shorter-term roll-overs or early repayments.[5] Thus, the amount of liquidity provided (and the size of the ECB's balance sheet) adjusts in line with the needs of the banking system.

However, a problem with providing a lot of liquidity is that banks may not use it as intended. It may not boost bank lending or otherwise benefit the real economy. In fact, it could end up increasing financial fragility as banks use it to buy higher-yielding, riskier assets, such as euro area periphery sovereign debt. So, when the debt crisis hit, the fallout was no longer confined to the euro area periphery, but it had become a systemic problem for the euro area, which greatly complicated the ECB's response.

The ECB has attempted to deal with this pernicious problem by introducing targeted LTROs (TLTROs), in which the amount of long-term funding available to banks is tied to their lending to the euro area non-financial private sector (excluding loans for house purchases), with more generous conditions offered to banks that exceed their net lending benchmarks.[6] The TLTROs provide incentives for banks to get cheap liquidity to boost lending and thereby provide greater monetary stimulus, with interest rates for banks as low as 50 basis points below the rate on the ECB's standing deposit facility. But TLTROs may induce banks to engage in risky lending that results in non-performing loans, so financial stability concerns remain.

Another problem caused by the large amount of liquidity provided by fixed-rate full-allotment LTROs (and since 2015 QE) is that it has pushed the euro area overnight interbank rate well below the ECB's main refinancing rate, close to the deposit facility rate. As a result, since 2009 the main refinancing rate has no longer been a good indicator of the ECB's monetary policy stance and very short-term money market rates have mostly been substantially below it. Thus, the ECB has effectively engaged in monetary policy easing by stealth (see also Geraats 2011), and the ECB's liquidity operations to preserve the proper functioning of money markets have significantly influenced its de facto monetary policy stance.

The ECB's monetary policy easing by stealth is illustrated in Figure 1, which shows the ECB's key interest rates, namely the main refinancing (refi) rate and the interest rates on its standing lending and deposit facilities. The latter form an interest rate "corridor" for the euro area overnight interbank rate, EONIA, which is an indicator of the de facto monetary policy stance. Before the financial crisis, the main refinancing rate was clearly providing a good signal of the

[5] *The ECB has often rolled over its LTROs and allowed for early repayments of the three-year LTROs (after one year) and all the TLTROs (I, II and III, after two years).*
[6] *The ECB has conducted three rounds of TLTROs, starting in September 2014, June 2016 and September 2019, each with different conditions, including a maturity up to four years.*

monetary policy stance, as EONIA fluctuated around it, although fluctuations became much larger after 9 August 2007 when money market turmoil broke out. But following the collapse of Lehman Brothers on 15 September 2008, there has been a persistent discrepancy, with EONIA generally far below the main refinancing rate. After the introduction of one-year LTROs in June 2009 and three-year LTROs in December 2011, EONIA mostly stayed close to the ECB's deposit rate, except for a period of volatility when the ECB started to phase out its "enhanced credit support" and euro area sovereign debt turmoil started developing.

In the aftermath of the GFC, the ECB was often criticized for not providing further monetary easing as it kept the main refinancing rate at 1 percent for nearly two years. However, euro area monetary conditions were much looser as the euro overnight interbank rate was around 0.30 percent until mid-2010, very close to the ECB's deposit rate of 0.25 percent. In this sense, the ECB provided more monetary easing than the Bank of England, as the sterling overnight rate was very close to Bank Rate at 0.50 percent. So, this criticism of the ECB was unfair, but it deserves to be criticized for its policy opacity.

This lack of transparency about the ECB's monetary policy stance following the GFC is problematic for public communications. For instance, Figure 1 shows that the reductions in the main refinancing rate in May and November 2013, when the deposit rate was left unchanged, did not lead to a loosening of monetary conditions through lower overnight interbank rates. In contrast, when the ECB cut its deposit rate in September 2019, when the main refinancing rate was kept unchanged, it led to a loosening of monetary conditions as EONIA declined as well. Unfortunately, the terminology "main refinancing rate" gives the misleading impression that it is the ECB's main policy rate. However, that is no longer the case and the ECB does little to dispel this misinterpretation in its monetary policy communications.

Although EONIA fluctuated closer to the main refinancing rate during 2014, Figure 1 shows that following the adoption of QE through the ECB's Asset Purchase Program (APP) in March 2015, the euro area overnight rate has been pushed down to the floor of the interest rate "corridor" and has remained very close to the ECB's deposit rate. As a result, the ECB has effectively operated a so-called "floor system" since the financial crisis because of the abundant liquidity it has provided through its fixed-rate full-allotment large-scale liquidity operations (LTROs) and more recently its large-scale asset purchases (QE). Although this is well-known among ECB watchers and monetary specialists, it could easily confuse others, including the general public, who are more likely to focus on the main refinancing rate instead. So, the ECB should consider the explicit adoption of a floor system, or at least be transparent about which of its "key interest rates" is actually the main policy rate that signals the ECB's monetary policy stance.

Negative Interest Rates

Since June 2014, the ECB has had a negative deposit rate. Although this led to slightly negative overnight interbank rates during the last months of 2014, negative short-term money market rates have become prevalent in the Eurozone since 2015.

Negative yields on euro area sovereign debt have also been driven by the ECB's Asset Purchase Program (APP), which started in March 2015.[7] Since 2015, negative yields on government bonds have gradually become common in the Eurozone, initially only for short-term maturities and core Eurozone countries, but they have subsequently extended their reach to longer-term maturities and periphery countries.

[7]*Around 80 percent of APP purchases have been part of the ECB's Public Sector Purchase Program (PSPP), which includes euro area government bonds.*

For instance, at the end of September 2020 the yields on five-year and ten-year German government bonds were around -0.7 percent and -0.5 percent, respectively. The latter is the same as the ECB deposit facility rate; using the expectations theory of the term structure, this suggests financial markets are expecting this negative deposit rate to prevail for the next 10 years. The current prevalence of negative bond yields in Europe is truly remarkable. Textbooks used to state that nominal interest rates cannot be negative. However, the notion of a Zero Lower Bound on nominal interest rates has been resoundingly refuted by the facts.[8]

A benefit of negative deposit rates and yields is that they reduce appreciation pressure on the currency, which can be very useful for small open economies.[9] In addition, negative yields provide relief for governments because they reduce the interest rate burden of bonds and make high levels of debt more sustainable. However, that could also result in moral hazard and reduce pressure on governments to maintain fiscal discipline, so it is a mixed blessing.

Another problem with negative rates is that they are effectively a tax on the banking system. Banks must hold reserve balances at the central bank to conduct their business. The ECB's large-scale liquidity operations and asset purchases imply that euro area banks have very large reserve balances. Negative deposit rates effectively impose a tax on them, which is likely to weaken the banking system, especially in the aftermath of a financial crisis. As a result, negative rates could increase financial fragility for banks. This problem could be mitigated by reducing the average "tax" through tiered rates, which the ECB announced in September 2019.

A more fundamental problem is that reducing interest rates to negative levels may not boost bank lending and thus stimulate the economy due to the existence of a "reversal interest rate" (Brunnermeier and Koby, 2018). Lower rates compress loan interest rate margins and could reduce banks' net worth, so banks curtail their lending when interest rates fall below their "reversal rates." Although there is still a lot of uncertainty about its level, the possible existence of a positive reversal rate is a serious complication for central banks pursuing negative rates.

Furthermore, negative yields can endanger financial stability. Investors are likely to buy riskier assets in their "search for yield." In addition, it is really peculiar that investors are currently buying bonds with negative yields. It means that the bond price is so high that investors who hold the bond to maturity are sure to receive less in coupon and redemption payments than the price they paid for the bond. Nevertheless, banks and institutional investors such as pension funds may be forced to purchase bonds with negative yields to meet regulatory requirements, so negative yields basically impose a tax on them. Another reason for buying bonds with a negative yield is that investors expect bond prices to rise even further, so that they will be able to sell their bonds to somebody else with a positive expected return. Usually, it would be extraordinary to expect prices to rise further for an asset with a negative payoff – that makes it an asset price bubble. But we are living in unusual times in which there is a very large buyer in the form of a central bank engaging in large-scale asset purchases. That is perpetuating what is essentially a bond market bubble. The problem with bubbles, however, is that they usually don't gradually deflate, but tend to burst as they suddenly collapse.

So, the process of unwinding negative rates and large-scale asset purchases, including the ECB's Asset Purchase Program (APP) and its recent Pandemic Emergency Purchase Program (PEPP), needs to be done extremely carefully, because there is a serious risk that it will all abrupted unravel and bond yields will suddenly surge, which could kill an incipient recovery.

[8] *The market value of debt with a negative yield hit a record high of more than $17tn in early November 2020, amounting to just over a quarter of the world's investment-grade debt (Stubbington, 2020).*
[9] *Switzerland and Denmark are good examples in this respect.*

As a result, negative rates need to be used with great care and effective macroprudential policy is required to mitigate the risks of negative yields.

Lessons from the Sovereign Debt Crisis

The 2010-2012 euro area sovereign debt crisis has taught the ECB the crucial lesson that the euro area is definitely not an optimum currency area. The Eurozone is an imperfect monetary union of heterogenous countries with a "single market" that provides factor mobility in theory, but not in practice (due to cultural and language barriers for workers), and it suffers from highly incomplete risk sharing across countries. So, countries require sufficient fiscal flexibility to stabilize asymmetric, country-specific shocks, and adequate fiscal space for public investment to allow them to pursue structural improvements and reforms.

Furthermore, the sovereign debt crisis showed the serious problems that arise for a monetary union that lacks a proper banking union. The GFC had left many banks nursing large losses, so national governments were forced to intervene to bail out banks, which came at a very high fiscal cost for some countries and substantially increased their government bond yields. This in turn reduced the value of government bonds held by banks, thus further worsening banks' balance sheets and increasing bailout costs, leading to a vicious circle or "doom loop."

Moreover, the European sovereign debt crisis revealed that the Eurozone as a multi-country currency union faces financial fragmentation risks due to differences in sovereign debt spreads that are potentially self-fulfilling, making it susceptible to crises.

So, the ECB is the central bank of an incomplete, potentially fragile multi-country monetary union, which makes its job uniquely challenging.

Fortunately, in response to the European sovereign debt crisis, some steps have been taken to address these imperfections and potential weaknesses. The EU has strengthened its fiscal policy framework through the Fiscal Compact, which addresses some shortcomings of the Stability and Growth Pact, although there is still much scope for improvement, including more fiscal space for public investment.

In addition, significant progress has been made on a European banking union. So far, it includes the Single Supervisory Mechanism (SSM, since 2014), which makes the ECB the direct prudential supervisor of "significant" banks; and the Single Resolution Mechanism (SRM, since 2015), which makes the Single Resolution Board responsible for the orderly restructuring of "significant" failing banks, and gives it access to a Single Resolution Fund that is financed in advance by contributions from banks; with national supervisors and resolution authorities responsible for other banks, based on a single rulebook. However, an important gap remains in the European banking union due to the lack of a European deposit insurance scheme. In addition, the new institutional setup of SSM and SRM is yet to be properly tested in a crisis.

Concerning financial fragmentation risks, the ECB has taken crucial steps to mitigate it. First, at the height of the euro area sovereign debt crisis in July 2012, ECB President Draghi dramatically stated in a speech: "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough." (Draghi, 2012) In addition, he made clear that the financial fragmentation that the Eurozone was suffering from, which manifested itself in large differences in sovereign debt premia, was increasingly due to the risk of (lack of) convertibility (into the euro, due to a breakup), so these premia fall within the ECB's mandate.

Second, at its September 2012 press conference the ECB announced a framework of Outright Monetary Transactions (OMTs) in secondary markets for euro area sovereign bonds, with potentially unlimited sterilized purchases of shorter-term bonds, subject to strict conditionality.[10] It aims to "preserve the singleness of our monetary policy and to ensure the proper transmission of our policy stance to the real economy throughout the area," and "will enable us to address severe distortions in government bond markets which originate from, in particular, unfounded fears on the part of investors of the reversibility of the euro. Hence, under appropriate conditions, we will have a fully effective backstop to avoid destructive scenarios with potentially severe challenges for price stability in the euro area."[11] This serves to clarify that OMTs are within the ECB's mandate.

President Draghi's statement and the subsequent announcement of the OMT framework proved so effective at reducing euro area periphery sovereign debt yields that OMTs remain unused! Thus, the ECB learned the incredible power of central bank communications.

But to be effective, it is vital to have a credible backstop and to provide appropriate reassurance. And when poorly phrased, communications can be very damaging. This was shown by ECB President Lagarde's answer at the ECB press conference of 12 March 2020 in response to a question about potentially activating OMTs: "We are not here to close spreads. This is not the function or the mission of the ECB." Such a statement is very problematic considering the fragile situation that the Eurozone finds itself in as an incomplete multi-country monetary union, especially during a pandemic crisis. President Lagarde tried to contain the damage before it further infected financial markets by stating in a CNBC interview after the press conference that she is "fully committed to avoid any fragmentation in a difficult moment for the euro area. High spreads due to the coronavirus impair the transmission of monetary policy." In addition, she stated that the flexibility embedded in the APP will be used, and that the additional package that was approved "can be used flexibly to avoid dislocations in bond markets."[12] It is important to carefully maintain a credible backstop in this way to prevent fragmentation risks from flaring up again.

In addition, the ECB should focus on further improving the fundamentals of the European Economic and Monetary Union (EMU) so that it is better equipped to deal with future crises. This includes:

- Completing the banking union, with a European deposit insurance scheme to complement effective bank supervision and resolution through the SSM and SRM.

- Improving the framework for macroprudential policy, with better analytical tools to assess emerging risks, effective instruments to manage risks, including those associated with prolonged periods of loose monetary policy with negative interest rates, and a robust system to detect and mitigate systemic risks, coordinated by the European Systemic Risk Board (ESRB).

- Reforming the fiscal policy framework so that it offers greater flexibility to engage in macroeconomic stabilization, especially when the monetary policy rate is near its effective lower bound, and provides adequate fiscal space for public investment, to enable structural improvements and reforms.

[10] *More specifically, OMTs are sterilized purchases of sovereign bonds with a maturity of one to three years, with no ex ante quantitative limits, but subject to strict and effective conditionality attached to an appropriate European Financial Stability Facility (EFSF)/European Stability Mechanism (ESM) program (ECB, 2012).*

[11] *Introductory Statement to the ECB press conference on 6 September 2012.*

[12] *President Lagarde's statement in the CNBC interview is – in a highly unusual rectification – included as a footnote to her answer in the transcript for the Q&A session of the ECB press conference of 12 March 2020.*

The ECB routinely comments on fiscal policy and structural reforms in its Introductory Statement to the press conference. But after imploring governments to show fiscal discipline for so long, it appeared that it had been so effective that when the need for expansionary fiscal policy arose in crisis time, countries appeared too afraid to actually do it, leaving ECB monetary policy to do the heavy lifting. So, the ECB would benefit from using its platform to support much needed changes in the fiscal framework that will improve the monetary union.

Lessons from the Coronavirus Crisis

The ECB has responded to the eruption of the coronavirus crisis in spring 2020 by engaging in strong monetary easing measures. With the ECB's main refinancing rate already at 0 percent and the deposit facility rate at -0.50 percent, there is little scope for conventional monetary policy stimulus, so the ECB has used large-scale asset purchases and liquidity operations instead. Although the measures decided at its monetary policy meeting of 12 March 2020 were underwhelming,[13] less than a week later the ECB suddenly announced its Pandemic Emergency Purchase Program (PEPP),[14] consisting of private and public sector securities and an initial "overall envelope" of €750bn, which was extended to a total of €1,350bn and then €1,850bn on 4 June and 10 December 2020, respectively. In addition, at its monetary policy meeting of 30 April 2020, the ECB decided to introduce a new series of fixed-rate full-allotment, non-targeted pandemic emergency longer-term refinancing operations (PELTROs) to ensure smooth money market conditions during the pandemic period by providing an effective liquidity backstop.

However, monetary policy is poorly equipped to address the coronavirus crisis, which has caused a large negative shock to output and demand due to lockdowns and other restrictions. So, a strong fiscal policy response is vital to support real demand. This is bound to lead to a large increase in fiscal deficits and public debt, exacerbating the very high levels of government debt in some countries.

In addition, companies that are already highly indebted are now forced to take on even more debt to stay afloat. Many of them are unlikely to survive when bills finally come due and debts must be repaid. Although the ECB is currently using TLTROs to stimulate banks to continue their lending, large loan losses are going to be inevitable. As the prudential supervisor of significant banks in the SSM, the ECB may thus have some qualms about banks using ultra cheap TLTROs to make risky loans. This means a delicate balancing act for the ECB in its dual role of monetary policymaker and bank supervisor. With a robust regulatory and supervisory regime, banks should be able to maintain appropriate lending standards and have enough capital to withstand substantial losses due to non-performing loans. So, this will be a useful test of the effectiveness of the SSM, and probably the SRM as well.

The coronavirus crisis is likely to lead to a large deterioration of the balance sheets of many households, firms, banks and governments, thereby increasing financial fragility. So, macroprudential policy is likely needed as well.

In short, the coronavirus crisis requires effective fiscal, monetary, microprudential and macroprudential policies. So, the macroeconomic and new prudential policy frameworks of the eurozone are going to be seriously tested by this crisis.

When it comes to effective macroeconomic policy, it takes two to tango - both fiscal and monetary policy are needed. Hopefully, the ECB President will be able to persuade governments that fiscal policy has to play its part to prevent a prolonged economic slump.

[13] They included additional LTROs, more favorable terms for TLTRO III, and a "temporary envelope" of €120bn additional net asset purchases.
[14] "ECB announces €750bn Pandemic Emergency Purchase Programme (PEPP)", ECB press release, 18 March 2020.

ECB Monetary Policy Transparency

Having noted the power of the ECB's communications at the height of the European sovereign debt crisis, we will now discuss the ECB's use of forward guidance and evaluate an important aspect of its monetary policy strategy, which is the transparency of its monetary policymaking.

Although the ECB has always provided a prompt announcement and explanation of its monetary policy decisions, including a press conference, it long remained opaque about its policy inclination, often declaring that it would never precommit. Instead, it used fuzzy guidance in the form of a traffic light system of code-word communications to convey its intentions, using the terms "monitor (very) closely" and most notably "strong vigilance" to signal upcoming policy rate hikes (see Geraats, Giavazzi and Wyplosz, 2008, box 6).

In response to the money market turmoil in August 2007 and subsequent financial crisis, however, the ECB regularly provided explicit forward guidance about additional liquidity measures as it often announced its supplementary LTROs with considerable advance notice, which helped to stabilize money market conditions for longer maturities. Likewise, the ECB pre-announced some of its unconventional asset purchase programs several months in advance (including its first covered bond purchase program in 2009 and its asset-backed securities purchase program in 2014), sometimes providing scant details initially.[15] But such announcements could still be useful and help stabilize asset prices before the full modalities of the program are known, as illustrated by President Draghi's statement "to do whatever it takes."

For its Asset Purchase Program (APP), which was announced on 22 January 2015, but started in March 2015, the ECB has generally provided explicit calendar-based forward guidance about its intended minimum horizon for monthly asset purchases.

The ECB only started using explicit forward guidance about its key interest rates in July 2013, when it introduced qualitative guidance in its Introductory Statement to the press conference that its key rates are expected "to remain at present or lower levels for an extended period of time." The ECB introduced quantitative forward guidance about its key rates in its monetary policy announcement of July 2016, where it tied the prospect for low rates to the horizon of its net asset purchases, for which it was already providing calendar-based guidance. This was turned into direct calendar-based guidance about its key interest rates in June 2018.[16]

Since September 2019, however, the ECB's monetary policy announcement has provided threshold guidance about its key rates, in particular that it "expects the key ECB interest rates to remain at their present or lower levels until it has seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2 percent within its projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics." This is a very fuzzy formulation. Unlike the Federal Reserve, the ECB's threshold guidance is not based on inflation, which is easily observable, but on the "inflation outlook," which is more difficult to ascertain. In addition, it is not clear how to interpret the terms "robustly converge" and "sufficiently close to," and how to assess whether convergence has been "consistently reflected in underlying inflation dynamics." As a result, it is hard to figure out from this when the ECB is likely to increase rates.

In general, state-contingent guidance can be very useful because it provides much greater flexibility than calendar-based guidance. As the economic outlook deteriorates,

[15] *See the case study on the ECB in Dincer, Eichengreen and Geraats (2019).*
[16] *For a more extensive general discussion of different forms of forward guidance, see Geraats (2014).*

people know that the threshold is less likely to be reached, so they reduce their expectations for future policy rates, which lowers longer-term interest rates and provides additional stimulus to the economy. Thus, state-contingent forward guidance acts like an automatic stabilizer.

Unfortunately, the way the ECB currently formulates its state-contingent forward guidance is very fuzzy. It would be useful to clarify it, or to provide more comprehensive time-dependent forward guidance through the publication of a projected policy path, supplemented by state-contingent guidance through scenario analysis. Central bankers would greatly benefit from using scenarios, especially during a pandemic, both for their policymaking and communications. It would allow the private sector to understand potential monetary policy reactions and thereby better anticipate them, thus speeding up monetary policy transmission.

In addition to the adoption of explicit forward guidance in 2013, the ECB has significantly improved its monetary policy transparency in other respects during the last two decades. This includes the biannual publication of its staff macroeconomic projections in 2000, which became quarterly in 2004; the publication of the ECB's euro-area-wide macroeconomic model in 2001; and more recently, the release of the minutes (or account) of the ECB's monetary policy meetings in 2015.

These improvements in ECB transparency are illustrated in Figure 2, which shows the monetary policy transparency index of Dincer, Eichengreen and Geraats (2019), from 1998 updated to 2019. This index basically measures the extent to which central banks disclose information about several aspects of the monetary policymaking process. Figure 2 shows that in its early years, the increase in ECB transparency was primarily driven by economic aspects, such as the publication of ECB staff projections and the model, whereas the more recent increase in transparency was caused by greater policy transparency, in particular the use of forward guidance. Nevertheless, with a score of 12 out of 15, there still appears to be quite some scope for the ECB to improve its monetary policy transparency according to this index.

It would be beneficial for the ECB to significantly improve its monetary policy transparency in several ways.[17]

First, the ECB's quantitative definition of price stability is "a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2 percent," which it aims to maintain over the medium term. Following its monetary policy strategy review (ECB 2003), the ECB has clarified that it aims to maintain inflation rates "below, but close to, 2 percent" over the medium term. This inflation goal is asymmetric and lacks precision. It is not clear how

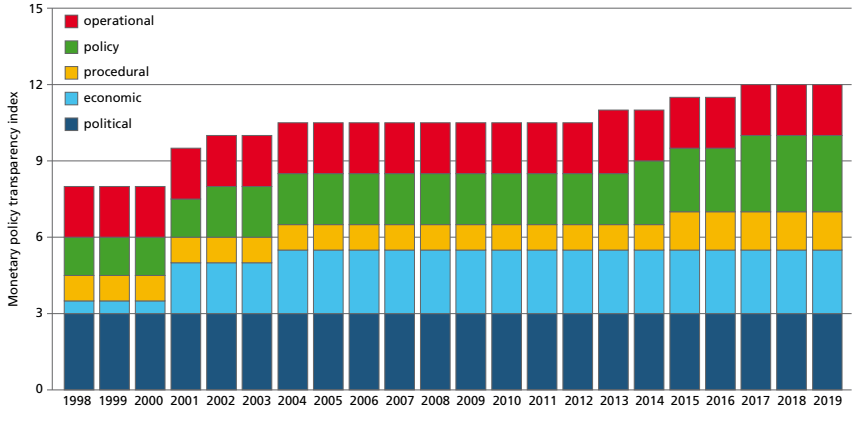

Figure 2: ECB Monetary Policy Transparency
Source: Dincer, Eichengreen and Geraats (2020)

[17] *For a review of the benefits of greater monetary policy transparency, see Geraats (2014).*

long the "medium term" is or whether the aim is 1.5 percent (in line with the monetary reference value that the ECB published in its early years), or 1.7 percent, or perhaps 1.9 percent. The current inflation goal is opaque, and its asymmetry suggests that the ECB is more concerned about inflation levels above 2 percent. A symmetric target (range) with an explicit (mid)point would therefore be better.

In addition, the ECB would benefit from a timelier release of its account of monetary policy meetings. Currently, it is published after three to five weeks, so the information it contains is stale, especially in times of volatility, which makes it harder to interpret. It would be desirable to release the minutes within two weeks to make it easier for the private sector to better understand the ECB's monetary policy considerations and inclinations. With a bit of effort this should be feasible, and the minutes could be agreed through a remote meeting.

However, it is not recommended to release the minutes at the same time as the monetary policy announcement, as the Bank of England has done since 2015. The problem is that approved minutes cannot be produced overnight. So, releasing the minutes at the same time as the policy decision means that the genuine deliberation must take place much earlier - in the case of the Bank of England it is a full week before the policy announcement. But a lot can happen in a week, especially in times of turmoil or crisis. Then the central bank either has to re-deliberate, in which case it faces the problem of quickly producing agreed minutes, or it has to disregard the new developments, which means its monetary policy is already out of date when it is announced and therefore also harder to interpret. So, it is not advisable to distort the monetary policymaking process to release the minutes at the same time as the decision. Transparency should improve the effectiveness of monetary policymaking, but not pervert it.

Another useful way to improve transparency is to disclose the voting balance for monetary policy decisions. Although the release of individual voting records may not be desirable if there are concerns about undue political pressures from national governments on their central bank governors, the balance of votes is already very informative. Revealing the degree of agreement makes it easier to understand and thus predict the monetary policy decisions, not just in the short run, as dissenting votes tend to provide an indication of the policy inclination, but also in the medium term, through more accurate learning of the monetary policy reaction.

Finally, the ECB would greatly benefit from an annual evaluation of its staff projections and its monetary policy. This is particularly important for the ECB because its inflation goal of "below, but close to, 2 percent" has often been persistently missed. A regular evaluation of its forecast errors would help the ECB to improve its macroeconomic projections and thereby its monetary policymaking. This increases the transparency, accountability and credibility of the ECB's monetary policy. An annual independent evaluation of its monetary policy could provide useful feedback and improve accountability,[18] which is vital for the ECB to maintain legitimacy as an independent central bank.

ECB Monetary Policy Strategy

The initial version of the ECB's two-pillar strategy was rather opaque and confusing, because it was not clear how the two pillars where used by the ECB for its monetary policy decisions. But its strategy review in 2003 clarified the role of each pillar. The two-pillar strategy is currently based on economic analysis, which focuses on the short to medium term, and monetary analysis, which mainly serves as a cross-check from a medium- to long-term perspective (see ECB 2003).

[18] *A good example is Norges Bank Watch, the independent annual evaluation of the Norwegian central bank.*

Nevertheless, a review of the ECB's monetary policy strategy is overdue for several reasons. The large-scale liquidity operations in the form of fixed-rate full-allotment LTROs in response to the GFC have significantly altered the ECB's monetary policy stance, so the main refinancing rate is no longer the main policy rate. This is very confusing for non-specialists, who will naturally think that the interest rate on main refinancing operations is the main policy rate that indicates the monetary policy stance. But the ECB has effectively moved to a floor system in which the overnight interbank rate remains very close to the deposit facility rate. As a result, the ECB's monetary policy strategy and communications need to be urgently updated and clarified to reflect this significant change in monetary operating system, to prevent giving a misleading impression to non-specialists and the general public.

The interpretation and communication of monetary policy is further complicated by the different non-standard monetary policy measures that the ECB has developed, which include large-scale liquidity operations (3-year LTROs, PELTROs), targeted lending support (TLTROs), and unconventional monetary policy through quantitative easing (PSPP), credit easing (CBPP3, CSPP, ABSPP), or a mix of both (APP and PEPP). The current monetary policy strategy, however, was designed for a pre-crisis world in which there was only one main monetary policy instrument – a policy rate. So, it cannot explain how the ECB chooses between its different (standard and non-standard) monetary policy measures, and how it decides to adjust the settings of each, all based on the same two-pillar analysis or using specific indicators for each measure. In short, the monetary policy strategy should explain how the ECB decides on the adjustment of its different (standard and non-standard) monetary policy measures.

Another issue pertains to the economic and monetary analysis that is included in the two pillars, which also appear to reflect a pre-crisis world. Following the financial and sovereign debt crises, it would be appropriate to give greater prominence to financial variables, such as asset prices, interest rate spreads and net worth, and to include financial stability considerations. The latter are likely to remain important until the Eurozone has fully developed an effective, tried and tested system for microprudential and macroprudential policy, which is likely to take considerable time.

Finally, it is important to assess whether the ECB's two-pillar strategy has been effective at achieving the ECB's primary objective of price stability over the medium term. In this respect, it is striking that euro area inflation dropped from an average of 2.2 percent before the financial crisis, to 1.2 percent afterwards (since 1/2009), which is clearly well below the ECB's goal of below, but close to, 2 percent. This experience is not unique to the ECB; inflation has also been persistently below the inflation goal for other central banks, most notably the Bank of Japan. So, the subdued levels of inflation may be due to structural factors, such as globalization, digitization, demographics, and an expansion of the low-wage gig economy.

Nevertheless, monetary policy strategies or macroeconomic models may be to blame. They are unlikely to (correctly) incorporate new (non-standard) monetary policy measures and (financial) frictions that are relevant in the post-crisis world, so they may lead to highly suboptimal outcomes. As a result, the ECB should make sure that its new monetary policy strategy is tailored to its needs.

An important question is whether the ECB should follow the Federal Reserve and adopt average inflation targeting. Although average inflation targeting sounds very attractive in theory (especially in New Keynesian forward-looking models in which inflation expectations quickly adjust), in practice it may be hard to achieve the higher level of inflation that is required to compensate for past undershoots. For instance, since 2013 the Bank of Japan has engaged in quantitative and qualitative easing (QQE), including a rapid and large

expansion of its balance sheet, to increase inflation and achieve its new 2 percent target, but the latter remains out of reach.[19]

Another problem with average inflation targeting is the uncertainty it creates about the size and duration of inflation overshoots after a prolonged period of undershooting the inflation target. This uncertainty risks unanchoring inflation expectations, which in turn further increases the volatility of inflation, on top of the inflation overshoot that the central bank aims to achieve.

Finally, with a symmetric average inflation target, the problem is that inflationary supply shocks would require even more painful tightening. So, an oil price shock similar to the 1970s, with inflation reaching double digits, would require the central bank to implement tremendous monetary tightening to get inflation sufficiently below the target to achieve the average inflation target, which does not sound like a sensible idea.

Conclusions

The ECB's monetary policy framework has significantly developed during the last two decades, often in response to crises. Several lessons can be learned from the GFC. First, price stability does not guarantee financial stability. In addition, large-scale liquidity operations in the form of longer-term refinancing operations (LTROs) can provide a useful and flexible alternative to large-scale asset purchases, although they may still give rise to financial stability concerns, even for targeted LTROs (TLTROs) tied to bank lending. Furthermore, the ECB's large-scale liquidity injections have led to monetary policy easing by stealth and the main refinancing rate can no longer be considered the ECB's main policy rate.

The sovereign debt crisis exposed serious weaknesses in the Eurozone's institutional framework, which have yet to be fully addressed. But the ECB discovered the power of central bank communications through President Draghi's statement "to do whatever it takes" and the announcement of the OMT framework, which proved highly effective at reducing euro area periphery sovereign debt yields. It is crucial for the ECB to maintain such a credible backstop.

Although negative interest rates and yields have become prevalent in the euro area since 2015, they require effective macroprudential policy to mitigate their risks. It is also vital to carefully unwind negative rates and large-scale asset purchases to prevent a sudden surge in bond yields. In addition, the coronavirus crisis is going to provide a useful test of the effectiveness of the Eurozone's fiscal, monetary, microprudential and macroprudential policy frameworks.

Although the ECB has significantly increased its monetary policy transparency during the last two decades, it would greatly benefit from pursuing further improvements in several respects. First, the ECB should adopt a symmetric target (range) for inflation with an explicit (mid)point. In addition, it should make clear in its monetary policy communications which of its key interest rates is really the main policy rate that signals its monetary policy stance. The ECB has often provided forward guidance about liquidity operations and asset purchases, which could be useful and help stabilize asset prices even before the full details are known. But it would benefit from clarifying its current threshold guidance for the policy rate based on the inflation outlook. Or it could consider providing more comprehensive time-dependent forward guidance by publishing the projected policy path, supplemented by state-contingent guidance through scenario analysis.

It would also be beneficial for the ECB to publish its account of monetary policy meetings within two weeks instead of three to five weeks, before information becomes stale and harder to interpret. The release of the balance of votes for monetary policy meetings would also improve

[19] *See Nakata (2019) for further details.*

understanding of the ECB's monetary policy reaction, and thereby predictability.

Furthermore, since the ECB has persistently missed its inflation goal, it would greatly benefit from an annual evaluation of its forecast errors and monetary policy, to help improve them, while at the same time increasing its transparency and accountability.

Regarding the ECB's monetary policy strategy, it needs to be updated to incorporate the de facto change in monetary operating system and main policy rate. In addition, it should explain how the ECB decides the settings for each of its (nonstandard) monetary policy measures. Greater emphasis on financial variables and financial stability considerations is also desirable. A strategy of average inflation targeting, however, is not to be recommended.

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John B. Taylor, Hoover Institution, Stanford University[1]

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.

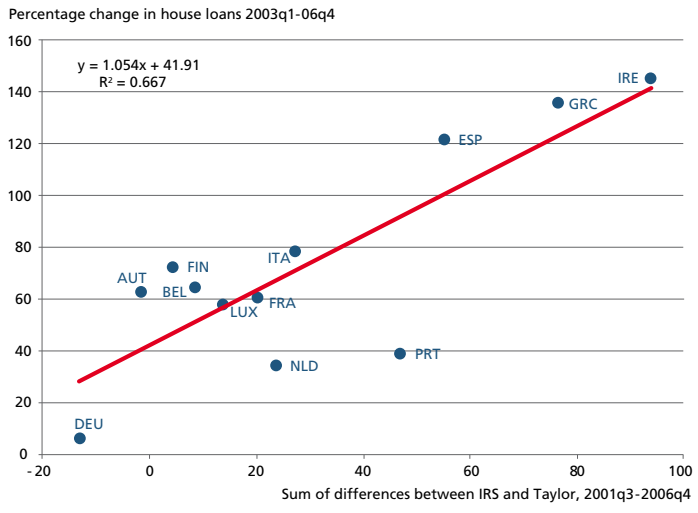

Figure 1: House loans versus deviation from Taylor
Source: Ahrend, Rudiger, Boris Cournède and Robert Price (2008), Monetary Policy, Market Excesses and Financial Turmoil, OECD Economics Department Working Papers, No. 597, March 2008, p18, Fig. 8

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 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

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was too low relative to a rule for that country. This is the period leading up to the 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.

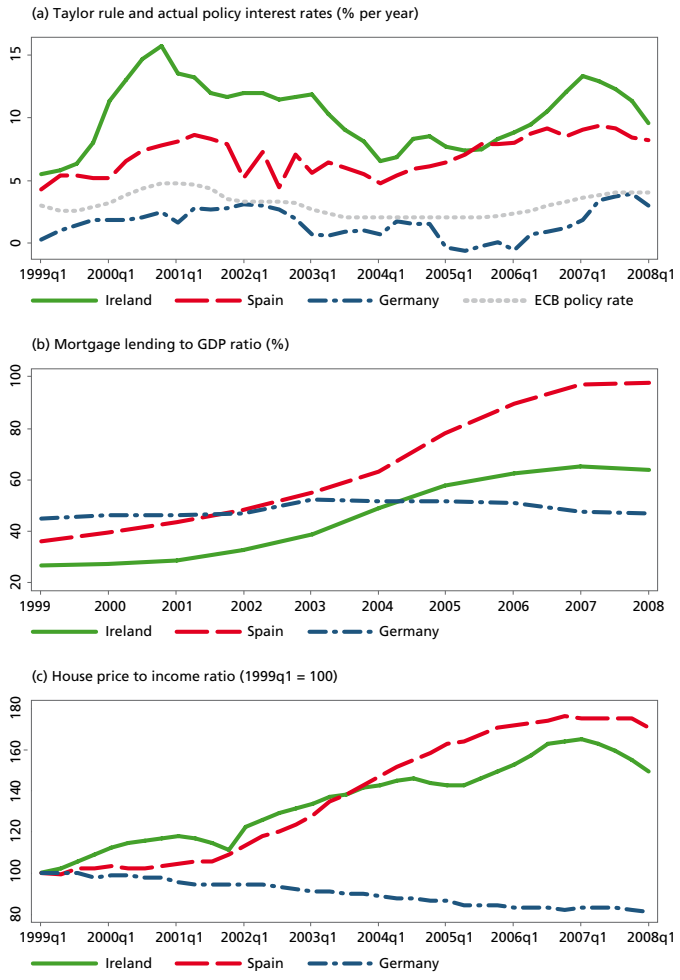

Figure 2: Short-term interest rates, credit, growth and house prices in Ireland, Spain and Germany
Source: Jordà, Òscar, Moritz Schularick, Alan M. Taylor (2015), Betting the House, Journal of International Economics, Vol. 96(S1), pp. 2-18

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

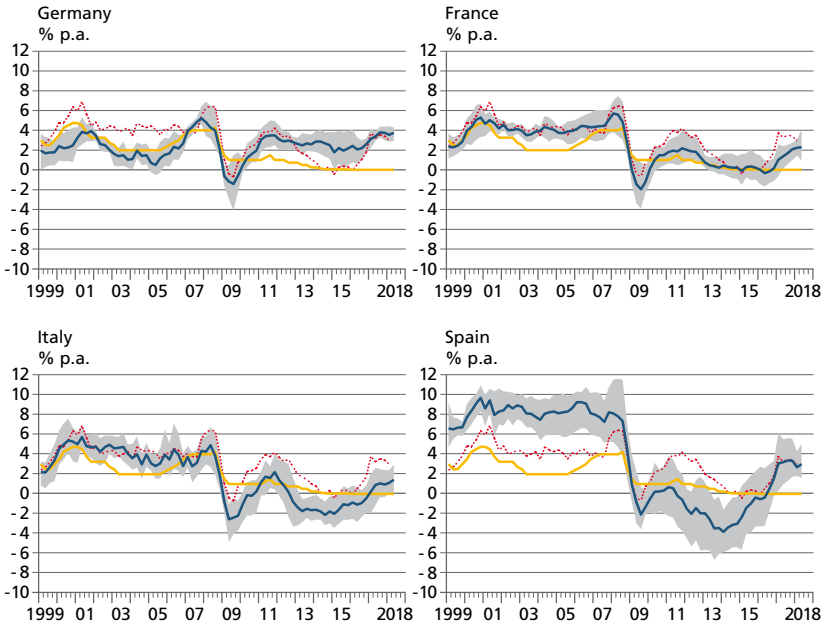

Figure 3: Taylor rules for selected euro area countries
Source: Council of Economics Experts, Germany (2018), Setting the Right Course for Economic Policy, Annual Report 2018/19, Released on 07 November 2018, p.202, sources: ECB, European Commission, IMF, own calculations

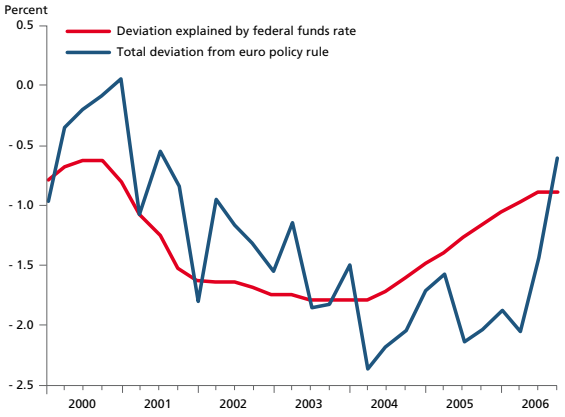

Figure 4: Interactions between central banks, actual deviations from Eurozone policy rule and deviations based on the federal funds rate
Source: Taylor, John B. (2007), Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis, Hoover Institution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

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.

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.

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

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.

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

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

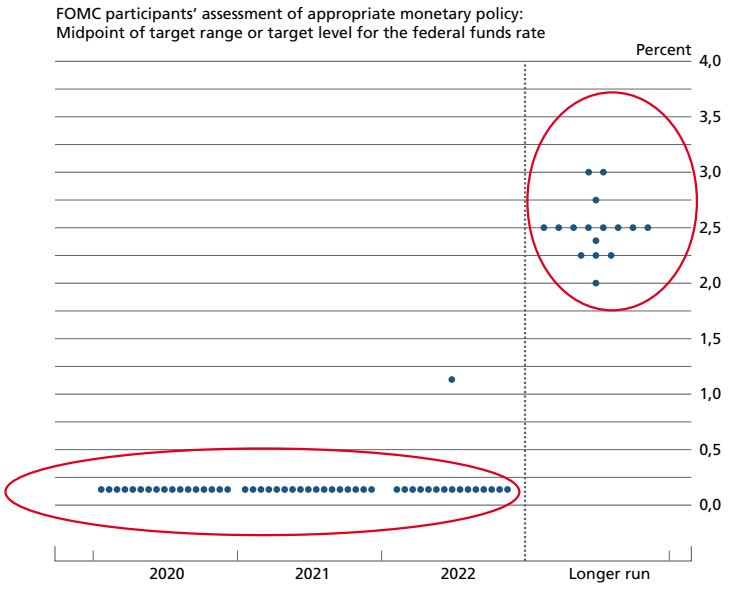

Figure 7: FOMC participants' assessment of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate
Source: Board of Governors of the Federal Reserve Board System, Monetary Policy Report, June 12, 2020, p. 56

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.

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 on 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 to not throw out things that are working as one tries to get to a better system.

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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 delay with 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 rescheduling in some ways. When I look at the Central Bank of Chile, where I was involved in a major evaluation of the whole monetary policy framework as well as financial stability, they published minutes with a delay of two weeks, so it can be done. It's just a matter of how you go to set it up and organize it. I 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 that you can better understand the monetary policy reaction.

With respect to Otmar's comments on that they should have called the introductory statements "minutes," they were tongue-in-cheek sometimes referred to 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. So I strongly disagree – I do not think that the introductory statement is a good replacement of minutes.

With respect to John's concerns on 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 with 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, as 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 – it 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 tried-and-tested 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 before the pandemic.

With respect to the question on perpetual QE and forward guidance, should there 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 reduce longer-term interest rates to 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 that by announcing it in advance, you benefit from these 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. But 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 and the way they are now talking about their goals – 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. So, 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.

Philip R. Lane, Member of the Executive Board, European Central Bank

Concluding Remarks

Let me first thank the organiser, Volker Wieland, for the invitation to contribute this afternoon, and also congratulate him and his team for organising this event.[1] This year it has been very difficult to organise conferences. The plans for this conference have had to be revised repeatedly over the course of the year. But this has been a very interesting day and the mixed online/physical format has in fact increased accessibility for those who could not come to Frankfurt.

Let me also thank all of the speakers: your contributions are very much appreciated. I have been listening carefully and taking notes. But I am sure all of you will be making further contributions to this review. So I would like to take this opportunity to say a few words about the process of our strategy review.

If you go to the ECB's website, you will see a fair amount of detail about what we are doing. In particular, there are twelve Eurosystem work streams involving staff from both the ECB and the national central banks. A lot of colleagues are very busy writing background notes and summary notes, trying to bring a lot of knowledge together. I should say that I am very impressed by the expertise of Eurosystem staff. There is no other place where you can find the expertise and the knowledge to make such a contribution to this review.

We also care very much about external voices. One difference between now and the period from 1998 to 2003 is the volume and track record of outside research on the work of the ECB and the nature of the euro area. So the resources we have at the ECB now are very different from what was available to Otmar Issing and his colleagues in 1998 and 2003. I should say, however, that the starting point of this review is definitely the original strategy of 1998. Otmar's book on the birth of the euro has been very good reading for all of us.

If I look at the dozen work streams – which are basically the body of work feeding into the strategy review – we of course have a work stream on what the inflation aim should be. There was a lot of discussion about that this morning. I personally think there is a very direct connection between specifying the inflation aim and price stability. So the way we think about it is: of course, the Treaty stipulates that we at the ECB are here to maintain price stability. But in order to do that you need an operational method, some kind of operational focus – a medium-term inflation aim provides an essential anchor for the conduct of monetary policy.

Connected to working out what should be the inflation aim is the measurement issue. I think there is a lot of rich material on this topic, and this morning President Lagarde talked about a few issues on measurement. I should also say that this is not only about what should be the headline target, but also about ancillary indices. We should not be disregarding any useful information – be it useful information for our monetary policy or for our communication. I mention this because today people have repeatedly made reference to areas where there may be some gaps between what we might typically focus on and what different groups in the wider population understand by price stability.

Closely connected to understanding the inflation process is understanding the formation of inflation expectations. So we also have a work stream on inflation expectations. Of course, we fully recognise that this is a hot topic nowadays, and there is a whole range of issues related to inflation expectations. It is true that the expectations of financial market participants are important, but the expectations of households, firms, governments and those of central bankers themselves each play a role in inflation dynamics.

Having said that all this, it would be a very narrow review if it focused solely on the inflation aim. We know that shocks occur often, and these shocks may be persistent. Especially

[1] *I am grateful to Janina Desoi and Carina Stubenrauch for their help in preparing these remarks.*

when we have inflation that is below the target and we are in the neighbourhood of the lower bound, then we know we are going to spend time away from the inflation aim. So really understanding the shocks, understanding the relation between shocks, activity, and the inflation process is important. We therefore have a number of work streams on this.

We have a work stream on productivity, innovation and technological progress, because – and this is common across all sorts of models – there is a sharp distinction between the steady-state growth rate of the economy and the cyclical position.

We also have a dedicated work stream on digitalisation. Digitalisation is clearly affecting the course of the economy, but it may have a number of additional effects on the nature of price setting.

Another work stream focuses on globalisation, a topic which came up repeatedly today. It is important to keep in mind that there are two different dimensions here: one is that the rest of the world matters. Indeed, the share of the rest of the world – especially that of emerging market economies – in world output has been trending upwards. It follows that we have to understand what is happening in the rest of the world. Of course, the relation between the rest of the world and the euro area is intermediated by trade linkages and financial linkages, and the globalisation or de-globalisation of those linkages is quite important.

The second dimension, in terms of understanding the economy, is the issue of climate change. My colleague Isabel Schnabel and, previously, my former colleague Benoît Cœuré have both given thought-provoking speeches in which they discuss reasons why climate change is directly part of the business of monetary policy. Whether it is through the volatility of the economy or partial changes to the inflation process, climate change is directly relevant for our core business as a central bank.

So, it is very important that we thoroughly work on understanding the forces behind the economic dynamics. It is also important to think about what is going on in the financial system. For example, we have a dedicated work stream on non-bank financial intermediation. We know that one trend in the euro area over the last fifteen years has been the rise of non-bank intermediation. Of course, the euro area banking system remains a bank-dominated system. But we need to keep an eye on non-bank intermediaries and consider the potential implications for the conduct of monetary policy when we have a lot of non-bank financial intermediation.

In addition, we have a dedicated work stream on financial stability and macroprudential policy. These clearly have interactions of different types with monetary policy, and there are many ways to think about these interactions. When we think about individual countries within the euro area, there is a one-size-fits-all issue and having national macroprudential policy is relevant for that. Let me also provide some reassurance that I personally find the monetary analysis highly informative and fascinating to learn from. I think monetary analysis is always going to be a core business of a central bank. We learn a lot from the monetary analysis, but it is also useful to review how exactly this monetary analysis best feeds into the whole process of monetary policy decision-making.

When everything that I have mentioned is put together – understanding what is happening both in the real economy and in the financial system – then in the end we do have to base our policymaking on modelling to some extent, and I noticed that there were also quite a few calls for this today. It is very helpful to have a structured approach, even if judgement ultimately has to be applied. It is also useful to have a range of models underpinning the monetary policy analysis. So it is important to investigate if the models used in the policymaking process are specified accurately, if these are up to date and if these take into account all the salient factors. We therefore also have a work stream on Eurosystem modelling in our strategy review.

When we take a monetary policy decision, we also have to decide the choice of instruments. Of course, the nature of interest rate policy has changed. As was mentioned today, the deposit facility rate is the marginal rate for providing monetary accommodation nowadays. However, we always have to think about the full range of interest rates that we have, because, depending on the circumstances, what will turn out to be the marginal rate can vary over time.

These days, we also have to think about balance sheet policies. Whether that is asset purchases or refinancing operations, including targeted longer-term refinancing operations (TLTROs), balance sheet policies raise a range of issues. It obviously augments the central bank's capability to have more than one instrument. But, of course, when you have more than one instrument, designing an efficient and effective policy package has to take into account both the interactions between those instruments and also possible "side effects," both positive and negative. And, of course, not just the overall monetary policy stance, but also the particular choice of instrument affects a lot of secondary objectives -- sometime positively, sometimes negatively.

Finally, the last work stream is about monetary and fiscal interactions. There is a very long list of topics under this heading. Some of these are universal and global topics, such as the relative contributions of fiscal authorities and monetary authorities to underpinning price stability and cyclical stabilisation. But, in the euro area context, also the architecture of the monetary union is now very different from what it was in 1998. So the euro area is not a static structure, and it is very important to take into account what has changed. It is also relevant to consider the implications of the different levels of accumulated debt in the economy, which is a state variable in many models. Here, it is important to take into account what are the dynamics of sovereign debt, but also to consider in an integrated way how, for example, the net international investment position is evolving. The implications of high sovereign debt vary considerably depending on whether the economy is a net external creditor or a net external debtor.

Let me also say a few words about how the work is being conducted within these work streams. One part is backward-looking: we need to understand the lessons from the last twenty years and any other historical evidence that is relevant. There are several elements to this. One element is lots of time series analysis, but it is also important to have a proper narrative history. As was repeatedly referred to this morning, quite often the deviations from a particular policy rule will be as interesting and as important to reflect on as the fitted values from econometric exercises. It is important to have a shared understanding of how to think about the last two decades, in particular in understanding the differences between the different periods: the period before the global financial crisis; the double crises in the period between 2008 and 2013; and the post-crisis period. It is also essential to be open-minded and to look globally. Yes, the euro area is unique, every monetary area is unique, but there are some common issues. Learning from other monetary areas and monetary strategies is, of course, a basic input into any review exercise.

In addition, in terms of process, this is a publicly engaged review at all levels. Today's conference is one example, and the ECB Forum on Central Banking in November is another. But we will also have other interactions with the general public and professionals. In line with the nature of a public review, we are taking seriously that this a substantive review, and there is no pre-cooked final answer. All of the interactions have to be open, engaging and in the spirit of exploring ideas, rather than having a fixed final solution, which is going to be percolated throughout. We are very much in the learning stage at the moment.

Let me also mention the pandemic. We launched this review in January and at the time we had planned to conclude it in December of this year. In light of the pandemic a delay to the review was inevitable, and we are now planning to conclude the review in the second half of next year. On substance, it is important to recognise in all of our work streams that the pandemic makes a big difference. We are learning a lot this year: about the economy, about the

financial system, about fiscal policy and about monetary policy. And, of course, the initial conditions are changing. The initial conditions of the euro area are different because of the pandemic, and that is relevant for any policy we make and any strategy we adopt.

In terms of the approach to this review, it is important to remember that having a strategy is central to monetary policy decision-making. The strategy needs to have guiding power for the policy decisions we are going to make, and this need, in turn, imposes discipline on the strategy. The strategy has to be sufficiently substantive, with sufficient rails to it, for it to impose some structure on our policymaking. Otherwise a strategy would be less useful.

The core issue in our monetary policy strategy review is: what is the best strategy for the euro area and for the ECB? But it is important to emphasise that in this monetary policy strategy review we are taking the Treaty as given. It is the role of those involved in the political world to think about the Treaty. Equally, it is not our role to design a new fiscal framework or other elements which would be relevant for the architecture of the euro area. We always offer technical advice in different institutional settings, but as a central bank we essentially have to take as given the world we inherit and those existing external realities that are not going to change.

Overall, my observation from this and many other events is that the amount of analytical agreement on the issues at stake is high. There is broad agreement on where we are in the world in terms of the changes of the underlying dynamics in the economy, the impact of different crises and the evolution of the science of central banking. So, to me, there is a lot of convergence in the diagnostics.

Finally, I would advocate for everyone who is participating in today's conference and everyone who would like to contribute to our strategy review to be active. The more external commentators provide clear proposals, the better. President Lagarde laid out fairly comprehensively some of the big issues we will be taking on. Again, whether by looking at all the details we have published on our website or by looking at the President's speech, I encourage everyone to continue to make contributions through publishing papers, providing comments or sending any views or questions to us directly.

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