The German Federal Constitutional Court Ruling and the European Central Bank’s Strategy

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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 (ECB). This article shows how a regular proportionality check could be integrated in the ECB’s strategy, which is currently undergoing a systematic review. In particular, it proposes that quantitative benchmarks for policy rates and the central bank balance sheet should be included. 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.

KEYWORDS: central bank independence; monetary institutions; monetary policy strategy; proportionality; policy rules; quantitative easing

I. INTRODUCTION

1. Background

On 5 May 2020, the German Federal Constitutional Court (GFCC) issued a seminal judgment that set off shock waves across the European Union (EU).1 The ruling concerned the purchases of government debt by the European Central Bank (ECB) under the Public Sector Purchase Programme (PSPP). It stated that the ECB failed to assess and substantiate—in its decisions—that the PSPP programme satisfies the principle of proportionality as mandated by article 5.1 of the Treaty on European Union (TEU).

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1 See Bundesverfassungsgericht (GFCC), Judgment of the Second Senate of 5 May 2020 – 2 BvR 859/15 –, paras 1–237.
In doing so the German Court directly contradicted the Court of Justice of the European Union (CJEU). The GFCC ruled that the CJEU acted *ultra vires* by departing from its own standards regarding the principle of proportionality, thus allowing the ECB an extensive discretion to conduct economic policy such that it could interfere with the competencies of the Member States. Indeed, the GFCC had already accepted the precedence of Community law in 1974, but only regarding competencies that have been explicitly shifted to the EU level by the German legislator. In case of the PSPP, the GFCC has no legal authority over the ECB, but it does have authority to bind German institutions. If the ECB acted beyond its mandate of monetary policy and conducted economic policies, it would act *ultra vires* such that the GFCC could bind German authorities not to take part in those ECB actions.

Accordingly, the GFCC ruled that the Deutsche Bundesbank would have to stop participating in the PSPP programme within three months unless the ECB Governing Council substantiated that the principle of proportionality was satisfied. And it requested the German constitutional organs—that is, the German government and the German parliament—to take steps seeking to ensure that the ECB explained 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 made 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 programme at its meetings on 3–4 June 2020. The ECB published a summary of these considerations in its regular Monetary Policy Accounts on 25 June 2020.

These developments have highlighted the importance of the proportionality principle for euro area monetary policy. Hence, this article 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 due to be completed by mid 2021. Furthermore, it would address the request for continuous proportionality.

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2 Dieter Grimm, a Justice of the Federal Constitutional Court from 1987 to 1999, notes that Community law takes precedence ‘because the German legislator ordered its precedence of applications in Germany in the Act Approving the Treaties’ (Dieter Grimm, ‘A Long Time Coming’ (2020) 21 German Law Journal 944). For the acceptance of precedence of Community law in principle see Bundesverfassungsgericht (GFCC), 29 May 1974, 37 Entscheidungen des Bundesverfassungsgerichts [BVerfGE] 271, 278–279 (Solangé I), quoted in Grimm (ibid).

3 In fact the ECB would violate its obligations under the Treaty on the Functioning of the European Union (TFEU) article 127 et seq if it followed the GFCC.
assessments that was raised in the ECB Accounts concerning the Governing Council meeting of 3–4 June 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.4

Furthermore, this article 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 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 article does not aim to contribute to the debate in European or constitutional law on the merits of the GFCC ultra vires judgment or the position of the CJEU. Instead, this article aims to provide economic reasoning regarding the implications of the PSPP ruling of the GFCC and thus contribute to interdisciplinary dialogue. It recognizes that the German constitutional organs as well as Deutsche Bundesbank are bound by the GFCC judgment. Thus, it explores some pertinent questions regarding the implications of the ruling that require making use of economic analysis. Furthermore, this article does not discuss the questions of whether PSPP or PEPP ought to be judged to be monetary financing from a legal perspective, nor where the line between monetary and fiscal policy should be drawn.5

2. The Court ruling and the sequence of events

Previously, on 11 December 2018, the CJEU had issued a preliminary ruling in response to questions submitted by the GFCC that the PSPP is appropriate and proportional.6 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 5 May marks the first time that the GFCC has activated this reservation, thereby judging that 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 programme. Furthermore,

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4 See ‘Account of the Monetary Policy Meeting of the Governing Council of the European Central Bank held in Frankfurt am Main on Wednesday and Thursday, 3–4 June 2020’ <https://www.ecb.europa.eu/press/accounts/2020/html/ecb.mg200625~fd97330d5f.en.html> (emphasis added) accessed 11 May 2021.
5 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. See GFCC, Judgment of the Second Senate of 5 May 2020 – 2 BvR 859/15 –, para 216.
6 See Case C-493/17 Weiss and Others ECLI:EU:C:2018:1000.
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 Eurosystem.

On 8 May 2020, the CJEU responded to media enquiries by stating that a judgment 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 10 May 2020, the President of the European Commission, Ursula von der Leyen, threatened that possible next steps might include the option of infringement proceedings against Germany for failing to implement EU law. The ECB repeatedly emphasized that it is subject to the jurisdiction of the CJEU only and indicated that its independence precludes taking directions from national governments or parliaments.

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 provided further information on the proportionality considerations of the Governing Council when deciding on the PSPP programme. Furthermore, the Governing Council deliberated extensively on questions of proportionality when it decided to increase the volume of the new PEPP programme from €750 billion to €1350 billion at its meetings on 3–4 June 2020. A summary of the deliberations was published on 25 June 2020 in the ECB’s regular Monetary Policy Accounts.

Since then, the German government and parliament have decided, respectively, on 26 June 2020 and 2 July 2020 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 programmes. 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 TEU, article 5.1 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. Article 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.\footnote{See Sara Poli and Roberto Cisotta, ‘The German Federal Constitutional Court’s Exercise of Ultra Vires Review and the Possibility to Open an Infringement Action for the Commission’ (2020) 21 German Law Journal 1078 with respect to the possibility to open infringement action for the Commission.}

\footnote{Consolidated version of the Treaty on European Union (TEU), Title I: Common Provisions, Art 5 (ex Art 5 TEC) <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12008M005:EN:HTML>.}
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.9

In its judgment the CJEU reviewed the proportionality of the ECB’s PSPP. It states that ‘it does not appear that the ESCB’s economic analysis is vitiated by a manifest error of assessment’, that the PSPP ‘does not go manifestly beyond what is necessary to achieve the objective’, and that it does not imply ‘disadvantages which are manifestly disproportionate to the PSPP’s objective’.10

The GFCC took issue with the CJEU judicial review.11 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 stated that the ECB failed to conduct the necessary balancing of the monetary policy objectives against the economic policy effects arising from the programme. It criticized the fact that it could not ascertain whether the ECB Governing Council did conduct a projection as to the PSPP’s economic policy effects or 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 programme may have the same effects as financial assistance programmes of the European Stability Mechanism (ESM), which are economic policy measures under the purview of the Member States. The GFCC feared that:

...the longer the programme 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 programme without jeopardising the stability of the monetary union.12

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

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9 EUR-LEX, Glossary of Summaries <https://eur-lex.europa.eu/summary/glossary/proportionality.html>.
10 Weiss (n 6) paras 78, 79 and 93.
11 For more detail on the GFCC judgment see, eg, Helmut Siekmann and Volker Wieland, ‘The Ruling of the Federal Constitutional Court concerning the Public Sector Purchase Program: A Practical Way Forward’ IMFS Working Paper No 140 (2020).
12 See Bundesverfassungsgericht (GFCC), Judgment of the Second Senate of 5 May 2020 – 2 BvR 859/15 –, paras 1–237.
interest rates that affect shareholders, tenants, real estate owners, insurance policy holders, and savers, in general. Its request for a proportionality assessment is:

\[ \ldots \text{to weigh these and other considerable economic policy effects and balance them, based on proportionality considerations, against the expected positive contributions to achieving the monetary policy objective the ECB itself has set.} \]  

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 US 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, s 11 of the Bank of England Act 1998 also set the monetary policy objective 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.

13 See Bundesverfassungsgericht (GFCC), Judgment of the Second Senate of 5 May 2020 – 2 BvR 859/15 –, paras 1–237.
14 TFEU, article 127.
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 TFEU, article 120:

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 TFEU, article 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 TFEU, article 130:

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 covers not only 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 US 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 US Congress. 

In the remainder of this article, we do not contribute to the debate in European law and constitutional law on whether the ultra vires approach is justified by the

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15 TFEU, article 120.  
16 TFEU, article 123.  
17 TFEU, article 130.
principle of conferral. Indeed, the GFCC’s *ultra vires* approach is not uncontested in the literature. For example, Schorkopf argues that the GFCC insistence on limitations of competencies is outdated as the constitutional principles derived from EU law set the common standard of review in the sense of value constitutionalism.\(^\text{18}\) However, the GFCC cannot expect to create a value hierarchy that is sufficiently accepted by other Member States. Wendel notes that the GFCC increasingly risks overstretching its own mandate under the Basic Law.\(^\text{19}\) Perj upoints to fallacies of the bidimensional supremacy underlying the GFCC’s *ultra vires* doctrine: national judges cannot have a veto over the legality of EU law as this would deny EU constitutionalism its legality overall.\(^\text{20}\) We do also not 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 by the GFCC that the Governing Council should assess the proportionality of its decisions and publish proportionality considerations in the context of its decisions.\(^\text{21}\) 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 TFEU, article 130 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.

\(^\text{18}\) See Frank Schorkopf, ‘Value Constitutionalism in the European Union’ (2020) 21 German Law Journal 956.

\(^\text{19}\) See Mattias Wendel, ‘Paradoxes of Ultra-Vires Review: A Critical Review of the PSPP Decision and Its Initial Reception’ (2020) 21 German Law Journal 979.

\(^\text{20}\) See Vlad Perju, ‘Against Bidimensional Supremacy in EU Constitutionalism’ (2020) 21 German Law Journal 1006.

\(^\text{21}\) See Ignazio Angeloni, ‘Key Role for Bundesbank after German Court Ruling’ OMFIF (7 May 2020) <https://www.omfif.org/2020/05/key-role-for-bundesbank-after-german-court-ruling/>; Lorenzo Bini-Smaghi, ‘The Judgment of the German Constitutional Court Is Incomprehensible’ LUISS School of European Political Economy, Policy Brief 25-2020 (15 May 2020) <https://sep.luiiss.it/brief/2020/05/15/l-bini-smaghi-judgment-german-constitutional-court-incomprehensible>.; Martin Sandbu, ‘German Court Has Set a Bomb under the EU Legal Order’ Financial Times (London, 5 May 2020) <https://www.ft.com/content/79484c01-b66b-4f81-bdc6-fd4de940821>, Mark Sobel, ‘Revenge of the German Constitutional Court’ OMFIF (7 May 2020) <https://www.omfif.org/2020/05/revenge-of-the-german-constitutional-court>. (All accessed 30 September 2020.)
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 judgment. It cannot make a direct request to the ECB Governing Council for a decision. 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 so ahead of the CJEU’s PSPP judgment from December 2018.

There is a large economic literature on central bank independence. 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). Also, governments may want to increase central bank money in order to finance government spending (fiscal dominance). Finally, there is the famous time-inconsistency problem of monetary policy. Government promises to keep inflation low are not credible. There is an incentive to reneg 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 central bankers who are more conservative and put greater weight on price stability than politicians who are necessarily concerned with electoral success, or by mandating price stability and holding central bankers to this contract.

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22 See, eg, Alex Cukierman, *Central Bank Strategy, Credibility, and Independence: Theory and Evidence* (The MIT Press 1992) and Sylvester CW Eijffinger and Jakob de Haan, ‘The Politics of Central Bank Independence’ Center Discussion Paper Series No 2016-047 and European Banking Center Discussion Paper Series No 2016-004 for many references.
23 See Eric Dubois, ‘Political Business Cycles 40 Years after Nordhaus’ (2016) 166 Public Choice 235.
24 See Thomas J Sargent and Neil Wallace, ‘Some Unpleasant Monetarist Arithmetic’ (1981) 5 Federal Reserve Bank of Minneapolis Quarterly Review 1.
25 See Finn E Kydland and Edward C Prescott, ‘Rules Rather than Discretion: The Inconsistency of Optimal Plans’ (1977) 85 Journal of Political Economy 473, Robert J Barro and David B Gordon, ‘Rules, Discretion and Reputation in a Model of Monetary Policy’ (1983) 12 Journal of Monetary Economics 101.
26 See Kenneth Rogoff, ‘The Optimal Degree of Commitment to an Intermediate Monetary Target’ (1985) 100 Quarterly Journal of Economics 1169 and Eijffinger and de Haan (n 22).
27 See Carl E Walsh, ‘Optimal Contracts for Central Bankers’ (1995) 85 American Economic Review 150.
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, and 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.

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. 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 UK, the Bank of England has no goal independence because the government sets the numerical inflation target. By contrast, in the US 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, it has some discretion regarding the secondary objectives that are only referred to in very vague terms, but this is only as long as price stability is fulfilled.

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 US state debt. Recently, however, it has started buying short-term notes from US states and cities. The ECB has mostly bought Member State debt but has imposed certain

28 See Otmar Issing and Volker Wieland, ‘Monetary Theory and Monetary Policy: Reflections on the Development Over the Last 150 Years’ (2013) 233 Journal of Economics and Statistics (Jahrbuecher fuer Nationaloekonomie und Statistik) 423.
29 See Christoph Weber and Benedikt Forschner, ‘ECB Independence at Risk?’ (2014) 49 Interecomics 45.
30 See Guy Debelle and Stanley Fischer, ‘How Independent Should a Central Bank Be?’ in Federal Reserve Bank of Boston (ed), Goals, Guidelines, and Constraints Facing Monetary Policymakers (Federal Reserve Bank of Boston 1994) 195 <http://www.bos.frb.org/economic/conf/conf38/conf38f.pdf> and Carl Walsh, ‘Central Bank Independence’ in Steven N Durlauf and Lawrence E Blume (eds), Monetary Economics (The New Palgrave Economics Collection) (Palgrave Macmillan 2010).
limits on its government debt purchases. Furthermore, judicial review of ECB purchase programmes such as Outright Monetary Transactions (OMT) has clarified some limits to make sure that the ECB does not engage in monetary financing that is forbidden by EU treaties.

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 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 programme 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. Even so, output remained about 2 per cent below the real-time potential Gross Domestic Product (GDP) estimates of the European Commission until the gap closed in 2017. Core harmonized index of consumer prices (HICP) inflation remained between 1 and 0.5 percentage points below the target pursued by the ECB until 2019 (for further discussion and data on this period see section IV.2).

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 a level 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 no longer needed. Nevertheless, even in such a situation a strong case can be made for keeping the central bank independent when carrying out quantitative easing. As then-Fed Chairman Ben Bernanke put it:

\[\ldots\] 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.\footnote{See Ben Bernanke, ‘Central Bank Independence, Transparency, and Accountability’, Speech, 26 May 2010. At the Institute for Monetary and Economic Studies International Conference, Bank of Japan, Tokyo, Japan, https://www.federalreserve.gov/newsevents/speech/bernanke20100525a.htm.}
of the ECB.\textsuperscript{32} It should not be confused with the idea that a (national) court of non-experts forces the ECB to adopt an alternative monetary policy. While the CJEU grants a wide margin of appreciation to the ECB in order to live up to its independence, the GFCC ruling more concretely points to the possible capture of monetary policy by fiscal authorities. The required proportionality assessment shields the ECB from being dominated by fiscal concerns. It should also be noted that the GFCC requests the conduct of a proportionality assessment by Governing Council level but not a judicial review of the content itself.

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. 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.\textsuperscript{33}

In fact, it is the independence of the ECB Governing Council that allows it to consider the question of 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, which was launched and publicly announced by the Governing Council on 23 January 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 12 December 2019, she explained:\textsuperscript{34}

\ldots 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 six months due to the coronavirus crisis. The programme of the ‘ECB listens’ event

\textsuperscript{32} For the link between the independence of the legal system, central bank independence and inflation performance see Bernd Hayo and Stefan Voigt, ‘Inflation, Central Bank Independence and the Legal System’ (2008) 164(4) Journal of Institutional and Theoretical Economics 751.

\textsuperscript{33} See Peter RFisher, ‘Should the Fed “Stay Big” or “Slim Down”?’, Paper presented at ‘Currencies, Capital, and Central Bank Balance Sheets: A Policy Conference’, Stanford University, 4 May 2018; Charles Plosser, ‘The Risks of a Fed Balance Sheet Unconstrained by Monetary Policy’ in Michael Bordo, John Cochrane and Amit Seru (eds), The Structural Foundations of Monetary Policy (Hoover Institution Press 2018); and John Taylor, ‘Alternatives for Reserve Balances and the Fed’s Balance Sheet in the Future’ Hoover Institution Economics Working Paper 18103 (2018).

\textsuperscript{34} See Christine Lagarde, ‘Introductory Statement, Press Conference’ (European Central Bank, 12 December 2019) <https://www.ecb.europa.eu/press/pressconf/2019/html/ecb.is191212e#c9e1a6ab3e.en.html> accessed 11 May 2021.
originally to be held on 26 March 2020 listed as the topic of the first session as ‘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 judgment. 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 current as well as future programmes of the ECB. The conclusion of the review is expected in mid-2021.

When ECB President Lagarde testified to the European Parliament’s Committee on Economic and Monetary Affairs on 8 June 2020, she explained that the 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 on 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 publication of 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 lower returns 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 judgment has inadvertently weakened the pursuit of price stability.

35 See Christine Lagarde, ‘Introductory Statement, Hearing at the Committee on Economic and Monetary Affairs of the European Parliament’ (European Central Bank, 8 June 2020) <https://www.ecb.europa.eu/press/key/date/2020/html/ecb.sp200608&x007E;4225ba8a1b.en.html> accessed 11 May 2021.
36 See Angeloni (n 21), Bini-Smaghi (n 21), and Sandbu (n 21).
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 US 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’.

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 to be better in line with macroeconomic theory than the definition of the FOMC’s mandate in the Federal Reserve Act.

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—HICP—in its strategy. It defined price stability with regard to HICP as a rate of inflation below 2 per cent. 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 per cent 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 per cent inflation target. One way to understand the choice of ‘increases below 2 per cent’ is in terms of proportionality: balancing the costs of reducing the

37 See Board of Governors of the Federal Reserve System, ‘Monetary Policy: What are its Goals? How does it Work?’ <https://www.federalreserve.gov/monetarypolicy/monetary-policy-what-are-its-goals-how-does-it-work.htm> accessed 11 May 2021.
inflation rate from 2 per cent to 0 per cent against the benefits. The result of this balancing was that below 2 per cent inflation is considered 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’.\(^{38}\) 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 per cent 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 per cent and the level of GDP about 2 per cent below potential. Aiming to return inflation to below 2 per cent as quickly as possible would likely mean raising interest rates higher than if the central bank is aiming to get inflation back to target over the medium term. The higher central bank rate drives up real interest rates by a greater amount and thereby puts relatively more downward pressure on GDP. This is a trade-off. The focus on the medium term allows the length of time and the extent to which inflation remains above target to be balanced 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 so 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.\(^{39}\)

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 8 May 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 per cent. 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

\(^{38}\) See European Central Bank, ‘Strategy’ <https://www.ecb.europa.eu/mopo/strategy/html/index.en.html> accessed 11 May 2021.

\(^{39}\) See European Central Bank ‘Medium-Term Orientation’ <https://www.ecb.europa.eu/mopo/strategy/principal/html/orientation.en.html> accessed 11 May 2021.
of a measurement bias in the HICP and the implications of inflation differentials within the euro area.\textsuperscript{40}

Clearly, the Governing Council was balancing the benefits of keeping a definition of price stability that includes an outcome of 0 per cent 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, 0 per cent 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 0 per cent inflation versus potential costs arising from certain risks that could be attenuated by keeping inflation close to 2 per cent 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. An earlier line of research on deflation risks and the effective lower bound was aligned with the ECB staff’s background studies.\textsuperscript{41} 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.

\section*{IV. PROPORTIONALITY IN CENTRAL BANKING PRACTICE}

Having laid out the important role of proportionality considerations in the design of the ECB’s monetary policy strategy, we turn to the question of how to operationalize proportionality assessments in policy practice. The need for a continuous assessment of the effectiveness and efficiency of policy measures, their transmission channels, and their benefits and costs for policy proportionality considerations has already been emphasized by the ECB Governing Council, as noted in the ECB Accounts of the 3–4 June meeting.

\textsuperscript{40} See European Central Bank, Press Release ‘The ECB’s monetary policy strategy’ (8 May 2003) <https://www.ecb.europa.eu/press/pr/date/2003/html/pr030508_2.en.html> accessed on 11 May 2021.

\textsuperscript{41} See, eg, Athanasios Orphanides and Volker Wieland, ‘Price Stability and Monetary Policy Effectiveness when Nominal Interest Rates are Bounded at Zero’ FEDS Discussion Paper 35 (1998); Athanasios Orphanides and Volker Wieland, ‘Efficient Monetary Policy Design Near Price Stability’ (2000) 14 Journal of the Japanese and International Economies 327, Günter Coenen and Volker Wieland, ‘The Zero-Interest-Rate Bound and the Role of the Exchange Rate for Monetary Policy in Japan’ (2003) 50 Journal of Monetary Economics 1071.
Of course, the process of weighing costs versus benefits can be communicated extensively and verbosely without providing a clear quantitative indication of the magnitude of the relevant trade-offs involved in the decision making. Yet, it is well understood that transparency and comprehensibility is essential for the effectiveness of a monetary policy. This is because monetary policy effectiveness depends importantly on market participants’ expectations and the information available to them when forming these expectations. Hence, it is of interest to explore how a regular quantitative proportionality check concerning the risks and negative side effects of a monetary policy could be included in the strategy.

A proportionality check would 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 a policy which is more or less than proportional. 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. The ECB’s monetary pillar has been subject to intense debate among academics and central bankers with critics advocating instead a pure inflation forecast targeting strategy. Others have supported it as an approach that improves the robustness of monetary policy and serves to identify financial vulnerabilities. In our view, monetary cross-checking could help to diagnose excessively strong or weak monetary developments and help balance the benefits of monetary policy with potential risks and negative side effects, especially with regard to financial stability. In particular, we compare the strong growth in broad money aggregates before the financial crisis with the benign growth rates during the years of quantitative easing, which—in our opinion—has not received sufficient attention in this debate.

42 See Lars EO Svensson, ‘Monetary Policy Issues for the Eurosystem’ (1999) 51 Carnegie-Rochester Conference Series on Public Policy 79 as well as Michael Woodford, ‘How Important Is Money in the Conduct of Monetary Policy?’ CEPR Discussion Paper 6211 (2007); Jordi Gali, ‘Monetary Policy in the Early Years of EMU’ in Marco Buti and André Sapir (eds), EMU and Economic Policy in Europe: Challenges of the Early Years (Edward Elgar 2003); and Jordi Gali, ‘How Useful Are Monetary and Credit Aggregates in the Conduct of Monetary Policy? Comment’ in Andreas Beyer and Lucrezia Reichlin (eds), The Role of Money: Money and Monetary Policy in the Twenty-First Century (European Central Bank 2008).

43 See Robert E Lucas, ‘Central Banking: Is Science Replacing Art?’ in Monetary Policy: A Journey from Science to Practice (European Central Bank 2007); Günter Beck and Volker Wieland, ‘Central Bank Misperceptions and the Role of Money in Interest-Rate Rules’ (2008) 55 (Supp) Journal of Monetary Economics 1; and Markus Brunnermeier, ‘Macroprudential Regulation: Optimizing the Currency Area’ in The Great Financial Crisis: Lessons for Monetary Policy and Financial Stability— ECB Colloquium in Honor of Lucas Papademos (European Central Bank 2012).
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.\(^44\) 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 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 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.\(^45\) 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 per cent inflation.\(^46\) 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:\(^47\)

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.

\(^44\) See John H Cochrane, John B Taylor and Volker Wieland, ‘Evaluating Rules in the Fed’s Report and Measuring Discretion’ in John B Taylor and John H Cochrane (eds), Strategies for Monetary Policy (Hoover Institution Press 2020).

\(^45\) See Ben Bernanke and others, Inflation Targeting: Lessons from International Experience (Princeton University Press 1999).

\(^46\) See Jürgen von Hagen, ‘Monetary Targeting in Germany’ (1999) 43 Journal of Monetary Economics 681; Volker Wieland, ‘Monetary Policy, Parameter Uncertainty and Optimal Learning’ (2000) 46 Journal of Monetary Economics 199; Issing and Wieland (n 28).

\(^47\) See European Central Bank (n 38).
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 ‘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 taken into account includes aggregate demand developments, resource gaps, and their consequences for inflation via Phillips curve relations.

The ‘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.

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.’48 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 to see 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.

The monetary pillar has been criticized for being inconsistent with optimal monetary policy by proponents of a pure inflation forecast targeting strategy.49 In particular, it has been argued that money growth is not useful for forecasting inflation that fixed money growth targets imply a sub-optimal policy strategy and that the emphasis
on money demand analysis has mis-directed staff resources at the ECB. Critics have argued that the ECB should instead follow a pure inflation forecast targeting strategy. In contrast, Robert Lucas has argued that this criticism relies on oversimplified New Keynesian models that are uninformative regarding the underlying sources of medium to longer-run trends in inflation and monetary aggregates. 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.50

Asset purchases by the ECB create central bank money, also called basis 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 possibly be associated with excessive money and credit creation. Deviations on the downside 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. In the same way as 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, which was set at 4.5 per cent 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

50 See Luca Benati, ‘Long-Run Evidence on Money Growth and Inflation’ (2005) Bank of England Quarterly Bulletin Autumn 349, Lucas (n 43), Beck and Wieland (n 43).
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.\textsuperscript{51}

As a result, however, the reference value was not often mentioned and was 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.

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 per cent 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. This led to a sharp correction in asset prices and, as a consequence, a banking crisis.

In a set of press interviews on 18 July 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 in response. 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 still not sufficient to stop the credit boom. Consumer price inflation also increased somewhat in the run-up to the financial crisis prices, as shown in Figure 3, but

\textsuperscript{51} European Central Bank, ‘Interview with Jean-Claude Trichet, President of the ECB conducted on 11 July 2008 by Jean Pierre Robin (Le Figaro), Benedikt Fehr (Frankfurter Allgemeine Zeitung), Paul Tansey (Irish Times) and Rui Jorge (Jornal de Negócios), published 18 July 2008’ <https://www.ecb.europa.eu/press/key/date/2008/html/sp080718.en.html> accessed 11 May 2021.
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.

M3 growth collapsed with the advent of low long-term interest rates in financial sector, which 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, marked a big change due to the coronavirus pandemic and associated 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 programme 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 to be 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.

**Figure 3.** Money growth (M3), HICP inflation, and GDP deflator. Sources: ECB, own calculation.
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 interest rate 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. Former ECB Chief Economist Peter Praet, for example, explained this as follows ‘the simple benchmarking flavour of the Taylor rule . . . represent(s) a valuable disciplining tool from which one can start to reflect about the prevailing stance and the way the stance should be adjusted as new information flows in’.52 Macroeconomists at central banks and elsewhere regularly evaluate the performance of such rules on the basis of macroeconomic models and historical experience. The US Federal Reserve has repeatedly published the implications of a menu of interest rate rules in its monetary policy report.53

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 US Fed’s rules menu for the US economy.54 The first one is the ‘Taylor rule’,55 which provides a prescription for the level of the short-term nominal interest rate. The second one is a ‘first-difference rule’,56 which provides a prescription for the change of the short-term interest rate. Athanasios Orphanides served as a member of the ECB Governing Council from 2008 to 2012. This rule has been shown to fit past ECB interest rate decisions quite well.57 It is used by ECB Managers Philipp Hartmann and Frank Smets in their history of the first 20 years of the European Central Bank to describe its monetary policy.58

52 See Peter Praet, ‘Calibrating Unconventional Monetary Policy’, Speech at the ECB and Its Watchers XVIII Conference, Frankfurt, 6 April 2017.
53 See Federal Reserve Board, ‘Monetary Policy Report’ (February 2019); Federal Reserve Board, ‘Monetary Policy Report’ (February 2020); Federal Reserve Board, ‘Monetary Policy Report’ (February 2021); Cochrane, Taylor and Wieland (n 44).
54 See German Council of Economic Experts, Annual Report 2018/19 ‘Setting the Right Course for Economic Policy’ (November 2018); German Council of Economic Experts, Annual Report 2019/20 ‘Dealing with Structural Change’ (November 2019).
55 See John B Taylor, ‘Discretion versus Policy Rules in Practice’ (1993) 39 Carnegie-Rochester Conference Series on Public Policy 195.
56 See Athanasios Orphanides and Volker Wieland, ‘Complexity and Monetary Policy’ (2013) 9(1) International Journal of Central Banking 167.
57 See Tilman Bletzinger and Volker Wieland, ‘Lower for Longer: The Case of the ECB’ (2017) 159 Economics Letters 123 and Philipp Hartmann and Frank Smets, ‘The First Twenty Years of the European Central Bank: Monetary Policy’ ECB Working Paper No 2219 (2018).
58 See Hartmann and Smets (n 57).
The big advantage of simple rules is that they reduce the policy prescription to the form of a reaction function with only a few variables and parameters. This comes at the cost of ignoring many of the economic data and other complexities considered by policy-makers in their deliberations. Research carried out with the type of macroeconomic models used by the central banks shows, however, that simple rules which include only a few variables such as inflation, the output gap, and lagged interest rates perform almost as well as complex reaction functions that include many more variables.59

Yet, during the last 15 years, central banks have been confronted with the lower bound on nominal interest rates and an apparent decline in the equilibrium real interest rates. As a consequence, central banks have moved from interest rate policy to forward guidance and quantitative easing. Praet, among others, raises the question how to account for the complementarities of different instruments and for past deviations from the rule that are due to the lower bound on nominal interest rates. He argues that solutions can be found by using rules ‘within a general equilibrium framework where all the feed-forward and feed-back channels of interactions among policy instruments, financial prices and the economy can be internalised in a consistent manner’.60

In the following we discuss how rules can provide quantitative benchmarks for proportionality assessments, how they can be adjusted in the light of the lower bound on nominal interest rates, and how they can be used to derive combined prescriptions for policy rate and the central bank balance sheet. To render the analysis as concrete as possible we then apply two particular rules to euro area data and discuss their prescriptions relative to actual ECB policy. We do not think that these rules are the only ones to be considered nor that they should be followed in a slavish manner. The ECB Governing Council could select a number of simple rules that would deliver reasonably good outcomes according to its own economic analysis. Our recommendation then is to use them for a proportionality check at the Governing Council level. In situations when the Governing Council would consider it desirable to deviate from these rules, the magnitude of the deviation would figure in the analysis of costs and benefits communicated to the public. That analysis could also make use of the general equilibrium frameworks referred to by Praet.61

Some central banks that pursue inflation forecast targeting strategies use so-called ‘optimal control’ rules in their communication and publish their forecast of the future path of the policy instrument. A good example is the monetary policy report of the Norwegian central bank.62 Optimal control policy optimizes the choice of the interest rate path on the basis of a loss function that can include multiple target variables. This

59 See Andrew Levin, Volker Wieland and John C Williams, ‘The Performance of Forecast-Based Monetary Policy Rules under Model Uncertainty’ (2003) 93 American Economic Review 622; Orphanides and Wieland (n 56), Volker Wieland and others, ‘New Methods for Macro-Financial Model Comparison and Policy Analysis’ in John B Taylor and Harald Uhlig (eds), Handbook of Macroeconomics: Vol 2 (North Holland/Elsevier 2016).
60 See Praet (n 52).
61 See Praet (n 52).
62 See Norges Bank, ‘Monetary Policy Report with Financial Stability Assessment 4/19’ (December 2019); Norges Bank, ‘Monetary Policy Report with Financial Stability Assessment 1/2021’ (March 2021).
allows direct computation of quantitative estimates of costs and benefits of alternative policy choices for a proportionality check on the basis of a general equilibrium macroeconomic model. However, such an approach requires strong ownership of the model and the loss function by the monetary policy-making committee. It is certainly easier for this to be implemented by a single central bank with a small committee than by the large Governing Council of the ECB with representatives from many national central banks. So far, the Governing Council has not followed the practice of the decision-making boards of many inflation forecast targeting central banks who adopt their staff’s forecast as their own board forecast, nor has it published a forecast of the future policy path. Hence, we propose instead to start by considering simple interest rules for a proportionality check.

a. Interest rate rules and proportionality
The Taylor rule relates the level of the short-term nominal interest rate to inflation deviations from target and the output gap:

\[ i_t^{T93} = \pi_t + 0.5 (\pi_t - \pi^*) + 0.5 (y_t - y_t^*) + r^* \]  

\( \pi \) 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’s 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 macroeconomic conditions is governed by the following parameters:

1. 1 + 0.5 on inflation; 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 different views on the relevant equilibrium concept exist. Furthermore, in recent years, estimates of \( r^* \) have declined and values below 1 per cent and even as low as 0 per cent are being considered by policy-makers.

63 See Fabio Canova and others, ‘Review of Macro Modelling for Policy Purposes at Norges Bank’ Norges Bank Occasional Paper No 55 (2019).
64 See Volker Wieland, ‘The Natural Rate and Its Role in Monetary Policy’ in Michael D Bordo, John H Cochrane and Amit Seru (eds), The Structural Foundations of Monetary Policy (Hoover Institution Press 2017).
65 See Thomas Laubach and John C Williams, ‘Measuring the Natural Rate of Interest’ (2003) 85 Review of Economics and Statistics 1063, Kathryn Holston, Thomas Laubach and John C Williams, ‘Measuring the Natural Rate of Interest: International Trends and Determinants’ (2017) 108 (Supp 1) Journal of
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 are likely to 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 trade-off between hitting the expected target and the variance of target variables. Following Brainard, an optimal response to such uncertainty is to attenuate policy variations by reducing the reaction coefficients.

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 pandemic crisis. Attenuation of the policy response to the output gap is a possible way for taking this uncertainty into account.

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 slightly less vulnerable to misperceptions on potential output. Output gap misperceptions are very persistent because of persistent revisions in potential output estimates. 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 according to Orphanides and Wieland (OW) is defined as follows:

\[
i_{t}^{OW} = i_{t-1} + 0.5 \left( \pi_{t+3}^f - \pi^* \right) + 0.5 \left( \Delta y_{t+2}^f - \Delta y_{t+2}^* \right)
\]

(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, and thereby looks through short-run volatility. Implicitly, it takes

International Economics SS9; Robert Beyer and Volker Wieland, ‘Instability, Imprecision and Inconsistent Use of Equilibrium Real Interest Rate Estimates’ (2019) 94 Journal of International Money and Finance 1.

66 See William C Brainard, ‘Uncertainty and the Effectiveness of Policy’ (1967) 57 American Economic Review 411.

67 See, eg, Volker Wieland, ‘Monetary Policy and Uncertainty about the Natural Unemployment Rate: Brainard-Style Conservatism versus Experimental Activism’ (2006) 6(1) BE Journal of Macroeconomics 1.

68 See, eg, Frank Smets, ‘Output Gap Uncertainty: Does It Matter for the Taylor Rule?’ (2002) 27 Empirical Economics 113.

69 See Athanasios Orphanides, ‘The Quest for Prosperity without Inflation’ (2003) 50 Journal of Monetary Economics 633; Beck and Wieland (n 43); and Orphanides and Wieland (n 56).

70 See Orphanides and Wieland (n 56).
into account a wide set of information variables that inform the outlook for output and inflation beyond currently available output and inflation data.

b. 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 is 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, which may decline at negative rates if banks do not pass on those negative rates to customers.71

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.72 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 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.73

The newly announced strategy of average-inflation-targeting by the US Fed seemingly aims to apply a systematic make-up strategy.74 In this strategy, 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. The aim is that 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 will 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.

71 See Markus Brunnermeier and Yann Koby, ‘The Reversal Interest Rate’ Bank of Japan IMES Discussion Paper Series 19-E-06 (2019).
72 See David Reifschneider and John C. Williams, ‘Three Lessons for Monetary Policy in a Low-Inflation Era’ (2000) 32 Journal of Money, Credit and Banking 936.
73 See also Ben S Bernanke, Michael T Kiley and John M Roberts, ‘Monetary Policy Strategies for a Low-Rate Environment’ (2019) 109 American Economic Review, Papers and Proceedings 421 for an analysis of different make-up interest rate rules.
74 See Jerome Powell, ‘New Economic Challenges and the Fed’s Monetary Policy Review’, Speech at the Jackson Hole Conference of the Kansas City Federal Reserve Bank, 27 August 2020; Federal Reserve Board, Guide to Changes in the Statement on Longer-Run Goals and Monetary Policy Strategy, August.
Instead or in addition to the 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 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 line 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 line in terms of the central bank balance sheet (possibly relative to the level of nominal GDP).

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 2022.75 Between the end of 2019 and July 2020 the ECB balance sheet had already increased by about 12.5 per cent due to targeted long-term refinancing operations (TLTRO) and asset

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75 See Philip Lane, ‘The Pandemic Emergency: The Three Challenges for the ECB’, Speech at the Jackson Hole Conference of the Kansas City Federal Reserve Bank (27 August 2020).
purchases under the Asset Purchase Programme (APP) (which includes the PSPP) and the PEPP programmes. The total volume of the executed announced PEPP purchases alone will reach about 11.3 per cent 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 and others report the effects of an unanticipated increase (decrease) of the central bank rate of 1 per cent in the euro area on the basis of eight empirically estimated macroeconomic models for the euro area. They find that, on average, GDP decreases (increases) by 0.46 per cent within three quarters, while inflation decreases (increases) by 0.42 per cent within four-and-a-half quarters. Accordingly, a policy rate reduction of 2.8 percentage points would boost GDP by about 1.3 per cent.

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 the effects of the announcement of quantitative easing on a range of asset prices, bond prices, and longer-term interest rates. Nevertheless, the systematic effect of a given amount of asset purchases beyond the announcement remains hard to quantify reliably. 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. Orphanides and Wieland 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.

d. 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.81 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 trade-off 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 further 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.82

e. 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.

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81 For a formal derivation using an optimal control approach to monetary policy and inflation targeting see Volker Wieland, *The Decline in Euro Area Inflation and the Choice of Policy Strategy* in ECB Forum on Central Banking, ‘Central Banks in a Shifting World’ Conference Proceedings (November 2020).

82 See Andrew Lilley and Kenneth Rogoff, ‘The Case for Implementing Effective Negative Interest Rate Policy’ in John B Taylor and John H Cochrane (eds), *Strategies for Monetary Policy* (Hoover Institution Press 2020).
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. As explained on the ECB website: ‘The ECB’s price stability objective . . . takes a medium-term perspective, considering the inflation rate over time rather than focusing on short-term peaks and troughs because they even out with time and cannot be controlled by monetary policy.’

For example, the headline HICP stood at 3 per cent at the end of 2011, dropped down to −0.3 per cent in the first quarter of 2015, dipped again in negative territory in the first quarter of 2016, only to rise up to 2 per cent by the first quarter of 2017. Throughout this time the measure of HICP inflation excluding energy and unprocessed foods, which is the ECB measure for core inflation, declined from 2 per cent in 2011 to

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83 European Central Bank, ‘Medium-term Orientation’ <https://www.ecb.europa.eu/mopo/strategy/princ/html/orientation.en.html> accessed 11 May 2021.
about 0.6 per cent in 2014, stayed below 1 per cent until 2017 and then hovered at values between 1 and 1.5 per cent until the end of 2019. Thus, the real-time measures of core inflation indicate that the ECB fell short of its goal of ‘below but close to 2 per cent inflation’ between 2013 and 2019. As the ECB did not quantify the meaning of ‘close’ in its target definition, Orphanides and Wieland use a range of 1.5 to 2 per cent. Thus, core HICP inflation stood between 1 and 0.5 percentage points below the mid-point of this range of 1.75 per cent.

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 per cent in 2000 and about −4 per cent in the financial crisis. From 2008 to 2016 GDP remained about 2 per cent below potential. In 2017 the output gap closed and then remained slightly positive until the coronavirus pandemic began. The lockdowns and individual reactions to the pandemic by Member States 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 per cent. 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 to take into account that supply-side constraints due to the lockdown and social distancing measures also result in lower potential output. Thus, the output gap in 2020 shown in Figure 5 overstates the true gap and the policy-relevant output gap is likely to be much smaller. This is also confirmed by the analysis with newly developed macro-epidemic models that combine the SIR model from epidemiology with New Keynesian macroeconomic modelling.

The Taylor rule prescriptions that are based on these real-time measures of the output gap and inflation 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 was 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.

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 holding the line at a policy rate of 1 per cent 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 remained at some distance above the policy rate but still indicated some policy easing up to 2014.

From 2015 onwards, the policy rules would call for a tightening of monetary policy. An increasingly larger gap opened up between the rule prescriptions and the ECB’s

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84 See Orphanides and Wieland (n 56).
85 See Katalin Bodnár and others, ‘The Impact of COVID-19 on Potential Output in the Euro Area’ (2020) 7 ECB Economic Bulletin.
86 See Martin Eichenbaum, Sergio Rebelo and Mathias Trabandt, ‘Epidemics in the Neoclassical and New Keynesian Models’ NBER Working Paper 27430 (June 2020).
MRO rate. By 2019 the gap amounted 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 programme. Thus, the Taylor rule provides some support for the concerns raised by the GFCC 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 per cent to −1 per cent. The decline is phased in over three years starting in 2015. As a result, the policy rules prescribe a policy rate around 0 per cent 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 per cent, 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. 87

Thus, the PSPP programme implemented since 2015 represents a stark deviation from the rule. This supports the GFCC’s request for an explanation of the proportionality of continuing this programme 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

87 See Beyer and Wieland (n 65).
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 declined in the second quarter of 2020 by about $6\frac{1}{2}$ percentage points. They are anticipated to rise again in subsequent quarters as the economy recovers. Due to the unusual 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 was 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 programme.

**f. 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
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.

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 per cent and 2 per cent. They do not incorporate a dynamic adherence to the rule. 88

The OW rule fits the ECB’s interest decisions from 1999 to about 2015 very well. 89 In 2009, the rule would have prescribed further easing to a policy rate of about 0 per cent. However, in mid 2015 and early 2016 the rule leaned 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. 90

In the second quarter of 2020 the rule called 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 the fact that supply-side constraints due to health-related restrictions lowered potential in that quarter. Adjusting for this effect,

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88 See Cochrane, Taylor and Wieland (n 44).
89 This has also been shown by Bletzinger and Wieland (n 57) and Hartmann and Smets (n 57).
90 See Bletzinger and Wieland (n 57).
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 programme.

V. CONCLUSIONS

The PSPP ruling of the GFCC and its call for application of the proportionality principle and communication of 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 programmes 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 published a summary of its proportionality assessment regarding the new PEPP programme 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 article, we have argued that the GFCC ruling does not weaken the independence of the ECB but that it can instead 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. 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 per cent HICP inflation. These decisions also involved a balancing of intended effects aimed at price stability with possible, unfavourable side effects.

Following up on the call for continuous proportionality assessment in the ECB Accounts, we have proposed development of 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 policy 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 per cent M3 growth. In the past, the ECB has received quite a bit of criticism for devising a special role for monetary aggregates in its monetary policy strategy. Yet, a large, persistent and increasing deviation from this reference value
leading up to the global financial crisis provided a timely warning signal of excessive money and credit creation. Thus, a renewed emphasis on 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 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 two widely-used interest rate rules—the Taylor rule and the Orphanides-Wieland rule—to past euro area monetary policy, we have identified 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. Thus, we have discussed how the rules could be used in a quantitative proportionality assessment regarding the PEPP programme.

To be clear, we are not arguing that these particular two rules are the only ones up for consideration. Nor do we think that any of these rules is the ‘right’ one and has to be followed in a slavish manner. The US Fed has repeatedly discussed a menu of simple interest rate rules in its Monetary Policy Report. Similarly, the ECB Governing Council could select a number of simple rules that would deliver reasonably good outcomes according to its own economic analysis. They might respond more or less aggressively to inflation and GDP outcomes than the afore-mentioned rules and they might include additional variables. Such rules embody a certain weighing of benefits and costs of interest rate changes or asset purchases. Thus, they should form a key element of a quantitative proportionality check. Of course, there will be situations when the Governing Council would consider it desirable to deviate even from those rules. That is precisely when it will be particularly important to explain and communicate the benefits and costs of its decision. The magnitude of the deviation and the reasons for the deviation would form an important part of a proportionality check to be communicated to the public.