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**THE GERMAN FEDERAL  
CONSTITUTIONAL COURT RULING AND  
THE EUROPEAN CENTRAL BANK'S  
STRATEGY**

Lars P Feld and Volker Wieland

**MONETARY ECONOMICS AND FLUCTUATIONS**



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JEL Classification: E52, E58, K10

Keywords: central bank independence, monetary law, Monetary institutions, Monetary policy strategy, Proportionality, Policy Rules, Quantitative easing

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# THE GERMAN FEDERAL CONSTITUTIONAL COURT RULING AND THE EUROPEAN CENTRAL BANK'S STRATEGY

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September 24, 2020

## Abstract

The ruling of the German Federal Constitutional Court and its call for conducting and communicating proportionality assessments regarding monetary policy have been the subject of some controversy. However, it can also be understood as a way to strengthen the de-facto independence of the European Central Bank. This paper shows how a regular proportionality check could be integrated in the ECB's strategy that is currently undergoing a systematic review. In particular, it proposes to include quantitative benchmarks for policy rates and the central bank balance sheet. Deviations from such benchmarks can have benefits in terms of the intended path for inflation while involving costs in terms of risks and side effects that need to be balanced. Practical applications to the euro area are provided.

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# I. INTRODUCTION

On May 5, 2020, the German Federal Constitutional Court (GFCC) issued a seminal judgement that has set off shock waves across the European Union (EU). The ruling concerned the purchases of government debt by the European Central Bank (ECB) under the so-called Public Sector Purchase Programme (PSPP). It stated that the ECB failed to assess and substantiate—in its decisions—that the PSPP program satisfies the principle of proportionality as mandated by Art 5.1 of the Treaty of European Union (TEU).

In doing so the German Court directly contradicted the Court of Justice of European Union (CJEU). The GFCC ruled that the Deutsche Bundesbank would have to stop participating in the PSPP program within 3 months unless the ECB Governing Council substantiated that this principle is satisfied. And it requested the German constitutional organs – that is the German government and the German parliament – to take steps seeking to insure that the ECB explains its proportionality assessment. The decision of the GFCC did not directly concern the major ongoing asset purchases under the Pandemic Emergency Purchase Programme (PEPP). However, it is likely that further constitutional complaints concerning this and other programmes will be brought to the Court in the future.

At first, it seemed that the conflict of courts would quickly escalate further with potentially far-reaching consequences for the legal architecture and political cohesion of the Union. Eventually, however, the ECB took steps to help the German authorities to address the requests by the GFCC. It allowed the Bundesbank to share unpublished documents that provide further information on the proportionality considerations of the Governing Council regarding PSPP. Importantly, the Governing Council deliberated extensively on questions of proportionality when it decided to almost double the envelope of the new PEPP program at its meetings on June 3-4, 2020. The ECB published a summary of these considerations in its regular Monetary Policy Accounts on June 25.

These developments have highlighted the importance of the proportionality principle for euro area monetary policy. Hence, this paper explores how the ECB could design a regular proportionality assessment that makes use of quantitative benchmarks and forms a part of its monetary policy strategy. This would seem to be of particular interest as the ECB is currently conducting a formal *Strategy Review* that is to be completed by mid 2021. Furthermore, it would address the following request for continuous proportionality assessments that was raised in the ECB Accounts concerning the Governing Council meeting of June 3-4, 2020:

*“Overall, there was broad agreement among members that while different weights might be attached to the benefits and side effects of asset purchases, the negative side effects had so far been clearly outweighed by the positive effects of asset purchases on the economy in the pursuit of price stability. However, it was also noted that it could not be ruled out that unintended effects could increase over time and*

*eventually outweigh the overall positive effects. It was thus seen as important to continuously assess the effectiveness and efficiency of the monetary policy measures, their transmission channels and their benefits and costs.”*

Furthermore, the paper investigates whether the GFCC ruling and the requested proportionality assessments may constrain the ECB’s independence or the primacy of price stability within its mandate. It shows to what extent proportionality considerations have already shaped the ECB’s strategy in the past. It also proposes suitable avenues for communicating proportionality considerations in the future.

Finally, it is important to note that this paper does not aim at contributing to the debate in European or constitutional law on the merits of the GFCC ultra vires judgement or the position of the CJEU. Rather, it recognizes that the German constitutional organs as well as Deutsche Bundesbank are bound by the GFCC judgement and aims to explore some pertinent questions from an economic viewpoint. Furthermore, the paper does not discuss the questions whether or not PSPP or PEPP ought to be judged to be monetary financing from a legal perspective nor where to draw the line between monetary and fiscal policy.<sup>3</sup>

## The Court ruling and the sequence of events

Previously, on December 11, 2018, the CJEU had issued a preliminary ruling in response to questions submitted by the GFCC that the PSPP is appropriate and proportional. Nevertheless, the GFCC reserves the right to have “the last word” in extreme cases for itself, that is, when the acts in question imply an extension of competences that is reserved to an amendment of the EU treaties. Its ruling on May 5 marks the first time, the GFCC has activated this reservation, thereby judging that the ECB and CJEU have exceeded their competencies by failing to conduct a sufficient review of the proportionality of the ECB’s PSPP. The GFCC emphasized that the economic and fiscal policy effects of the government debt purchases should not be disproportionate to the monetary policy objectives pursued with this program. Furthermore, it called on the Bundesbank to ensure that the bonds already purchased and held in its portfolio are sold based on a – possibly long-term – strategy coordinated with the Euro system.

On May 8, 2020, the CJEU responded to media inquiries that a judgement in which it gives a preliminary ruling is binding on the national court for the purposes of the decision to be given in the main proceedings. On May 10, 2020, the President of the European Commission, Ursula von der Leyen, threatened that possible next steps may include the option of infringement proceedings against Germany for failing to implement EU law. The European Central Bank repeatedly emphasized that it is only subject to the jurisdiction of the CJEU and indicated that its independence precludes taking directions from national governments or parliaments.

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<sup>3</sup> The GFCC has ruled that PSPP so far does not correspond to monetary financing because it respects certain constraints such as purchases according to the capital key of the ECB as well as issue and issuer limits.

Yet eventually the ECB worked with the Bundesbank and the German authorities to satisfy the GFCC's request. It allowed the Bundesbank to share unpublished documents with the German authorities that apparently provide further information on the proportionality considerations of the Governing Council when deciding on the PSPP program. Furthermore, the Governing Council deliberated extensively on questions of proportionality when it decided to increase the volume of the new PEPP program from € 750 bln to € 1.350 bln at its meetings on June 3-4, 2020. A summary of the deliberations was published on June 25 in the ECB's regular Monetary Policy Accounts.

Since then, the German government and parliament have decided, respectively, on June 26 and July 2 that the ECB has satisfied the request of the GFCC for a thorough proportionality assessment. As a result, the Bundesbank has continued to participate in the government debt purchase programs. Apparently, the Court will only revisit these questions in the context of further constitutional complaints.

## II. SOME BACKGROUND ON RELEVANT EU LAW

### 1. Principles of Proportionality and Conferral

The principle of proportionality is enshrined in Art 5.1 of the Treaty of European Union (TEU) together with the principle of conferral. The latter principle regulates that the EU acts only within the limits of the competences that EU countries have conferred upon it in the Treaties and that competences not conferred on the EU by the Treaties thus remain with EU member states. This is central to the GFCC's legal argument for its ultra vires approach. Art 5.1. states the following:

*“The limits of Union competences are governed by the principle of conferral. The use of Union competences is governed by the principles of subsidiarity and proportionality.”*

EUR-LEX.Europa.eu explains how the proportionality principle is to be applied as follows:

*“Like the principle of subsidiarity, the principle of proportionality regulates the exercise of powers by the European Union (EU). It seeks to set actions taken by EU institutions within specified bounds. Under this rule, the action of the EU must be limited to what is necessary to achieve the objectives of the Treaties. In other words, the content and form of the action must be in keeping with the aim pursued.”*

In its judgement the CJEU reviewed the proportionality of the ECB's PSPP. It states that “it does not appear that the ESCB's analysis is vitiated by a manifest error of assessment”, that the PSPP “does not manifestly go beyond what is



*necessary to achieve the objective”, and that it does not imply “disadvantages which are manifestly disproportionate to the PSPP’s objective”.*

The GFCC took issue with the CJEU judicial review. In particular, it disagreed with the “*self-imposed restraint*” of the CJEU, which restricts the review to manifest problems. The GFCC worried that this “*standard of review is not conducive to restricting the scope of the competences conferred upon the ECB, which are limited to monetary policy*”. The GFCC states that the ECB fails to conduct the necessary balancing of the monetary policy objectives against the economic policy effects arising from the programme. It criticized that it cannot ascertain whether the ECB Governing Council did conduct a prognosis as to the PSPP’s economic policy effects nor an assessment whether any such effects were proportionate to the intended advantages in the area of monetary policy.

The GFCC raised a number of relevant side effects of central bank asset purchases that might figure in a proportionality assessment, most prominently effects on fiscal conditions. The PSPP program may have the same effects as financial assistance programs of the ESM, which are economic policy measures under the purview of the Member States. The GFCC fears that:

*“... the longer the program continues and the more its total volume increases, the greater the risk that the Eurosystem becomes dependent on Member State politics as it can no longer simply terminate and undo the program without jeopardising the stability of the monetary union.”*

Other economic policy effects that the GFCC asked about concern the stability of banking and insurance as well as the impact of asset purchases on asset prices and interest rates that affect shareholders, tenants, real estate owners, insurance policy holders and savers, in general. Its request for a proportionality assessment is

*“... to weigh these and other considerable economic policy effects and balance them, based on proportionality considerations, against the expected positive contributions to achieving the monetary policy objective the ECB itself has set.”*

For more detail on the GFCC judgement see, e.g., Siekmann and Wieland (2020).

## 2. ECB Mandate and Independence

The mandate of the European System of Central Banks (ESCB) is laid down in TFEU, Article 127 as follows:

*“The primary objective of the European System of Central Banks shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in*

*the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119.”*

The ECB’s mandate differs somewhat from other central banks’ mandates. It establishes a hierarchy of objectives with price stability having priority. At the same time, it is rather open with regard to secondary objectives that are characterized broadly as “*supporting general economic policies of the Union*”. By contrast, the Federal Reserve Act lays down three goals for the monetary policy of the U.S. Federal Reserve System. It instructs the Fed to maintain long run growth of the monetary and credit aggregates commensurate with the economy’s long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates. At the Bank of England, the 1998 Bank of England Act set the monetary policy objective also in terms of a hierarchy but with particular emphasis on some secondary objectives: “*In relation to monetary policy, the objectives of the Bank of England shall be—(a) to maintain price stability, and (b) subject to that, to support the economic policy of Her Majesty’s Government, including its objectives for growth and employment.*” There are other European central banks with mandates that emphasize price stability but also list other objectives to be supported. These include, for example, Norges Bank and Sveriges Riksbank.

The EU Treaties also set down constraints for the ECB’s monetary policy. In particular, economic policies remain the domain of Member States according to Art. 120 TFEU.

*“Member States shall conduct their economic policies with a view to contributing to the achievement of the objectives of the Union, as defined in Article 3 of the Treaty on European Union, and in the context of the broad guidelines referred to in Article 121(2). The Member States and the Union shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119.”*

Furthermore, there is an explicit prohibition of monetary financing according to Art 123:

*“Overdraft facilities or any other type of credit facility with the European Central Bank or with the central banks of the Member States (hereinafter referred to as “national central banks”) in favour of Union institutions, bodies, offices or agencies, central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of Member States shall be prohibited, as shall the purchase directly from them by the European Central Bank or national central banks of debt instruments.”*

The EU treaties have given the ESCB substantial independence in carrying out its tasks and duties as set down in Art. 130 TFEU:

*“When exercising the powers and carrying out the tasks and duties conferred upon them by the Treaties and the Statute of the ESCB and of the ECB, neither the European Central Bank, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Union institutions, bodies, offices or agencies, from any government of a Member State or from any other body. The Union institutions, bodies, offices or agencies and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the European Central Bank or of the national central banks in the performance of their tasks.”*

Thus, neither governments of Member States nor other supra-national EU institutions can interfere with ESCB measures. This protection does not only cover the ECB but also the national central banks. Furthermore, it cannot be modified by any single Member State parliament. Rather, any modification would require a unanimous decision to change the EU treaties. Thus, legal changes are much more difficult than in the case of the U.S. Fed or other central banks in Europe such as the central banks of Great Britain, Norway and Sweden. For example, the Federal Reserve Act can be changed or replaced by majority vote in U.S. Congress.

In the remainder of this paper, we do not contribute to the debate in European law and constitutional law on whether the ultra vires approach is justified by the principle of conferral, nor do we discuss whether and if so, how proportionality considerations ought to be subject to judicial review from a legal perspective. Instead, we develop some approaches for assessing the proportionality of policy measures from an economic point of view and explore whether they would interfere with the ECB’s mandate and independence.

### III. A THREAT TO ECB INDEPENDENCE AND THE PRIMACY OF PRICE STABILITY?

#### 1. ECB Independence and the GFCC Ruling

Concerns have been voiced that the ECB’s independence is directly threatened by the request of the GFCC that the Governing Council should assess the proportionality of its decisions and publish proportionality considerations in the context of its decisions (see e.g. Angeloni 2020, Bini-Smaghi 2020, Sandbu 2020, Sobel 2020). Some of the reactions were phrased in dramatic terms referring to the GFCC as taking revenge and throwing bombs at the EU order. It is argued that the ECB needs to be free from interference in its policy decisions so as to

achieve its monetary policy objective and that a proportionality requirement would limit its independence. The fear is expressed that when the ECB responds to such a request it opens up a Pandora's box of more and more requests by this court as well as other national courts.

Of course, the independence of the ESCB granted in Art 130 TFEU applies only to policy decisions that are within the powers, tasks and duties conferred upon the ESCB by the relevant EU treaties and statutes. The ECB and ESCB remain subject to judicial review. They have to observe the proportionality principle in their decisions and the CJEU has ruled on the question of whether the PSPP satisfies this principle. Thus, the dispute cannot be about whether the ECB has to apply the proportionality principle but only about whether the GFCC has the right to request a more thorough standard of review than the CJEU conducted.

As is clear from the ruling of the GFCC, the German Court can only request the German constitutional organs, that is the government and parliament, and the Bundesbank to work towards the objective stated in its judgement. It cannot directly request a particular decision of the ECB Governing Council. The same holds for other national courts if they were to judge certain decisions to be ultra vires with respect to the competencies conferred upon the ESCB by the EU treaties. Furthermore, governments or parliaments of member states cannot instruct the ESCB to take certain actions or make certain statements. The options of member state governments or parliaments are limited to matters under their control. These include negotiations with other member states on areas that fall under their domain such as economic policies, EU budgets and treaty changes. Member states can also submit observations to the CJEU. Indeed some member states did that ahead of the PSPP judgement of the CJEU from December 2018.

There is a large economic literature on central bank independence (see, for example, Cukierman 1992 and Eijffinger and de Haan 2016 for many references). The case for independence rests on theories predicting an inflationary bias to emerge if governments have direct control of monetary policy. For example, governments may be tempted to pursue policies that boost economic activity in the short run in order to help win elections at the expense of higher inflation in the medium to longer run (political business cycles, see Dubois 2016). Also, governments may want to increase central bank money in order to finance government spending (fiscal dominance, Sargent and Wallace 1981). Finally, there is the famous time-inconsistency problem of monetary policy (Kydland and Prescott 1977, Barro and Gordon 1983). Government promises to keep inflation low are not credible. There is an incentive to renege on these promises and attempt to raise inflation above what wage and price setters expect. As a result, inflation expectations rise in spite of promises of low inflation.

A solution to the inflationary bias problem is to give independence to the central bank and to make sure that central bankers are more inflation-averse than the government. This could be achieved by appointing more conservative central bankers that put greater weight on price stability than politicians that are necessarily concerned with electoral success (Rogoff 1985, de Haan and Eijffinger

2016) or by mandating price stability and holding central bankers to this contract (Walsh 1995).

There is substantial empirical evidence for the presence of inflationary bias. It helps explain the Great Inflation of the 1970s and 1980s that seized many industrial countries, including the United States, Canada, the United Kingdom, Japan, France, Sweden, Norway and Italy. The importance of independent central banks and inflation-averse central bankers is also supported by the Bundesbank's success in avoiding double-digit inflation in the 1970s and 1980s. Further supportive evidence comes from the success in reducing inflation in the 1990s, when central banks obtained independence together with mandates focused on price stability. Many of these central banks pursued so-called inflation-targeting strategies. This includes not only central banks in industrial economies such as New Zealand, Canada, Sweden, Norway and the UK but also central banks in emerging economies such as Chile, Brazil, Mexico and others. Comparisons show that the ECB ranks very high according to available indices of central bank independence, either close to or at the maximum value (see, e.g. Weber and Ferschner 2014).

Following the global financial crisis of 2008/2009 central banks in most advanced economies have become much more concerned with avoiding deflation rather than high inflation. In Japan, this even dates back to the late 1990s. Since then, the Japanese inflation rate has hovered around zero with many years of slightly negative rates. With policy rates close to zero, central banks have resorted to quantitative easing by means of large-scale asset purchases including government debt in order to achieve further stimulus. This has been the case in the global financial crisis as well as in the current economic crisis due to the coronavirus pandemic. By contrast, the PSPP program that was the subject of the constitutional complaints at the GFCC was initiated in 2015 and carried out for many years during a period of economic recovery with output close to potential and inflation not very far below the target pursued by the ECB.

In periods of crisis characterized by output being substantially below its potential level and inflation substantially below target, there is no conflict between governments' intention to stimulate GDP and central banks' objective to raise inflation back to the target that is consistent with price stability. Furthermore, monetary and fiscal authorities may have to cooperate in such a crisis to maintain the stability of the banking system. Thus, one might think that central bank independence is not needed anymore. Nevertheless, even in such a situation a strong case can be made for keeping the central bank independent in carrying out quantitative easing. As Bernanke (2010) puts it:

*"... there is a good case for granting the central bank independence in making quantitative easing decisions, just as with other monetary policies. Because the effects of quantitative easing on growth and inflation are qualitatively similar to those of more conventional monetary policies, the same concerns about the potentially adverse effects of short-term political influence on these decisions apply. Indeed, the*

*costs of undue government influence on the central bank's quantitative easing decisions could be especially large, since such influence might be tantamount to giving the government the ability to demand the monetization of its debt, an outcome that should be avoided at all costs."*

Interestingly, the concerns expressed by Bernanke (2010) are similar to those stated in the GFCC judgement. In particular, they share the concern that fiscal considerations may figure too prominently in monetary policy and ultimately hinder central banks from exiting these policies when macroeconomic conditions require it. Thus, the ruling of the GFCC may well be understood as an attempt to strengthen the de-facto independence of the ECB.<sup>4</sup>

Indeed, recent contributions to the literature support the concern that large central bank balance sheets can trigger desires by governments to influence central bank policy (Fisher 2018). It is argued that this enables the central bank – outside the scope of crisis situations – to influence credit allocation in the economy, to help various industrial sectors and to perform fiscal tasks that should actually be reserved for parliament (Plosser 2018; Taylor 2018).

In fact, it is the independence of the ECB Governing Council that allows it to consider the question whether to include a regular formal proportionality check in its monetary policy strategy on its own merits. This is of particular interest given that ECB representatives have already emphasized that proportionality assessments form part of their deliberations. The natural place for discussing changes to its communication strategy is the ongoing strategy review of the ECB. It has been launched and publicly announced by the Governing Council on January 23, 2020. ECB President Christine Lagarde has emphasized that this review includes soliciting a wide range of views from European citizens. At her first ECB press conference on December 12, 2019, she explained:

*"The strategic review, it will be reaching out to not just the usual suspects, but it will also include consulting with Members of Parliament and I've committed to that with the European Parliament. It will reach out to the academic community, of course. It will reach out to civil society representatives and it will aim at not just preaching the gospel that we think we master, but also listening to the views of those to whom we reach out."*

The outreach events of the ECB strategy review have been postponed by about 6 months due to the coronavirus crisis. The program of the "ECB listens" event originally to be held on March 26 listed as the topic of the first session "*Impact and side-effects of the ECB's monetary policy*". This title seems to speak directly to the question of balancing impact and side-effects of monetary policy measures raised in the GFCC judgement. The strategy review is the ideal framework for considering changes to the communication that would apply to all monetary policy decisions. It could be used to design a regular proportionality assessment for

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<sup>4</sup> For the link between the independence of the legal system, central bank independence and inflation performance see Hayo and Voigt (2008).

current as well as future programs of the ECB. The conclusion of the review is expected for mid-2021.

When ECB President Lagarde testified to the European Parliament's Committee on Economic and Monetary Affairs on June 8, she explained that the new Pandemic Emergency Purchase Programme (PEPP) is temporary, targeted and proportionate. She stated:

*“In this context, the ECB has to, of course, constantly evaluate whether its policy measures achieve their intended purpose. This assessment also includes analysing potential side effects of the measures considered and determining whether alternative instruments might be more efficient in attaining the objective.”*

In light of these statements and the likelihood of future constitutional complaints bringing such questions to GFCC and the CJEU again, it would be sensible to develop a general approach how to communicate the proportionality of ECB decisions. The ECB strategy review could serve this purpose very well.

## 2. The Primacy of Price Stability and Proportionality

Concerns have been raised that the primacy of price stability in the mandate is threatened by the GFCC ruling and its request for publishing the proportionality assessments of the ECB Governing Council. The mandate requires the ECB Governing Council to pursue price stability first and to support other EU policies only subject to having achieved the price stability objective. Yet, monetary policy has broad and heterogeneous effects on all groups in society. This is the case whether it is conducted by changing short-term central bank interest rates or by purchasing governing debt in order to influence longer-term interest rates and premia. Borrowers will be affected differently from savers. Workers may be affected differently from pensioners. Governments may be able to raise funds at lower interest rates, while savers earn less return on safe assets. Containing an increase in inflation by raising interest rates may slow growth and raise unemployment.

Thus, it has been argued that adhering to the GFCC's request to account for the proportionality of monetary policy measures may weaken the primacy of price stability in the central bank objective function. For example, it may give more weight to concerns such as low growth and high unemployment at times in the future, when the ECB needs to tighten policy in order to avoid high inflation. The claim is that the GFCC judgement has inadvertently weakened the pursuit of price stability (see, e.g. Angeloni 2020, Bini-Smaghi 2020, Sandbu 2020).

These fears are overstated. Proportionality considerations are standard fare at independent central banks whether their mandate gives priority to price stability or includes additional objectives. Furthermore, proportionality considerations have been central to the development of the ECB's strategy even if the term “proportionality assessment” has not been used explicitly in this context.

To illustrate how central banks with multiple objectives have interpreted these objectives, it is instructive to consider the U.S. Fed. Its mandate includes three objectives seemingly on the same level: stable prices, maximum employment and moderate long-term interest rates. Nevertheless, the central bank's interpretation of that mandate gives priority to price stability. First, the Federal Open Market Committee (FOMC) explains that although there are three objectives mentioned in the Federal Reserve Act, it is nevertheless better understood as a dual mandate. The reason is that "*an economy in which people who want to work either have a job or are likely to find one fairly quickly and in which the price level (meaning a broad measure of the price of goods and services purchased by consumers) is stable creates the conditions needed for interest rates to settle at moderate levels.*" Furthermore, the FOMC states that "*low and stable inflation at the rate of 2 percent per year, as measured by the annual change in the price index for personal consumption expenditures, is most consistent with achievement of both parts of the dual mandate.*" ([www.federalreserve.gov](http://www.federalreserve.gov))

The FOMC's interpretation of its mandate reflects central tenets of modern macroeconomics. Macroeconomic theory suggests that monetary policy cannot permanently raise employment (and GDP) above the so-called natural or potential level. While changes in monetary conditions have short-run effects on real activity and employment, in the longer run they translate into changes in prices and the rate of inflation. Accordingly, by focusing on price stability in the medium to longer run, the central bank focuses its objective on something it should in principle be able to achieve. Thus, the ECB's mandate which puts priority on price stability may even be considered better in line with macroeconomic theory than the definition of the FOMC's mandate in the Federal Reserve Act.

Relative to other central banks the ECB enjoys substantial independence in defining the goals implied by its mandate and designing a strategy to achieve these goals. The economic literature distinguishes goal independence and instrument independence (DeBelle and Fischer 1994, Walsh 2010). Goal independence refers to the central bank's ability to determine the goals of policy without the direct influence of the fiscal authority. In the U.K., the Bank of England has no goal independence because the government sets the numerical inflation target. By contrast, the Federal Reserve has substantial goal independence in terms of translating the vaguely described goals in the Federal Reserve Act into operational goals. The same holds true for the ECB. It is free to interpret the price stability mandate quantitatively by choosing a particular inflation measure, a numerical target value, and the horizon over which it wants to achieve this inflation aim. Furthermore, given that secondary targets are only referred to in very vague terms, the ECB has substantial freedom whether to select and weigh such secondary targets or not.

Instrument independence refers to the central bank's ability to freely adjust its policy tools in pursuit of the goals of monetary policy. All independent central banks necessarily enjoy a substantial degree of instrument independence. The Fed and the ECB have essentially complete instrument independence with regard to the setting of central bank interest rates. This may not hold to the same degree with regard to quantitative easing. The Fed has bought federal debt but



has long abstained from buying U.S. state debt. Recently, however, it has started buying short-term notes from U.S. states and cities. The ECB has mostly bought member state debt but has imposed certain limits on its government debt purchases. Furthermore, judicial review of ECB purchase programs such as the OMT has clarified some limits to make sure that the ECB does not engage in monetary financing that is forbidden by EU treaties.

Its substantial independence already allowed the ECB to accommodate proportionality concerns regarding the price stability objective when it developed its monetary policy strategy at the start of European Monetary Union (EMU) in 1998. In particular, the ECB chose to focus on a particular measure of consumer prices, the so-called harmonized index of consumer prices (HICP) in its strategy. It defined price stability with regard to the HICP as a rate of inflation below 2 percent. Subsequently, it clarified that this definition referred to increases in the price level. Thus, the target was set as a range of 0 to 2 percent HICP inflation.

Of course, a straightforward numerical interpretation of price stability would imply aiming for a stable price level. This would mean no change in the price level, which implies a zero percent inflation target. One way to understand the choice of “increases below 2%” is in terms of proportionality: balancing the costs of reducing the inflation rate from 2 percent to zero percent against the benefits. The result of this balancing was that below 2 percent inflation is good enough.

Another strategic choice of the ECB that effectively accounts for proportionality considerations concerns the time horizon over which the numerical inflation target is supposed to be reached. The ECB decided that “*Price stability is to be maintained over the medium term*”. In other words, deviations of inflation from the price stability target are acceptable as long as inflation is anticipated to return to a range of 0 to 2 percent in the medium term. The medium term is not pinned down numerically in terms of months, quarters or years. However, considering the horizons over which ECB staff forecasts have typically anticipated a return to target, the medium term extends at least up to two years, perhaps even more.

Thus, the ECB did not pick a strategy that would always aim to return inflation to the target as quickly as possible. Consider, for example, a situation with inflation at 4 percent and the level of GDP about 2 percent below potential. Aiming to return inflation to below 2 percent as quickly as possible would likely mean raising interest rates further than if the central bank aims to get inflation back to target over the medium term. The higher central bank rate drives up real interest rates by more and thereby puts relatively more downward pressure on GDP. This is a trade-off. The focus on the medium term allows to balance the length of time and the extent to which inflation remains above target against the length and extent to which GDP remains below potential. In fact, the explanation of the medium term on the ECB website confirms this conclusion as it states:

*„Moreover, the medium-term orientation makes it possible for monetary policy to take into account concerns about output fluctuations, without putting price stability at risk.“*

Thus, the “*medium-term orientation*” was introduced into the strategy such that the ECB can pick a speed of returning inflation to target that is proportional to potential costs in terms of economic activity and employment.

Another choice that was effectively accounting for proportionality considerations was made in 2003, when the ECB Governing Council conducted a mid-term review of its strategy. On May 8, it published the following decision: “... *the Governing Council agreed that in the pursuit of price stability it will aim to maintain inflation rates close to 2% over the medium term.*” Ever since, the ECB aim for inflation is referred to as below but close to 2 percent. The argument of the Governing Council for introducing “*close to*” was threefold: *This clarification underlines the ECB's commitment to provide a sufficient safety margin to guard against the risks of deflation. It also addresses the issue of the possible presence of a measurement bias in the HICP and the implications of inflation differentials within the euro area.* (ECB Press Release May 8, 2003.)

Clearly, the Governing Council was balancing the benefits of keeping a definition of price stability that includes an outcome of zero percent inflation against three potential costs: (i) the risk of not being able to guard against deflation as effectively because of the presence of an effective lower bound on nominal interest rates, (ii) the risk of mis-measuring and overstating inflation by using the HICP measure of inflation, and (iii) the risk that inflation differentials within the euro area have negative effects on growth in an environment with zero average inflation. The ECB staff prepared a thick volume of background studies that provide quantitative analysis on the benefits of literal price stability – that is zero percent inflation – as well as the costs in terms of the above-mentioned risks. There was also a longer press conference with a presentation by then-ECB Chief Economist Otmar Issing that explains how the ECB Governing Council came to its result.

In sum, proportionality considerations have already played an important role in how the ECB Governing Council has chosen to define price stability quantitatively. The balancing of the benefits of zero percent inflation versus potential costs arising from certain risks that could be attenuated by keeping inflation close to 2% is very reminiscent of the type of balancing described in the GFCC ruling.

In our view, these choices of the Governing Council in defining the price stability objective were fine and based on solid economic analysis. One of us had even contributed research on deflation risks and the effective lower bound that constituted a reference for the ECB staff's background studies at that time (see, e.g. Orphanides and Wieland 1998, Orphanides and Wieland 2000, Coenen and Wieland 2003). Furthermore, these strategic choices have never been challenged in court. Hence, following the logic that these choices are based on proportionality considerations, there is no need to fear that proportionality assessments necessarily threaten the primacy of the price stability objective set down in the ECB's mandate. Otherwise, they would have already done so at the start of monetary union.

## IV. PROPORTIONALITY IN CENTRAL BANKING PRACTICE

Given the importance of proportionality considerations in the design of the ECB's monetary policy strategy, it is of interest to explore how a regular quantitative proportionality check concerning risks and negative side effects of monetary policy could be included in the strategy. Such a proportionality check could be based on quantitative benchmarks that have been established to be consistent with an appropriate and proportional response of monetary policy to macroeconomic developments - at least under normal conditions. Deviations from these benchmarks could be a sign of more or less than proportional policy. They would signal a need to check the benefits of the deviation from the benchmark or reference value in terms of better achieving the monetary policy objective against the costs in terms of certain risks or side effects.

In the following, we consider two types of benchmarks more closely. First, we take a look at another element of the ECB's monetary policy strategy, the so-called monetary cross-checking. For a number of years, this cross-check included a quantitative reference value for broad money growth. In principle, monetary cross-checking could help diagnosing excessively strong or weak monetary developments and help balance the benefits of monetary policy with potential risks and negative side effects, in particular with regard to financial stability.

Secondly, we propose that simple policy rules for central bank interest rates can serve as a quantitative benchmark for a proportional response to macroeconomic and financial conditions, including in particular inflation deviations from the price stability objective. The type of rules we consider have also been used for the purpose of comparison in the Federal Reserve's Monetary Policy Report (Cochrane et al 2020). We also discuss how these rules might be applied to quantitative easing. Deviations from the benchmark setting of the policy instrument may be called for in crisis situations or when particular changes occur in the structure of the economy. At that point, the benefits of such deviations in terms of better achieving the price stability can be balanced with potential negative side effects, including threats to financial stability and risks of fiscal dominance.

### 1. The ECB's Monetary Cross-Checking

In 1998, the officials involved in designing the ECB strategy were struggling to reconcile the so-called inflation targeting strategy and monetary targeting. Inflation targeting had helped reduce inflation in many smaller open economies including emerging economies and had previously been adopted in some euro area economies such as Finland and Spain. It involved defining a numerical inflation target and publishing a regular inflation forecast and inflation report (Bernanke et al. 1999). Money growth targets had been used since the 1970s at the Deutsche Bundesbank as intermediate targets to help achieve its long-run goal

of 2% inflation (von Hagen 1999, Wieland 2000, Issing und Wieland 2013). Monetary targeting had helped Germany avoid double-digit inflation in the 1970s and 1980s.

As a result, the ECB came up with its unique two-pillar strategy. According to the ECB website the Governing Council still proceeds as follows:

*“The ECB's approach to organising, evaluating and cross-checking the information relevant for assessing the risks to price stability is based on two analytical perspectives, referred to as the "two pillars": economic analysis and monetary analysis. They form the basis for the Governing Council's overall assessment of the risks to price stability and its monetary policy decisions.*

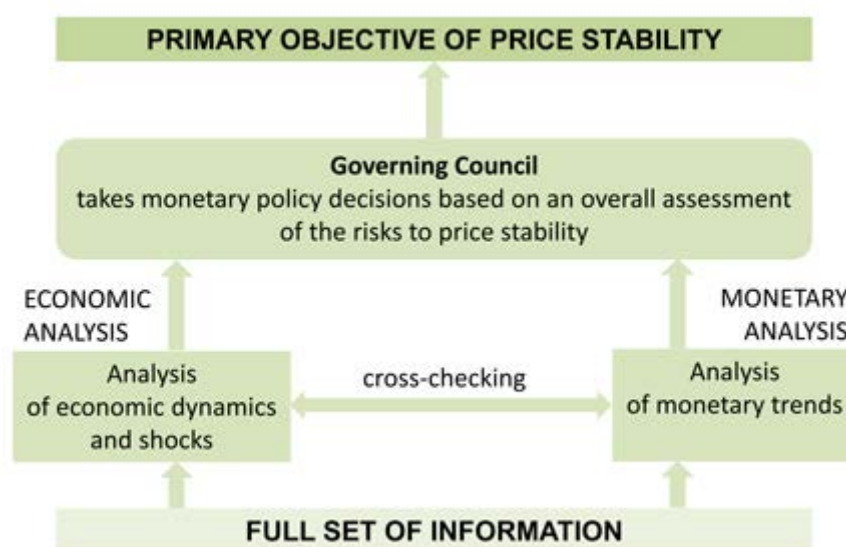
*The economic analysis assesses the short to medium-term determinants of price developments. The focus is on real activity and financial conditions in the economy. The economic analysis takes account of the fact that price developments over those horizons are influenced largely by the interplay of supply and demand in the goods, services and factor markets.*

*The monetary analysis focuses on a longer term horizon than the economic analysis. It exploits the long-run link between money and prices. The monetary analysis mainly serves as a means of cross-checking, from a medium to long term perspective, the short to medium term indications for monetary policy coming from the economic analysis.”*

This description is accompanied by a chart that nicely illustrates the balancing of different indicators that is at the heart of what the ECB calls cross-checking (see Figure 1). The so-called “Economic Analysis” pillar is essentially equivalent to what inflation-targeting central banks do when they develop an inflation forecast. The ECB staff produces such forecasts. Information they take into account includes aggregate demand developments, resource gaps, and their consequences for inflation via Phillips curve relations.

The so-called “Monetary Analysis” pillar is somewhat different from monetary targeting. While the Bundesbank used to set annual money growth target ranges as intermediate targets for monetary policy, the monetary pillar of the ECB is about long-run trends in money growth. These trends are viewed to be closely related to long-run trends in inflation and some analyses suggest that trend changes in money growth may precede trend changes in inflation (Benati 2005, Lucas 2007, Beck and Wieland 2008).

▷ FIGURE 1



The ECB website explains further that „*Monetary analysis consists of a detailed analysis of monetary and credit developments with a view to assessing their implications for future inflation and economic growth*“. There is a close link between monetary aggregates and credit. Credit creation by banks goes along with money creation by banks. Thus, monitoring money and credit growth may also provide indications about risks to financial stability from excessive credit creation. Consequently, some of the effects for which the GFCC asked about a proportionality assessment may be addressed in the context of monetary cross-checking. The GFCC mentions, for example, effects of the PSPP on bank balance sheets and bank profitability, credit growth in the real estate sector and housing prices, as well as on other asset prices including stock prices.

Asset purchases by the ECB create central bank money, also called based money. The banks from which the ECB purchases these assets receive central bank liquidity in return. Asset purchases have already led to a substantial increase in the ECB balance sheet. The increase in central bank liquidity is intended to facilitate money and credit creation in the banking system. In turn, money in the private sector is measured by monetary aggregates such as M1 and M3 that include bank deposits in addition to cash. A proportionality check could start from a reference level or reference rate for monetary growth that may reflect „normal“, sustainable money and credit expansion. Deviations from this reference rate on the upside could be associated with possibly, excessive money and credit creation. Deviations on the down-side might signal insufficient money and credit creation.

A proportionality check would then focus on deviations from the reference rate and assess whether they are necessary to achieve the policy objective of price stability, whether they are effective in getting the economy closer to price stability or whether they make it more difficult. Excessive money and credit growth might eventually lead to corrections that cause abrupt drops in asset prices and threaten the stability of the banking system. Central banks typically look for and

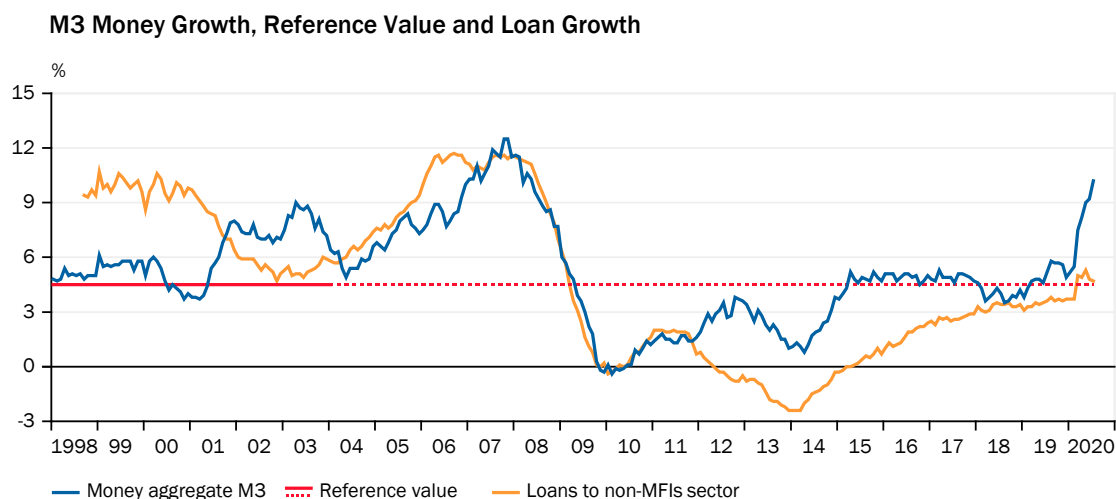
analyse such risks. The question is how to best include such risk assessments in central bank communication. A proportionality check as part of regular central bank communication could be a good way to integrate such risk assessments. Just like forecasts are communicated together with an assessment of risks to the outlook, policy decisions can be communicated together with an assessment of intended effects, risks and side-effects. Quantitative benchmarks can be useful as reference points for regular, systematic risk assessments.

Up to the mid-term strategy review of 2003, the ECB actually made use of such a reference value for money growth. One result of that strategy review was to de-emphasize the reference value. The upcoming strategy review represents a good occasion to revisit this decision. [↘ FIGURE 2](#) shows the growth rates for broad money growth (M3) and loan growth, together with the M3 reference value that was set at 4,5% at the start of monetary union in 1998. It was re-affirmed at annual reviews until 2002. After the strategy review of 2003, the Governing Council decided

*“To underscore the longer term nature of the reference value for monetary growth as a benchmark for the assessment of monetary developments, the Governing Council also decided to no longer conduct a review of the reference value on an annual basis. However, it will continue to assess the underlying conditions and assumptions.”*

As a result, however, the reference value was not mentioned much anymore and de-emphasized in the communications of the ECB. To indicate the end of annual reviews the reference value is shown in [↘ FIGURE 2](#) as a dotted line from 2003 onwards.

[↘ FIGURE 2](#)



Sources: ECB, own calculations

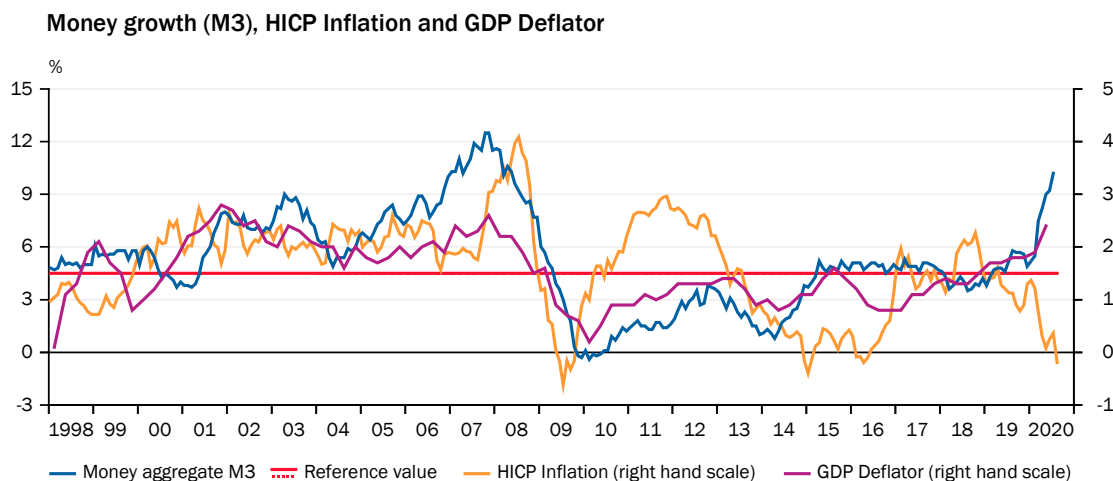
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A comparison of actual M3 growth, credit growth and the reference value provides some interesting insights. From 2004 onwards M3 growth increased steadily to almost 12 percent by 2007. Credit growth rose almost in lockstep. Thus, money growth deviations from the reference value provided an indication of potentially excessive credit growth. At least with the benefit of hindsight we

know that money and credit growth were indeed excessive from 2004 to 2008. The great financial crisis of 2008/2009 revealed that investments financed with this credit, in particular real estate investments, did not justify the value attributed to them by the respective asset prices. It led to a sharp correction in asset prices and, as a consequence, a banking crisis.

In a set of press interviews on July 18, 2008, then-ECB President Trichet credited the monetary pillar for triggering the 2005 tightening of policy. He said: *“When we raised interest rates in December 2005, (...) we did it, because our monetary analysis strongly suggested that we should”*. Thus, the ECB did take notice of excessive money and credit growth and tightened policy. Yet, it did not react quickly and decisively enough to reign in money and credit growth. Member states such as Spain resorted to macro-prudential measures and required banks to provision for losses. But, these measures were not sufficient to stop the credit boom. Consumer price inflation also increased somewhat in the run-up to the financial crisis as shown in [FIGURE 3](#), but these were mostly the more volatile components. While there is some co-movement in longer-run trends of money and inflation, short-run fluctuations can be quite different.

↘ FIGURE 3



Sources: ECB, own calculations

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M3 growth collapsed with the advent of low long-term interest rates in financial sector that were partly due to monetary policy easing in reaction to the financial crisis. Increases in the ECB balance sheet by means of covered bond purchases and long-term refinancing operations did not lead to a recovery of M3 growth. In fact, money and credit creation by the banking sector did not recover for several years. Perhaps this is not surprising, given the nature of the banking crisis. M3 growth returned near the reference value from 2014 onwards along with the economic recovery that had started in the second half of 2013. M3 growth stayed close to the reference value throughout the period of PSPP government debt purchases from 2014 to 2018. Thus, the ECB could have used the fact that M3 growth stayed near the long-term reference value as an argument that money creation proceeded at normal speed and that the extent of quantitative easing was therefore proportionate. Credit growth also recovered eventually but more slowly.

The year 2020, however, marks a big change due to the coronavirus pandemic and economic crisis. Along with massive policy easing M3 growth as well as credit growth picked up substantially. This time, the asset purchases carried out under the PSPP and PEPP program were associated with a stark increase in broad money and credit growth. Of course, this credit growth is supported by fiscal policy measures that aim to guarantee or directly provide credit to the real economy. For now, this is an important element of crisis response. The increase in money growth also reflects a substantial increase in credit to public entities. Whether the increase in broad money and credit growth will turn out longer lasting and could bring about a substantial increase in the inflation rate down the road remains to be seen. It gives cause, however, for close monitoring of money and credit creation as well as potential side effects.

## 2. Instrument-based Proportionality Assessments

The main policy instruments of central banks include short-term interest rates and the central bank balance sheet. Thus, a regular quantitative proportionality check should involve benchmarks for these instruments as reference points.

Simple policy rules provide a very natural way for setting a benchmark or reference point for a proportional monetary policy reaction to macroeconomic developments. Such rules link the policy instrument, for example the level of the short-term nominal interest rate that banks pay for central bank liquidity, to economic conditions and deviations from policy objectives. The respective response coefficients implicitly embody an assessment of the costs and benefits of the magnitude of policy reactions. Macroeconomists at central banks and elsewhere regularly evaluate the performance of such rules on the basis of macroeconomic models and historical experience. The U.S. Federal Reserve has published a menu of interest rate rules in several of its monetary policy reports (Federal Reserve 2019, 2020a, Cochrane et al 2020).

The German Council of Economic Experts has regularly applied two particular interest rate rules to the euro area in its annual reports. These rules also feature in the U.S. Fed's rules menu for the U.S. economy (GCEE 2018, GCEE 2019). The first one is the so-called **Taylor rule** from Taylor (1993) that provides a prescription for the level of the short-term nominal interest rate. The second one is a **first-difference rule** that provides a prescription for the change of the short-term interest rate. This rule has been shown to fit past ECB policy decisions quite well (Orphanides and Wieland 2013, Bletzinger and Wieland 2017 and Smets and Hartmann 2019).

### Interest rate rules and proportionality

The Taylor (1993) rule relates the level of the short-term nominal interest rate to inflation deviations from target and the output gap:

$$(1) \quad i_t^{T93} = \pi_t + 0.5(\pi_t - \pi^*) + 0.5(y_t - y_t^*) + r^*$$



$\pi$  denotes the four-quarter inflation rate (change from a year ago of the GDP Deflator). The output gap is the difference between the log of actual and potential GDP ( $y_t - y_t^*$ ). It is included in the Taylor rule for two reasons: first, it plays a role in inflation forecasts, second, output stabilization may be part of the central bank objective function in its own right. The inflation objective is given by  $\pi^*$ , while  $r^*$  is the long-run equilibrium real interest rate.

The **proportionality** of the response of the central bank interest rate to macro-economic conditions is governed by the following parameters:

- (1) 1 + 0.5 on inflation, of which the unity coefficient on the inflation rate guarantees that any policy response is sufficient to change the real interest rate, while the 0.5 coefficient guarantees that policy tightens (loosens) in response to positive (negative) inflation deviations from target.
- (2) 0.5 on the output gap.
- (3) 1.0 on the long-run equilibrium real interest rate  $r^*$ .

Any decline in  $r^*$  would imply a 1:1 reduction of the Taylor rule prescription.  $r^*$  is a key ingredient of any rule that aims to pin down the level of the policy rate. Of course, estimates of  $r^*$  are highly uncertain and there exist different views on the relevant equilibrium concept (Wieland 2017). Furthermore, in recent years, **estimates of  $r^*$  have declined** (Laubach and Williams 2003, Holsten, Laubach and Williams 2017, Beyer and Wieland 2019) and values below 1% and even 0% are being considered by policy-makers.

The Taylor rule coefficients of 0.5 on the inflation gap and the output gap are relatively small. Higher coefficient values would lead to stronger policy responses and thereby likely reduce deviations of inflation from target and output from potential. The choice of fairly moderate coefficients may instead account for uncertainty regarding the effects of monetary policy on output and inflation. **Uncertainty about monetary policy effectiveness** results in higher anticipated variance of target variables such as inflation or the output gap. This opens up a tradeoff between hitting the target in expectation and the variance of target variables. Following Brainard (1967), an optimal response to such uncertainty is to attenuate policy variations by reducing the reaction coefficients (see, e.g., Wieland 2006).

Furthermore, there is substantial **uncertainty about the output gap**. Trend output is not necessarily a good measure of potential. In particular, when supply-side factors are playing an important role in a recession such as in the coronavirus crisis. Attenuation of the policy response to the output gap is a possible way for taking this uncertainty into account (see, for example, Smets 2001).

A radical approach to accounting for uncertainty about  $r^*$  and potential output is to use a first-difference rule. By definition, it does not provide a prescription for the level of the policy rate and therefore does not require the long-run equilibrium rate  $r^*$  as an input. Furthermore, by switching from the output gap to the

growth rate gap, that is, the difference between GDP growth and the estimate of the potential growth rate, the difference rule is a bit less vulnerable to misperceptions on potential output. Even so, it should be noted that in the current recession due to the coronavirus pandemic and resulting health-related restrictions, the decline in the growth rate may be largely due to restrictions on supply that also reduce the rate of potential growth. The difference rule by Orphanides and Wieland (OW) (2013) is defined as follows:

$$i_t^{OW} = i_{t-1} + 0.5(\pi_{t+3}^f - \pi^*) + 0.5(\Delta y_{t+2}^f - \Delta y_{t+2}^*) \quad (2)$$

$\Delta$  refers to rates of change. Hence,  $\Delta y$  is the growth rate of GDP. Under the difference rule, the level of the interest rate is defined with respect to the preceding quarter's interest rate level. Furthermore, the OW rule responds to forecasts of inflation and output growth. Thereby it looks through short-run volatility. Implicitly, it takes into account a wide set of information variables that inform the outlook for output and inflation beyond currently available output and inflation data.

### Interest rate rules, the effective lower bound and make-up strategies

In periods of low inflation and recession, interest rate rules may prescribe negative interest rates. Such situations become more likely if there is a decline in the long-run equilibrium real interest rate. As the ECB and other central banks have shown, it is possible to implement moderately negative policy rates. However, it is widely held that there exists an effective lower bound. The main reason for an effective lower bound on nominal interest rates lies in the existence of cash. Cash offers a zero-interest alternative to savers and makes it difficult for central banks to drive nominal interest rates far below zero. Another reason is related to bank profits that may decline at negative rates if banks do not pass on negative rates to customers (Brunnermeyer and Koby 2019).

One option that has been proposed to deal with the effective lower bound is to add a “make-up” factor to the interest rate rule (Reifschneider and Williams 2000). This factor makes up for periods when the rule prescribes a policy rate below the effective lower bound by keeping the policy rate at the effective lower bound for longer beyond the point in time when the rule prescribes again rates above the effective lower bound. This “*lower for longer*” policy may be reinforced by providing forward guidance and publishing forecasts of future policy rates to influence market expectations accordingly. Among the rules published by the Federal Reserve in its Monetary Policy Report is a Taylor rule with such a make-up factor. See also Bernanke, Kiley and Roberts (2019) for an analysis of different make-up interest rate rules.

The newly announced strategy of average-inflation-targeting by the U.S. Fed seemingly aims to apply a systematic make-up strategy (Powell 2020, Federal Reserve 2020b). In this case, periods during which inflation remains below target are supposed to be followed by periods during which the central bank keeps interest rates lower for longer in order to let inflation rise (moderately) above target. Thus, periods of below-target inflation are made up for by periods with

above-target inflation. Inflation will eventually be brought back to target from above. As a result of this strategy, inflation will ideally be close to target on average.

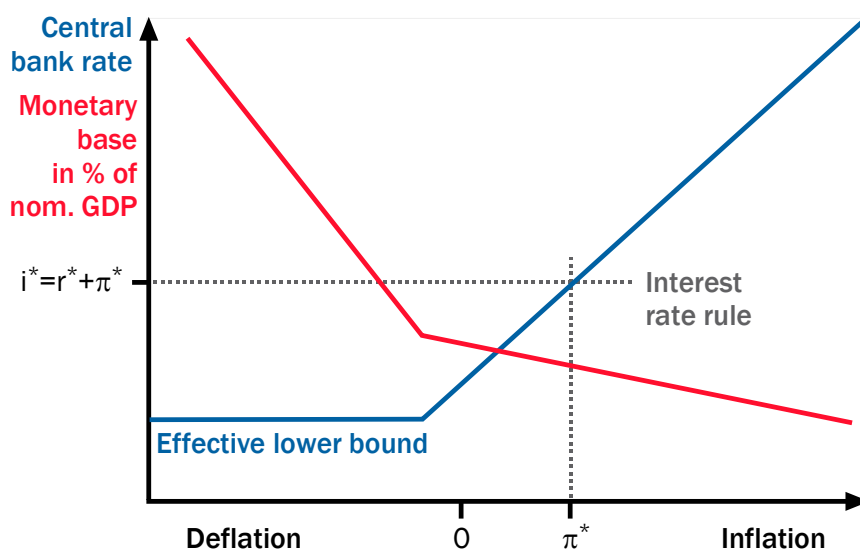
It is noteworthy, however, that the exact definition and timing of the average inflation target is left open. It is difficult for market participants to infer how exactly this is going to be implemented. On top, the new Fed communication appears to treat deviations of unemployment or economic activity from long-run sustainable rates in an asymmetric manner. Hence, there is a potential for increased policy uncertainty with potentially negative effects on the central bank's ability to steer inflation in the desired direction.

### Interest rate rules and quantitative easing

Instead or in addition to lower-for-longer interest rate policy, central banks can resort to asset purchases. In this regard, interest rate prescriptions from a Taylor rule that fall below the effective lower bound provide **a signal for quantitative easing**. Quantitative easing aims to achieve further monetary expansion at a constant policy rate by means of large-scale asset purchases.. It raises the base money supply and may boost asset prices including bond prices thereby pushing down longer-term interest rates (portfolio balance effect).

**Quantitative easing** may be linked to interest rate rules. In fact, switching from interest rate reduction to balance sheet expansion near the effective lower bound may well be expressed in form of a hybrid policy rule that implements a switch from the price of central bank money (the policy rate) to the quantity of central bank money (the monetary base or balance sheet) when inflation falls substantially below target. This can be visualized in [FIGURE 4](#). Coming from the right side of the figure with inflation above target, the blue curve indicates the policy response with the central bank interest rate. It declines along with the inflation deviation from target. When it reaches the effective lower bound, the policy rate is constrained. From that point onwards, the policy response is determined by the red curve in terms of the central bank balance sheet (possibly relative to the level of nominal GDP).

▷ FIGURE 4



Source: own illustration

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Central bankers have already given some guidance about the likely effects of quantitative easing on output and inflation in practice. For example, ECB Chief Economist Philip Lane outlined that the overall increase of the package of ECB measures in the first half of 2020 is projected to increase GDP by around 1.3 percentage points and inflation by around 0.8 percentage points cumulatively between 2020 and 2022 (Lane 2020). Between end of 2019 and July 2020 the ECB balance sheet had increased by about 12.5 percent already due to targeted long-term refinancing operations (TLTRO) and asset purchases under the APP (which includes the PSPP) and the PEPP programmes. The total volume of the executed announced PEPP purchases alone will reach about 11.3 percent of 2019 Euro area GDP.

The effect of the package of ECB measures on output and inflation can be compared to model simulations of the effects of policy rate changes under normal conditions. For example, Wieland et al (2014) report the effects of an unanticipated increase (decrease) of the central bank rate of 1 percent in the euro area on the basis of 8 empirically estimated macroeconomic models for the euro area. They find that, on average, GDP decreases (increases) by 0,46% within 3 quarters, while inflation decreases (increases) by 0,42% withing 4 ½ quarters. Accordingly, a policy rate reduction of 2,8 percentage points would boost GDP by about 1,3%.

Analyses of the type referred to by Philip Lane could be refined further to translate a given interest rate reduction called for by a particular policy rule into a roughly equivalent quantitative easing at a constant policy rate. In this manner, the proportional interest rate response to macroeconomic developments embedded in the interest rate rule could be expressed in terms of quantitative easing.

By now there are a large number of studies that document announcement effects of quantitative easing on a range of asset prices, bond prices and longer-term in-

terest rates (see, for example Kapetanios et al 2012, Altavilla et al 2015 and Andrade et al. 2016). Nevertheless, the systematic effect of a given amount of asset purchases beyond the announcement remains hard to quantify reliably (see Greenlaw et al 2019). Again, Brainard-style **uncertainty about the effects of quantitative easing** implies policy attenuation in this context. It follows that the size of asset purchases in reaction to a given decline of inflation below target is reduced. For an analysis how quantitative easing is to be adjusted optimally under uncertainty about the effects of asset purchases see Orphanides and Wieland (2000). They show that the extent of asset purchases in reaction to a given drop of inflation below target is then reduced. This can be visualized as a flattening of the red curve in [FIGURE 4](#) on the left side of the kink due to the effective lower bound.

### How to use rules to address the question of side effects of policy

Long periods of low interest rates as well as large-scale asset purchases may have a range of effects beyond those intended by the central bank. **Negative side effects** may concern increased risks for financial stability or fiscal dominance. The proportionality principle requires balancing the benefits from the intended effects against the costs of the negative side effects as highlighted in the ECB Policy Accounts from June meeting of this year. Policy rules can be helpful to design such proportionality assessments in several ways. In particular, the **Brainard principle of policy attenuation** may be extended to the question of potential side effects of monetary policy.

First, a central bank may see reason to deviate from the reference point established with the policy rule in certain situations. For example, the central bank may want to keep policy accommodative for longer than prescribed by the policy rule so as to achieve a stronger increase in inflation, thereby bringing the inflation rate to target more quickly. However, such a deviation from the benchmark bears monitoring. It could imply a significant risk of negative side effects, for example, excessive increases in asset prices that may be followed by sharp corrections with negative consequences for economic activity. Such a risk raises the anticipated variance of the output gap and inflation. As a result, there is a trade-off between reducing the expected deviation of output from potential and inflation from target and the variance of output and inflation. This is similar to the Brainard uncertainty problem. In this case, policy attenuation implies reducing the deviation of actual policy from the policy rule benchmark.

Secondly, the Brainard principle can be applied directly to the derivation of the policy rule benchmark. For example, the amount of quantitative easing implied by the rule in response to a given inflation deviation below target may be reduced in order to reduce the risk of financial instability emanating from large-scale asset purchases. Similarly, the risk of fiscal dominance could be a justification for a more cautious use of government debt purchases. This could be achieved by reducing the share of government debt purchases relative to other assets or by reducing the overall amount of asset purchases and balance sheet expansion. The latter would imply a flattening of the red curve that defines the extent of balance sheet expansion on the left of the kink due to the effective

lower bound in [FIGURE 4](#).

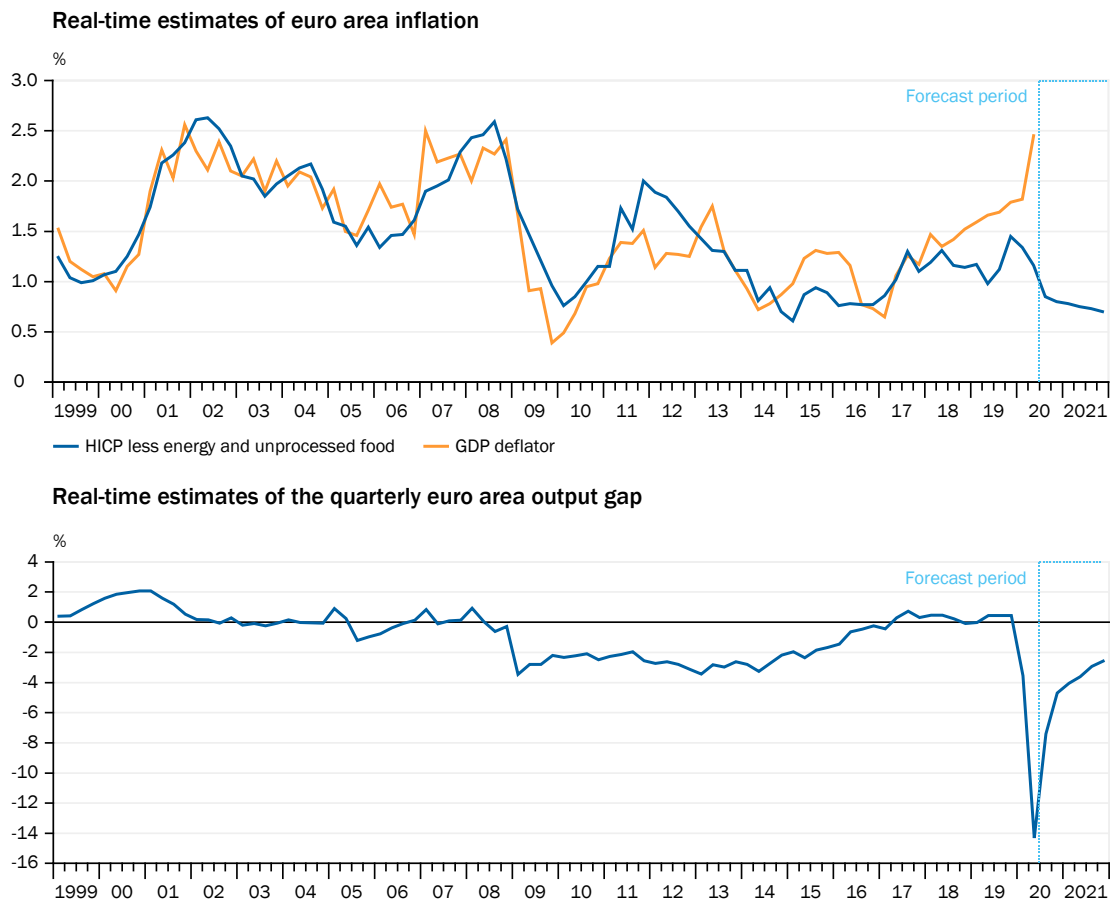
Thirdly, if the tradeoff is particularly unfavourable, one might want to consider other instruments. For example, one could imagine a situation in which government debt purchases have strong undesired fiscal political economy effects, while being largely ineffective in terms of boosting inflation. An alternative approach could be to reduce short-term policy rates much more into negative territory. As a result, the yield curve would be steeper and longer-term rates could rise more freely than with quantitative easing. Implementation of such a policy, however, has other side effects. It might require restricting access to cash or introducing an exchange rate between central bank reserves and cash (Rogoff 2020).

### Applying the Taylor rule to euro area data

In real time, central banks need to rely on nowcasts of inflation and output. Thus, policy rate prescriptions from the Taylor rule need to be calculated using real-time nowcasts of inflation and the output gap. Corresponding nowcasts derived from the ECB staff projections are shown in [FIGURE 5](#).

[FIGURE 5](#)

#### Real-time estimates of euro area output gap and inflation



Source: Wieland (2020)

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For inflation, the upper panel shows the GDP deflator as in the original Taylor rule and the core HICP. The ECB has chosen to target the HICP over the medium term. However, headline HICP inflation is quite variable due to fluctuations in energy prices. Thus, core HICP includes the elements of the HICP that are more suitable as an input into an operational interest rate rule. It corresponds better to the aim of stabilizing inflation over the medium term.

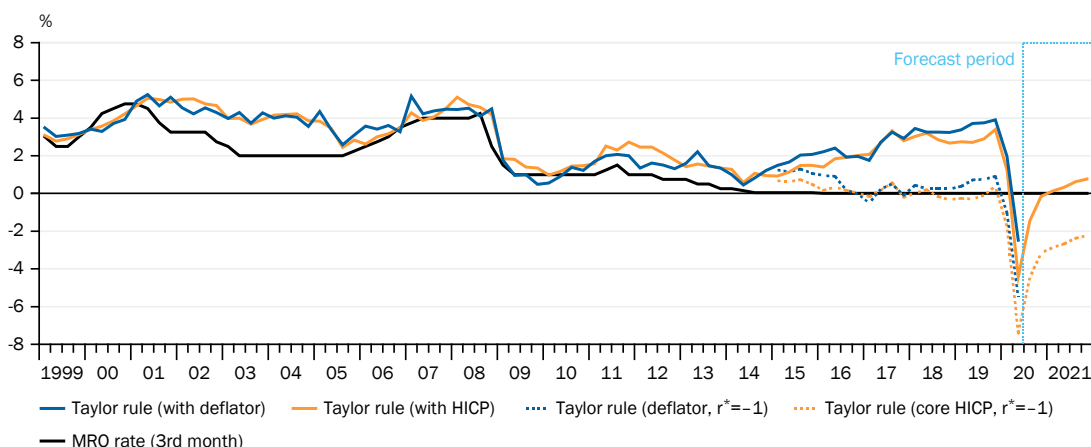
The real time estimates of the output gap are computed from ECB staff nowcasts for GDP and the EU Commission staff's real-time estimates of potential. The real-time quarterly output gap estimate varied between about +2% in 2000 and about -4% in the financial crisis. In recent years it was near zero or slightly positive up to the coronavirus pandemic. The lockdowns and individual reactions to the pandemic induced a record decline of GDP. Using the measure of potential GDP from the European Commission, this recession opens up a huge output gap in the second quarter of 2020 of about -14%. Based on the ECB staff's forecast GDP rises substantially in subsequent quarters and the output gap becomes smaller in absolute value. Importantly, however, the smooth trend for potential GDP neglects that supply-side constraints due to the lockdown and social distancing measures also result in lower potential output. Thus, the policy-relevant output gap is likely to be much smaller.

The resulting Taylor rule prescriptions are shown in [FIGURE 6](#) together with the central bank rate on main refinancing operations (MRO rate). The policy tightening in the first three years of monetary union is very much in line with these two policy rules. However, the rules suggest that monetary policy was too easy in the years prior to the global financial crisis. This finding coincides to some extent with the upward deviation of money growth from the monetary reference value before the financial crisis.

▸ FIGURE 6

### Taylor Rule for the euro area with ECB real-time data and AMECO nowcasts

Forecast is based on latest ECB staff projections (June 2020)



Source: Wieland (2020)

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The drastic policy easing in response to the recession of 2008/2009 was also very much in line with the prescriptions of the Taylor rule. Similarly, the ECB's

holding the line at a policy rate of 1 percent for several years afterwards was consistent with the two versions of the rule shown in [FIGURE 6](#). Between 2011 and 2014, the Taylor rule prescriptions remain at some distance above the policy rate but still indicate some policy easing up to 2014.

From 2015 onwards, the policy rules call for a tightening of monetary policy. An increasingly larger gap opens up between the rules' prescriptions and the ECB's MRO rate. By 2019 the gap amounts to about 3 percentage points. At the same time, the MRO rate did not fully reflect the ECB's policy stance. In 2015 the ECB initiated substantial quantitative easing. This was primarily achieved by means of government debt purchases under the PSPP program. Thus, the Taylor rule provides some support for the concerns raised by the German Federal Constitutional Court regarding the proportionality of the PSPP. The rule suggests that policy should have tightened along with the economic recovery in the euro area rather than having eased further.

Policymakers have referred to a significant decline in the long-run equilibrium rate  $r^*$  in order to justify the "lower for longer" strategy and the additional quantitative easing. The decline is typically attributed to a slowdown of productivity and a greater tendency towards savings due to demographic changes. Changes in  $r^*$  and  $y^*$  can be integrated into the Taylor rule. To illustrate the impact of such a change we consider a reduction of  $r^*$  in the rule by 3 percentage points. As a result, it declines from initially 2 percent to -1 percent. The decline is phased in over 3 years starting in 2015. As a result, the policy rules prescribe a policy rate around 0 percent until 2019 as shown by the dotted lines in [FIGURE 6](#). Yet, even under this fairly extreme assumption of a long-run equilibrium interest of -1 percent, the rules do not call for negative rates and quantitative easing. Note also, that estimates of lower  $r^*$  due to lower productivity growth imply a lower potential output level  $y^*$ . This pushes Taylor rate prescriptions again a bit higher, because the output gap turns positive earlier (see Beyer and Wieland 2020).

Thus, the PSPP program implemented since 2015 represents a stark deviation from the rule. This supports the GFCC's request to explain the proportionality of continuing this program for so long. Of course, the rules do not provide direct information as to how the economy would have performed without the PSPP. Such a counterfactual analysis requires using the rule together with a macroeconomic model that accounts for general equilibrium effects.

Not surprisingly, the Taylor rule recommends a substantial easing of monetary policy in response to the coronavirus pandemic and recession. Interest rate prescriptions decline in the second quarter of 2020 by about 6 ½ percentage points. They are anticipated to rise again in subsequent quarters as the economy recovers. Due to the special nature of this recession, it is important to make an assessment as to how much of the decline in GDP in the second quarter of 2020 is actually due to supply-side constraints. Based on this assessment the output gap entering the policy rule and as a result the rule prescription would have to be adjusted. Furthermore, the interest rate cut would need to be translated to an equivalent volume of asset purchases. In this manner, the rules could be employed to assess the proportionality of the new asset purchases under the PEPP



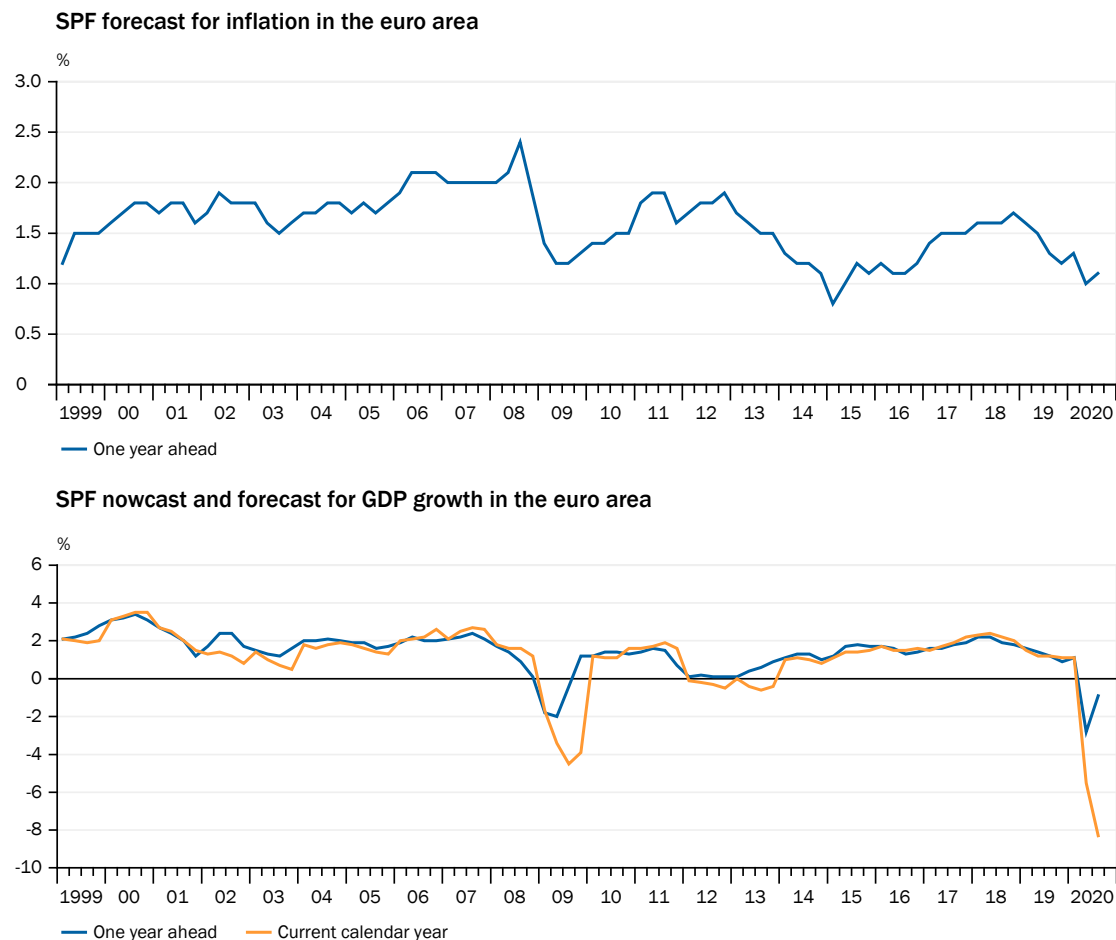
program.

### Applying the Orphanides-Wieland rule to euro area data

The OW rule is a difference rule that does not rely on estimates of the equilibrium real interest rate. It only indicates prescribed changes of the interest rate from an inherited level. The changes are informed by private sector forecasts for inflation and output growth that are regularly published in the ECB's Survey of Professional Forecasters. The rule uses 1-year-ahead forecasts from the most recent data point. Relative to the date of publication and the policy decision this implies a three-quarter ahead forecast of inflation and a two-quarter ahead forecast of output growth. To calculate the growth gap we use potential GDP growth forecasts derived from the EU Commission's estimate of potential GDP.

The real-time SPF forecasts for inflation and output growth are shown in [FIGURE 7](#). For GDP growth we have also added the nowcast. The comparison shows that forecasts typically vary less because they look through the effects of current disturbances and reflect some return towards steady-state inflation and growth.

FIGURE 7

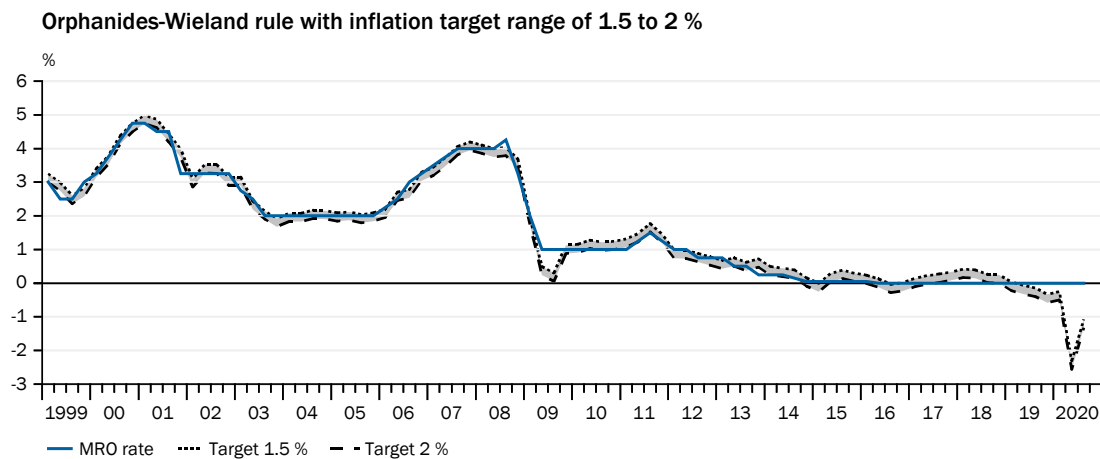


Source: SPF

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The resulting policy rule prescriptions are shown in [FIGURE 8](#). These are simply one-step ahead prescriptions based on last quarter's realized interest rate for two different inflation targets, 1,5% and 2%. They do not incorporate a dynamic adherence to the rule as discussed in Cochrane, Taylor and Wieland (2020).

FIGURE 8



Sources: Orphanides, Wieland

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The OW rule fits the ECB's interest decisions from 1999 to about 2015 very well, as has been shown also by Bletzinger and Wieland (2017) and Hartmann and Smets (2019). Only in 2009, the rule would have prescribed further easing to a policy rate of about 0 percent. However, in mid 2015 and early 2016 the rule leans towards a tightening step, and again from 2017 onwards. Thus, the OW rule did not call for the additional quantitative easing under the PSPP. Furthermore, a dynamic simulation of the rule or a conditional forecast of the rule prescriptions did provide a stronger signal towards tightening in 2015 and 2016 (Bletzinger and Wieland, 2017).

In the second quarter of 2020 the rule calls for an easing of about -2.5 percentage points. As noted previously, the EU Commission potential growth forecast may be too high for that quarter, because it ignores that supply-side constraints due to health-related restrictions lowered potential in that quarter. Adjusting for this effect, would allow quantifying the prescribed easing more precisely. Then, the prescribed interest rate cut could be translated into an appropriate volume of asset purchases in order to provide a quantitative proportionality assessment with regard to the PEPP program.

## V. CONCLUSIONS

The PSPP-ruling of the German Federal Constitutional Court (GFCC) and its call for applying the proportionality principle and communicating proportionality assessments have been the subject of some controversy. While the initial storm

seems to have calmed down, it must be expected that the PEPP and other future ECB programs will be subject to further legal dispute.

Proportionality asks whether a monetary policy measure is necessary to counter an adverse economic situation and whether it is suitable to cope with that economic problem in the least disturbing way, i.e., with the least side effects. In line with this principle, the ECB has recently published a summary of its proportionality assessment regarding the new PEPP program in the Monetary Policy Accounts from the June 2020 Governing Council meeting. The Accounts refer to the risk that unintended effects could increase over time and eventually outweigh the overall positive effects. Importantly, it is stated that continued checking of benefits and costs of policy measures is called for.

In this paper, we have argued that the GFCC ruling does not weaken the independence of the ECB but that it can rather be understood as an attempt to strengthen the ECB's de-facto independence. A key reason is that undue government influence on the central bank's quantitative easing decisions could be tantamount to giving the government the ability to demand the monetization of its debt, an outcome that should be avoided at all costs as put succinctly by Bernanke (2010). Furthermore, we have shown that the principle of proportionality has already been influential in shaping key aspects of the ECB strategy in the past, including the choice of an intermediate horizon over which price stability is to be pursued as well as the numerical target of close but below 2 percent HICP inflation. These decisions also involved a balancing of intended effects aimed at price stability with possible, unfavorable side effects.

Following up on the call for continuous proportionality assessment in the ECB Accounts, we have proposed to develop quantitative benchmarks for a regular proportionality check. This is a suitable objective for the ongoing strategy review by the ECB Governing Council. Such quantitative benchmarks are best formulated for instruments that are under the direct control of the central bank such as central bank interest rates and the balance sheet. Furthermore, benchmarks could be derived for variables that capture overall monetary developments such as broad money growth.

The ECB's strategy already includes a separate monetary analysis that focuses on the long-run determinants of money and credit growth. Previously, it had employed a reference value of 4,5% M3 growth. A large, persistent and increasing deviation from this value leading up to the global financial crisis provided a timely warning signal of excessive money and credit creation. Thus, a revival of the ECB's monetary cross-checking could help with better detecting risks and adverse developments in credit provision by the banking system and in asset prices.

Furthermore, we have shown how interest rate rules such as the Taylor rule or the Orphanides-Wieland rule can be drawn upon to address the suitability of instrument-settings in a proportionality assessment. Rule prescriptions provide an assessment of "normal" proportional policy responses to macroeconomic developments. Large and persistent deviations from these benchmarks such as a

lower-for-longer policy may have benefits in terms of projected inflation outcomes being closer to target. Yet, they are likely to have risks and side effects that need to be balanced. In doing so, the Brainard principle of policy attenuation would call for possibly reducing the deviation from the benchmark in order to better manage those risks.

Applying the Taylor rule and the Orphanides-Wieland rule to past euro area monetary policy, we identify episodes of such deviations prior to the global financial crisis as well as in the period from 2015 to 2019. In 2020 the rules prescribe a substantial policy easing in response to the coronavirus crisis. We have discussed how the rules could be used in a quantitative proportionality assessment regarding the PEPP program.

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