

Kronberger Kreis

Research Report

The monetary policy strategy of the European Central Bank: Review and recommendations

Kronberger Kreis-Studien, No. 67e

Provided in Cooperation with:

Stiftung Marktwirtschaft / The Market Economy Foundation, Berlin

Suggested Citation: Kronberger Kreis (2021) : The monetary policy strategy of the European Central Bank: Review and recommendations, Kronberger Kreis-Studien, No. 67e, ISBN 3-89015-129-9, Stiftung Marktwirtschaft, Berlin

This Version is available at:

<https://hdl.handle.net/10419/236574>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

The European Central Bank (ECB) is currently conducting a review of its monetary policy strategy. The last formal review took place in 2003. Now the focus is on the extent to which this strategy has contributed in recent years to fulfill the mandate set out in the Treaties of the European Union and whether certain elements need to be adjusted. Against this background, the Kronberger Kreis, the academic advisory board of the Stiftung Marktwirtschaft (Market Economy Foundation), examines whether the ECB's monetary policy strategy still holds promise for success, whether its mandate should be reinterpreted and how the use of specific instruments should be assessed.

In its analysis, the Kronberger Kreis draws on the experience of the financial crisis, the euro debt crisis and the coronavirus crisis and argues that greater attention should be paid to the side effects and proportionality of monetary policy measures. The central banks of the Eurosystem are now the largest creditors of the member states. Fiscal dominance of monetary policy should be avoided. The ECB's hierarchical mandate prioritizing price stability should not be called into question. The envisaged numerical target for consumer price inflation of below, but close to, two percent remains reasonable. However, the ECB should also consider other measures of inflation in its decisions and their communication. In addition, the ECB should rely more strongly on quantitative benchmarks (interest rate rules, money supply growth). The transparency of monetary policy could be significantly increased, for example, by publishing surveys and forecasts of the ECB's Governing Council. In principle, all measures must take into account the need to strengthen the independence of the ECB and the stability of the monetary union.

„More confidence in market processes“ is the motto of the Kronberger Kreis, scientific advisory board of the Stiftung Marktwirtschaft. Founded in 1982, the Kronberger Kreis develops concepts for market-oriented reforms aimed at improving the liberal order in Germany and Europe. The state is considered a rule-setter and referee but should neither play the game itself nor act overly paternalistically. Its proposals have a significant influence on economic and political discussion in Germany.



ISBN 3-89015-129-9

67

The Monetary Policy Strategy of the European Central Bank: Review and Recommendations

**Kronberger Kreis**

Lars P. Feld, Clemens Fuest, Justus Haucap,
Heike Schweitzer, Volker Wieland, Berthold U. Wigger

The Monetary Policy Strategy of the European Central Bank: Review and Recommendations

Kronberger Kreis

Lars P. Feld, Clemens Fuest, Justus Haucap,
Heike Schweitzer, Volker Wieland, Berthold U. Wigger

Funded by the informedia-Stiftung
Gemeinnützige Stiftung für Gesellschaftswissenschaften
und Publizistik, Köln

Bibliographic information published by the Deutsche Nationalbibliothek.
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data are available on the internet at <http://ddb.de>.

© 2021

Stiftung Marktwirtschaft (Eds.)
Charlottenstraße 60
10117 Berlin
Telefon: +49 (0)30 206057-0
Telefax: +49 (0)30 206057-57
info@stiftung-marktwirtschaft.de
www.stiftung-marktwirtschaft.de

ISBN: 3-89015-128-0

Title image: © William W. Potter (Adobe Stock) / montage

	Executive Summary	5
I	The strategy review of the European Central Bank	9
II	Monetary policy developments: From the Global Financial Crisis to the coronavirus crisis	13
	2.1 Monetary policy measures: From interest rate policy to quantitative easing	13
	2.2 The special challenges of the ECB	18
	2.3 Monetary policy in the coronavirus crisis	22
III	What follows from the ruling of the Federal Constitutional Court?	27
	3.1 Ensuring ECB independence and primacy of price stability	27
	3.2 Reviewing the proportionality of monetary policy measures	29
	3.3 Assessing proportionality with interest rate rules	31
IV	Is the U.S. Fed's new monetary policy strategy a model for the ECB?	37
	4.1 The Fed's strategy review	37
	4.2 Hierarchy of objectives for the Eurosystem versus the Fed's mandate	40
V	What should the ECB Governing Council change and what should it not change?	43
	5.1 Interpretation of the mandate	43
	5.2 Proven and new elements for the strategy	46
	5.3 The use of instruments: effectiveness and side effects	52
VI	Conclusions	55
	Bibliography	59

Executive Summary

Since the beginning of 2020, the European Central Bank (ECB) has been conducting a review of its monetary policy strategy, which likely will be completed in the course of 2021. The last strategy review took place in 2003. The focus of the current review is on how effective the monetary policy strategy has been in recent years in helping to meet the objectives set out in the Treaties of the European Union (EU) and whether elements of the strategy need to be adjusted. One focus is on the quantitative definition of price stability. In addition, it will review how other EU objectives, such as full employment or environmental sustainability, should be considered by the ECB in fulfilling its mandate.

In this study, the Kronberger Kreis, scientific advisory board of the Stiftung Marktwirtschaft (Market Economy Foundation), examines whether the ECB's mandate should be reinterpreted, whether its policy strategy should be revised and new policy instruments deployed, and how the use of specific instruments should be assessed. The study draws on the experience of the financial crisis, the euro debt crisis and the coronavirus crisis.

The ECB is in a special situation: The euro area consists of sovereign member states that enjoy considerable national scope for decision-making in economic and fiscal policy. This can lead to situations, in which efforts to consolidate public finances in good times remain insufficient because governments rely too much on the solidarity of other member states. Hence, in bad times, the monetary union or its institutions are implicitly pressured to ensure the sustainability of public debt.

Monetary policy measures have a partly intended direct or at least indirect fiscal effect. Interest rate cuts and bond purchases can reduce the cost of government debt financing and allow to postpone fiscal consolidation. In a crisis, this may make sense temporarily. However, the related side effects should always be taken into account – especially if the independence of the ECB and the stability of the monetary union could be de facto jeopardized. The same applies to possible side effects regarding the stability of the financial system.

The ruling of the German Federal Constitutional Court (FCC) of May 5, 2020, on the proportionality of the ECB's Public Sector Purchase Programme

(PSPP) is an expression of such fears. It highlights the concern about fiscal dominance of monetary policy. Seen in this light, the FCC has attempted to strengthen the ECB's independence by referring to the fiscal side effects and the incomprehensible proportionality assessment of the bond purchases.

It should be in the Governing Council's own interest to regularly assess the proportionality of monetary policy measures. If concrete, quantitative reference values and cost-benefit calculations are included, this will contribute to an effective and objective review. A proportionality check could be part of the strategy and regular decisions. A proportionality check contributes importantly to an appropriate conduct of monetary policy, if it leads to a greater focus on the risks and side effects of monetary policy measures – similar to a package insert and prescription requirement.

The main findings of this study can be summarized as follows:

1. The hierarchical mandate of the ECB giving priority to price stability has proven its worth. The high degree of independence of the official body, the Governing Council, requires a narrowly defined mandate and the possibility of judicial review. The subordinate task of supporting the general economic policy and objectives of the EU is not to be understood as a mandate for an independent economic policy, but as a duty to consider the side effects of monetary policy.
2. The intended separation of monetary and fiscal policy as well as the prohibition of monetary government financing should be respected. The ECB cannot solve all the problems of the member states. Fiscal dominance of monetary policy must be avoided. Therefore, the ECB must explain how it intends to reduce the high government bond holdings on its balance sheet in the longer term.
3. It is clear that the ECB considers the effects and side effects of its monetary policy on the business cycle. This is one of the reasons why it has interpreted its mandate as aiming to ensure price stability in the medium term rather than always instantaneously. However, the same applies to financial stability. Here, it is important to avoid that monetary policy contributes to instability and increasing risks for banks and asset price developments.
4. Naturally, among the risks to financial stability to be considered are those arising from climate change or climate policy. However, it is inadvisable to interpret the mandate so broadly as to justify using the central bank's balance sheet to finance and subsidize climate change projects. So-called "green" asset purchases, which could be used to pursue such an additional objective, interfere deeply with the policy domain for which member states are responsible. They already have other appropriate and effective instruments, such as the price on CO₂ emissions.
5. The ECB's monetary policy strategy, which was developed in 1998 and reviewed in 2003, has proved to be quite effective. This applies especially to the definition of the target as an increase in the HICP of below, but close to, two percent in the medium term. Raising this target significantly would not be compatible with the price stability mandate.
6. However, it would be advisable for the Governing Council's statements to consider not only the HICP but also other measures of inflation. These include the development of prices for goods and services produced in the euro area. The HICP is more dependent on import prices, which have repeatedly fallen sharply in recent years. In addition, the HICP covers housing costs inadequately. The cost of newly built, owner-occupied housing has risen sharply since 2015.
7. The monetary pillar of the ECB's strategy is useful not only for assessing longer-term inflation trends but also risks to financial stability from excessive credit growth. The ECB should by no means abandon it, as is occasionally advocated. On the contrary, it should base itself more strongly on quantitative benchmarks. This also includes interest rate rules, such as the Taylor rule, which clearly indicated problematic developments before the financial crisis.
8. The transparency of monetary policy can still be significantly improved. For example, a survey of Council members' views regarding the development of inflation, growth and the interest rate similar to what the Fed has been providing for years would be useful and easy to implement. Likewise, a forecast of the development of the balance sheet should be issued and a strategy for its normalization in the longer term should be published.

9. Securities purchases are a standard instrument of monetary policy and particularly important when nominal interest rates are close to or already below zero percent. However, in a monetary union with fiscally largely sovereign member states government bond purchases need to be assessed differently than in the United States. The central banks of the Eurosystem are now the largest creditors of the member states. There is a risk of fiscal dominance. Therefore, government bond purchases should remain a means for crisis situations.
10. With its longer-term refinancing operations and purchases of other private securities, the ECB's toolbox contains additional instruments that can be used when it is not desirable or possible to further reduce the key interest rate. However, direct monetary transfers from the central bank to households, so-called helicopter money, should be rejected. This is fiscal policy and contradicts the prohibition of monetary financing.

I The strategy review of the European Central Bank

1. Since the outbreak of the Global Financial Crisis, the central banks of the leading industrialized nations have implemented an unprecedented easing of monetary policy. Economies worldwide were hit by a major global recession in 2008-2009. The euro area plunged into a sovereign debt crisis starting in 2010, which led to a further recession in parts of the euro area. Subsequently, the global economy recovered and a sustained upswing ensued that also included the euro area. However, only some of the central banks managed to exit from the crisis policy and tighten monetary policy. The European Central Bank (ECB) continued its negative interest rate policy and quantitative easing until 2019.
2. In the first half of 2020, the global economy was hit by the coronavirus pandemic. Lockdown measures taken to contain the pandemic together with behavioral changes by households and businesses aimed at reducing the risk of contagion sent the global economy into a deep recession. Consequently, governments and central banks took extensive emergency and support measures. Although the first wave of the pandemic was followed by a substantial recovery in the third quarter of 2020, a second wave led to renewed lockdown measures and slowed economic growth in Europe and Germany once again. Economic growth in Germany slowed to near stagnation in the fourth quarter. The availability of effective vaccines, however, raises hopes that the pandemic can be overcome in the course of 2021, such that the economic recovery will regain momentum and solidify.
3. Against the backdrop of these developments since the Global Financial Crisis, a discussion about the future of monetary policy is underway. At the Federal Reserve, Fed Chairman Powell and Vice Chairman Clarida already initiated a review of monetary policy strategy in 2019. In August 2020, the outcome was made public. The Fed announced that a long period with inflation below target should be followed by a moderate overshooting of the target. It also intends to stop reacting to a decline in the unemployment rate below the level expected to be associated with stable inflation in order to prevent the resulting inflation risks.
4. Likewise, the ECB is currently reviewing its strategy. The last time the ECB conducted a "Midterm Review" was in 2003, under the leadership of then

Chief Economist Otmar Issing. ECB President Lagarde explained the objective of this "strategy review" during her first ECB press conference on December 12, 2019, as follows:

It is the point of every strategic review of central banks ... to look at their objective, how they define their medium-term objective, how they give content to price stability, ... and it is the only objective that we have in our mandate ourselves. ... it will also address the major changes that have taken place over the course of the last 16 years, ... the massive technological change that our societies are facing ... the immense challenge that climate change is addressing to each and every one of us It will include aspects of inequality that are certainly rising in our economies, and all of those will be addressed with a view to exploring each and every corner of the business that we conduct as a central bank to see how those businesses are affected and how we can take them into account to better respond to the mission that we have, and to deliver on our mandate: serving the euro area citizens, and delivering on the mandate of price stability. (Lagarde 2019)

5. The ECB's strategy review was temporarily suspended due to the coronavirus pandemic but resumed in the second half of 2020. President Lagarde has emphasized that the review will be very comprehensive and is expected to be completed in the course of 2021. Many stakeholders will be consulted, including national parliaments, the European Parliament, academics and civil society representatives.

6. The central bank's monetary policy measures and strategy have a significant impact on financial markets, the development of the European Monetary Union (EMU) and the welfare of the citizens of the European Union (EU). Last but not least, the independence of the central bank is secured by the European Treaties, not only de jure but also de facto by the support it enjoys in politics, parliaments and the population. One event of particular significance was the so-called ultra vires ruling of the German Federal Constitutional Court (FCC) on May 5, 2020. The FCC found that the ECB had exceeded its competences with the Public Sector Purchase Programme (PSPP), as there was a lack of an adequate, publicly communicated assessment and appraisal of the proportionality of the program and its side effects.¹ At the same time, the FCC

¹ See Federal Constitutional Court, Press Release No. 32/2020 of May 5, 2020: ECB decisions on the Public Sector Purchase Programme exceed EU competences.

concluded that the European Court of Justice (ECJ) had not conducted the legal assessment of proportionality with sufficient care.

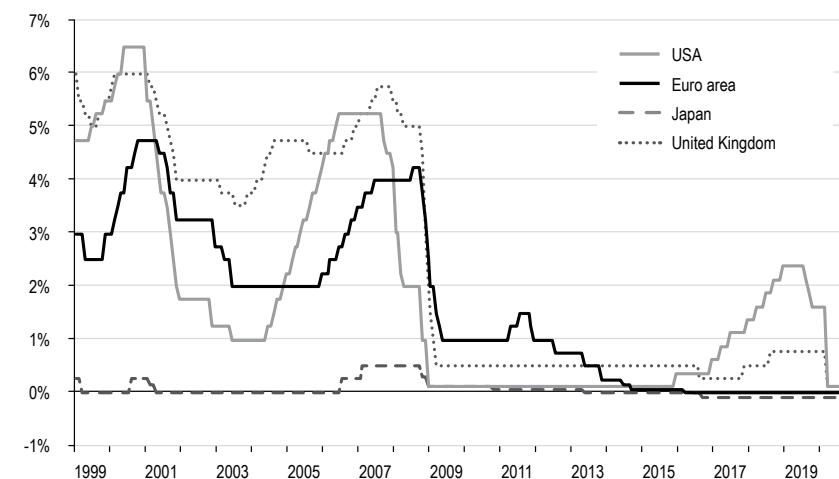
7. For the euro area, it is therefore necessary to review a number of issues. This includes questions such as whether and, if so, how the ECB's mandate should be reinterpreted, whether the inflation target of monetary policy should be redefined, the toolbox expanded or the proportionality of the use of instruments assessed more carefully. The renewed massive expansion of the central bank balance sheet in response to the coronavirus crisis reinforces the urgency of questions as to what risks this crisis policy entails for the financial system and the EMU as a whole in the medium and longer term and how monetary policy in the euro area could be normalized again. Furthermore, it is necessary to clarify whether the ECB should pursue other objectives besides price stability, especially in the area of climate protection.

II Monetary policy developments: From the Global Financial Crisis to the coronavirus crisis

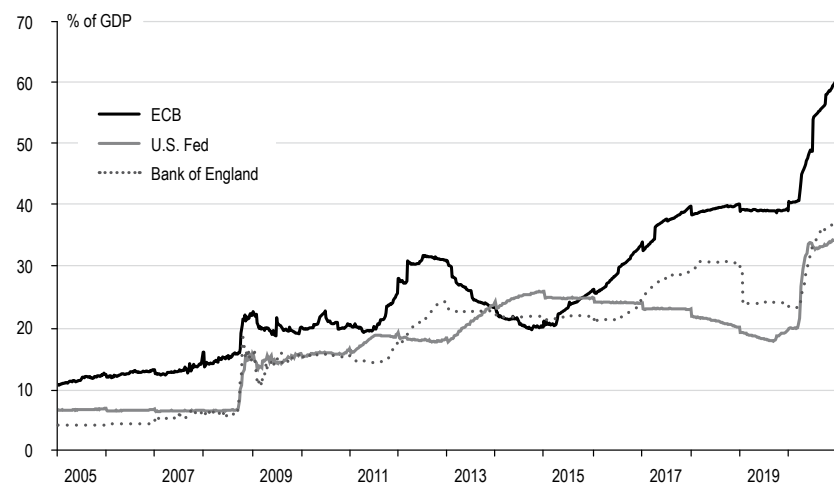
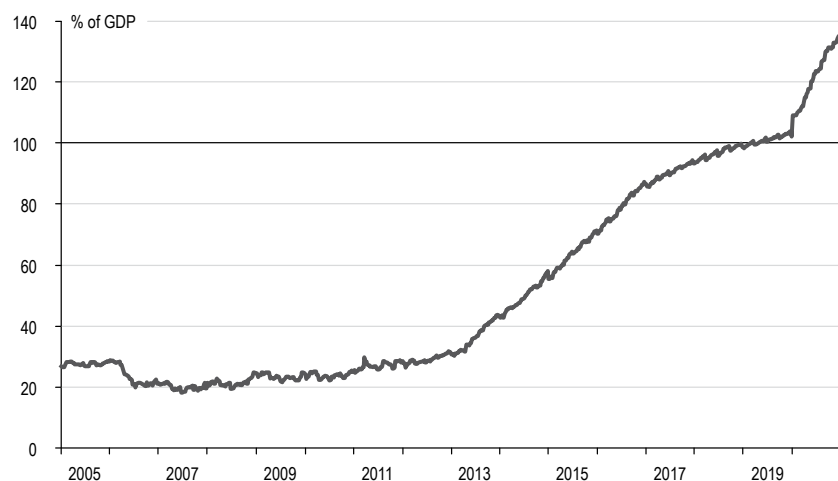
2.1 Monetary policy measures: From interest rate policy to quantitative easing

8. Central bank interest rates were already lowered to near zero percent in 2009 (Figure 1). This was followed by quantitative easing, i.e. a significant expansion of central bank balance sheets (Figures 2a and 2b). In Japan, the U.S.A. and the U.K., government bonds were purchased on a large scale as early as 2009 in order to increase the central bank balance sheet. In the euro area, the initial focus was on expanding the liquidity provided to banks by easing central bank lending conditions and buying up covered bonds. During the sovereign debt crisis, government bonds of crisis states were then purchased on a targeted basis. From 2015 onward, government bonds of all member states were purchased on a massive scale (PSPP), as were private securities and corporate bonds, in order to increase the central bank's balance sheet.

Figure 1: Main interest rates of major central banks



Source: BIS.

Figure 2a: Balance sheets of the ECB, the U.S. Fed and the Bank of England**Figure 2b:** Balance sheet of the Bank of Japan

Sources: BEA, BoE, BoJ, Cabinet Office, Eurostat, ECB, Fed, ONS, own calculations.

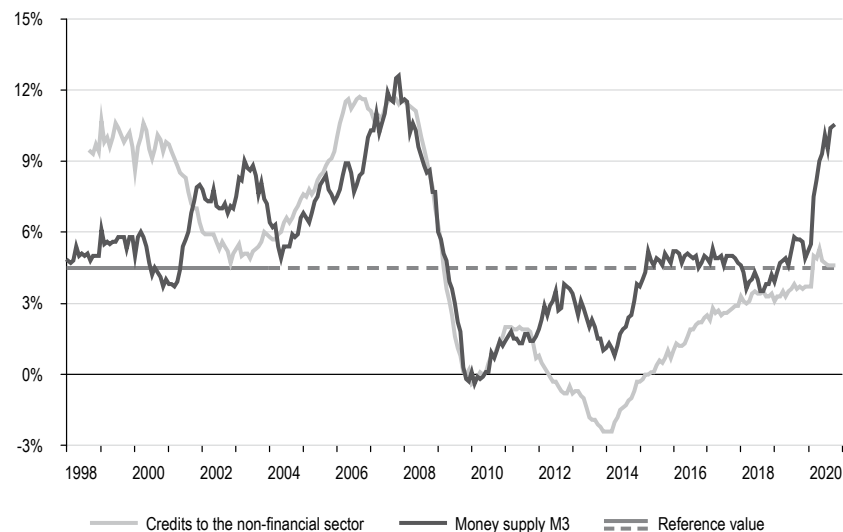
9. In the United States, the Fed already presented principles for the normalization of monetary policy in 2014 and bond purchases were ultimately ended. In December 2015, the Fed began to gradually raise the federal funds rate. By the end of 2018, it reached a range of 2.25-2.5 percent for the federal funds rate. In parallel, the Fed slowly reduced the central bank balance sheet after 2016/17. In the euro area, the ECB had initially ended the expansion of the central bank balance sheet at the end of 2018, at a level of over 2500 billion euros (about 41 percent of euro area's gross domestic product (GDP)). However, starting in September 2019, the ECB resumed net bond purchases at 20 billion euros per month. In Japan, quantitative easing has also continued in recent years. There, the central bank balance sheet reached a level of over 110 percent of GDP at the end of 2019 already.

10. The financial crisis of 2007 and the great recession of 2008/2009 came largely as a surprise. There were hardly any advance warnings. Few experts warned of dislocations in the financial system or risks of monetary policy (see Shiller 2000, Borio and White 2003, Rajan 2005, Taylor 2007). These were often not taken seriously (see, for example, Greenspan 2003, Gertler 2003). Misperceptions about the stability of the financial system and the potential consequences of a sharp decline in housing prices in the U.S. and euro area member states dominated. In particular, cluster risks in the banking system were neglected and the fragility of the financial system was massively underestimated. Regulation and banking supervision did not serve their purpose, neither in the U.S. nor in the euro area and other economies (see, among others, Kronberger Kreis 2011, 2014).

11. Moreover, expansionary monetary policy before the financial crisis supported the U.S. housing boom (see Taylor 2007, Jarocinski and Smets 2008, Kahn 2010, Ahrend 2010, Bordo and Lane 2012). In the euro area, money growth and credit expansion had surged along with the housing price and construction booms in Spain, Ireland, and other member states. This was evident, among other things, from the persistent upward deviation in the monetary reference value, which the ECB had paid particular attention to until 2003 (Figure 3). In the course of the ECB Midterm Review, it was decided to discontinue the annual review of the reference value. Nevertheless, toward the end of 2005, the ECB justified its turnaround in policy interest rates with signals from the monetary pillar of its strategy (Trichet 2008). An earlier and stronger turnaround in policy rates would have had a dampening effect on housing price increases and the construction boom. However, the low interest rates and

the exceptionally slow tightening of monetary policy in 2003/2004 before the financial crisis were justified, not least by the Fed, on the grounds of a fear of deflation (Bernanke 2003).

Figure 3: M3 money supply growth and credit growth in the euro area



Source: ECB.

12. Yet, the monetary policy response to the recession of 2008/2009 in the form of rapid interest rate cuts and quantitative easing did not come as a surprise. It was in line with strategies that had already been developed at the Fed since around 1998 in view of developments in Japan (see, for example, Orphanides and Wieland 1998, 2000, Reifschneider and Williams 2000, Clouse et al. 2000). After the financial crisis, the Fed actively pursued a "lower-for-longer" strategy, i.e. a strategy of prolonged low interest rates, with the aim of achieving a stronger increase and overshooting of the inflation rate.

13. Negative central bank interest rates would be the logical continuation of monetary policy if a recession and weak economic development coincided with low inflation rates or even deflation. Central banks have long shied away

from this. The reason is the existence of cash, which offers savers a nominal interest rate of zero and thus a fallback option in the event of negative interest rates. However, there are storage and insurance costs associated with holding cash, which is why moderate negative interest rates remain a possibility. Another reason for a possible interest rate floor concerns the profitability of banks. If they do not pass on negative interest rates to their customers, banks' interest rate profits will decline, which may have a negative impact on lending. However, as long as long-term interest rates are higher than short-term interest rates, maturity transformation should continue to contribute positively to bank profitability.

14. Instead of lowering interest rates further, central banks can engage in quantitative easing, as the Fed and the Bank of England did in 2009. Such an expansion of the central bank balance sheet through bond purchases is one of the usual means of monetary policy. Under normal circumstances, small bond purchases, so-called direct open market operations, would be sufficient to affect changes in the money market interest rate. When the effective lower bound on interest rates is reached, they act through other channels, in particular risk and term premia. In this way, an increase in bond and other asset prices as well as a depreciation of the currency can be achieved. Quantitative easing was already analyzed in the late 1990s against the background of developments in Japan and then first used in Japan from 2001 onward.

15. The key transmission channels of quantitative easing are an increase in risk-seeking behavior among banks and investors as well as a rise in asset prices. The effectiveness of the measures is assessed differently. There are now numerous empirical studies (see, for instance, Kapetanios et al. 2012, Altavilla et al. 2015, Andrade et al. 2016) that identify at least strong announcement effects. In crisis situations, when risk premia are particularly high and asset prices come under pressure, securities purchases by the central bank are likely to have quite strong effects, even though the central bank interest rate is simultaneously restricted by a lower bound. In a phase of high economic growth and positive inflation, the effect is likely to be much smaller.

16. Moreover, there is a risk of side effects, in particular an excessive rise in asset prices followed by an abrupt correction. In addition, there may be increasing fragility in the banking system due to higher risk-taking, looser credit conditions and rising interest rate risks.

17. Monetary policy always has certain distributional effects. Interest rate cuts reduce costs for debtors and reduce interest income for savers. Usually, the distributional effects of interest rate policy are somewhat balanced over the business cycle (Bernanke 2015). Studies using models that account for income and wealth heterogeneity suggest that the effect of interest rate cuts and increases on aggregate distributional measures such as Gini coefficients is quite small (GCEE 2019, Box 17). Increases in asset prices through central bank securities purchases have an additional distributional effect that can increase income and wealth inequality but are also mostly small (Colciago et al. 2019).

2.2 The special challenges of the ECB

18. Unlike other central banks, the ECB is in a special situation. Although there is a common monetary policy for the euro area, it consists of sovereign member states. In economic and fiscal policy, the member states have considerable scope for decision-making. Fiscal sovereignty can lead to insufficient consolidation in good times in order to gain leeway for bad times and to ensure the sustainability of government debt. This is particularly the case if rules and institutions at the national level do not ensure that economic and fiscal policy is sustainable, or if member states instead rely on the provision of sufficient solidarity by the EU and other member states in the event of a crisis. That is why European fiscal rules were introduced with EMU. However, violations of these fiscal rules have mostly been accepted, not effectively sanctioned or have even given rise to the relaxation of the framework (Kronberger Kreis 2012).

19. The ECB's policy measures since the financial crisis can be divided into four phases. In the first phase, the ECB responded to the financial crisis by expanding the supply of liquidity to banks through full allotment under the refinancing operations and by rapidly cutting interest rates. This was supplemented by cautious quantitative easing with the purchase of banks' covered bonds. Banks were also supported by an expansion of the collateral framework for refinancing operations and by means of longer-term refinancing operations (LTROs).

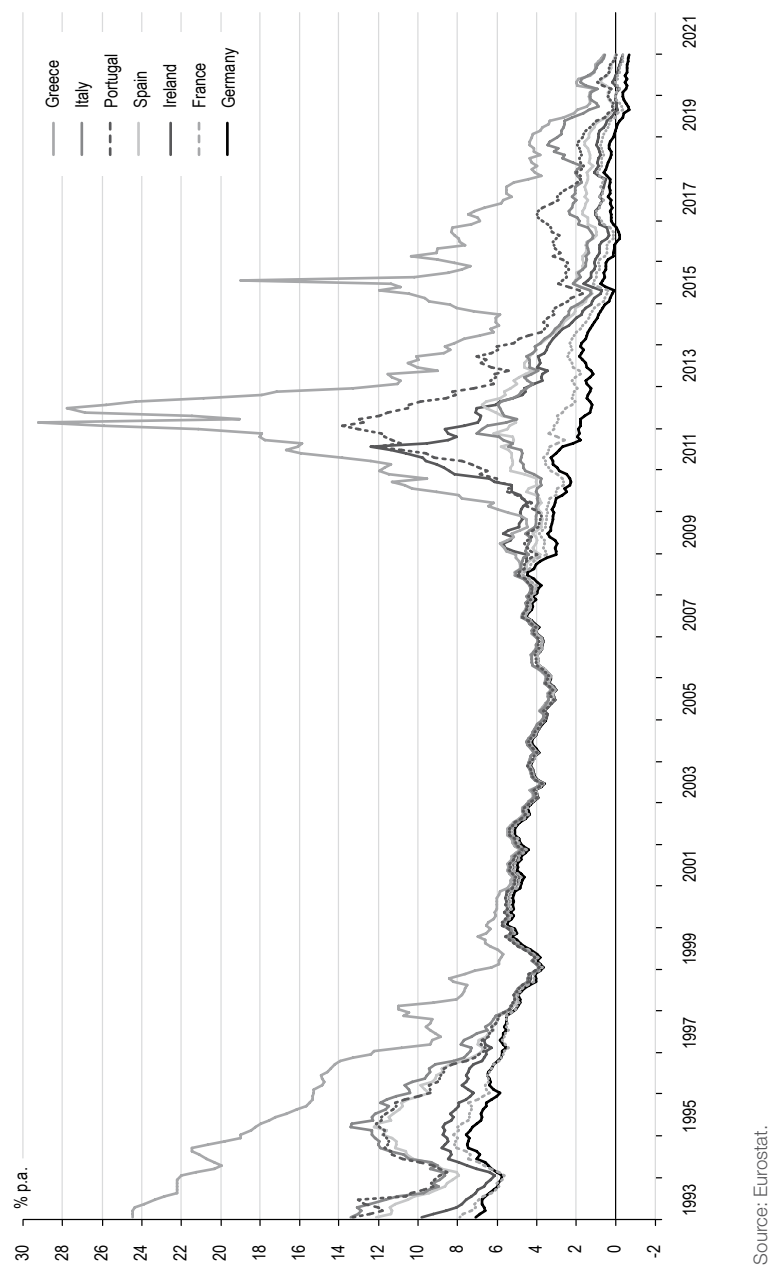
20. The second phase related to the euro debt crisis. In 2011 and 2012, in particular, risk premia on government bonds of individual member states rose sharply (Figure 4). The ECB had already been making targeted government

bond purchases under the Securities Market Programme (SMP) since 2010. In 2011, it made three-year LTROs available for the first time. This long-term liquidity was in high demand by banks, leading to a large increase in the central bank's balance sheet (see Figures 2 and 5b). At the same time, holdings of government bonds rose sharply, especially by banks in member states with high-yield bonds. Finally, in the summer of 2012, ECB President Mario Draghi gave his famous "whatever it takes" speech, and shortly thereafter the ECB outlined the possibility of so-called Outright Monetary Transactions (OMT). With this, it held out the prospect of buying government bonds of a member state that is facing a sovereign debt crisis and has applied for an ESM bailout programme, almost without limit. Financial markets subsequently stabilized, and interest rates on Spanish and Italian bonds fell. The decline in interest rates on Portuguese and Irish government bonds had already begun before the OMT announcement and continued thereafter.

21. The third phase covers the period from 2014 to 2019. In 2014, the inflation rate of the Harmonized Index of Consumer Prices (HICP) fell just below zero. The ECB took the reduction in consumer prices and the associated deflation expectations as the occasion to significantly ease monetary policy. This was initially done by introducing negative central bank interest rates and targeted longer-term refinancing operations (TLTROs). In this context, targeted means that liquidity was made available at a very favorable fixed interest rate and the allocation to banks was tied to the development of lending excluding real estate and public-sector loans. This was supplemented by new purchase programmes for covered bonds and so-called asset-backed securities. Finally, in early 2015, a large-scale government bond purchase programme was launched, the PSPP, which accounted for the largest part of the overall purchase programme known as Asset Purchase Programme (APP). The APP was soon expanded to include corporate bonds. Thus, quantitative easing in the euro area took off. All these measures combined led to a large expansion of the central bank balance sheet, which more than doubled relative to 2013 (see Figure 2a).

22. Other measures related to strengthening the role of forward guidance, i.e. the announcement that the low interest rate policy will be maintained for a long time to come. Forward guidance was quantified in terms of bond purchases. Monthly volumes were decided, combined with the announcement that these would be continued until a certain future date and that central bank interest rates would not be raised during that time.

Figure 4: 10-year government bond yields



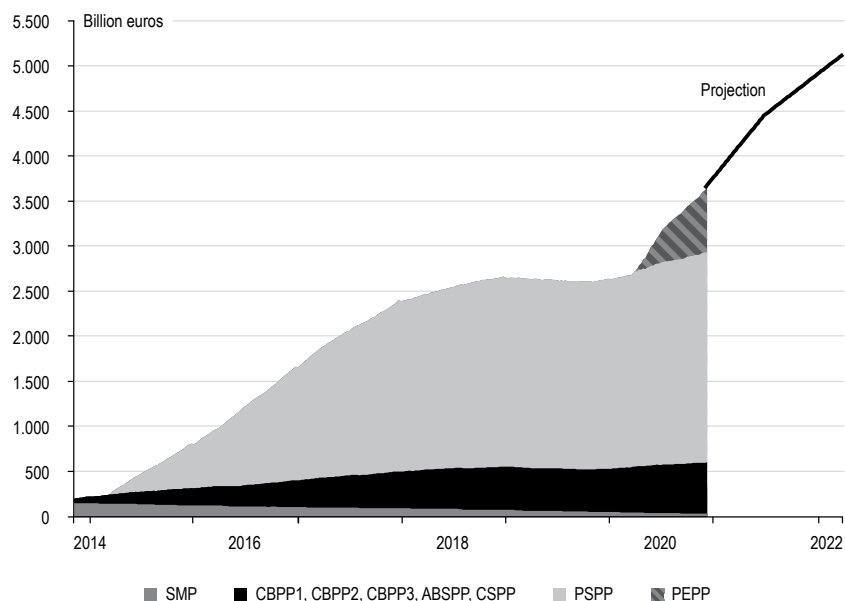
23. The extensive quantitative easing contributed to a normalization of broad money (M3 aggregate) growth. However, the M3 growth rate remained close to the ECB's earlier monetary reference value of 4.5 percent (see Figure 3). The ECB could have used this in its communication to argue that, although the central bank balance sheet was rising sharply, the impact on broad money growth was within a normal range. Credit growth also picked up with some lag during the years of quantitative easing. The reference value could have been used to argue that financial stability risks were less pronounced than before the financial crisis. Having stopped net purchases of securities at the end of 2018, the ECB resumed them already in the fall of 2019.

24. The fourth phase of monetary policy measures began in 2020. When extensive health policy restrictions were implemented in the euro area in March 2020 and a deep recession was looming, the ECB took far-reaching easing and support measures.

2.3 Monetary policy in the coronavirus crisis

25. On March 12, 2020, the ECB made liquidity available to banks on a large scale and increased bond purchases under the APP, of which the PSPP is the most extensive subprogramme to date. It relaxed the conditions on collateral that must be provided in the refinancing operations. In addition, the ECB established a series of longer-term refinancing operations and improved the conditions for targeted longer-term refinancing operations (TLTRO III). It expanded the APP, including the PSPP, by 120 billion euros in addition to purchases of 20 billion euros per month since November 1, 2019.

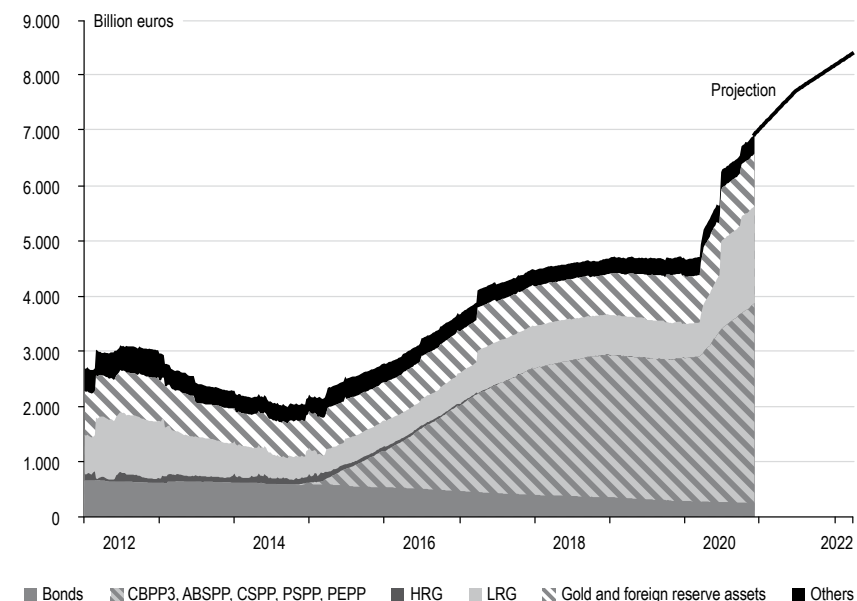
Figure 5a: ECB balance sheet expansion during the coronavirus crisis:
Purchase programmes



Sources: ECB, own calculations.

26. On March 18, 2020, the Governing Council decided on a new temporary purchase programme with a volume of 750 billion euros. The so-called Pandemic Emergency Purchase Programme (PEPP) thus initially amounted to 6.3 percent of euro area GDP in 2019. At the same time, the programme for corporate bonds was extended to include commercial paper. The purchases were to be carried out until the end of 2020. The ECB thus reacted very quickly and very forcefully to the coronavirus crisis. In doing so, the ECB announced that it would allow flexibility in the allocation of government bond purchases by member state. Under the PSPP, purchases were still strictly guided by the ECB's capital key, which is based on the relative economic

Figure 5b: ECB balance sheet expansion during the coronavirus crisis:
Assets of the balance sheet of the Eurosystem



Sources: ECB, own calculations.

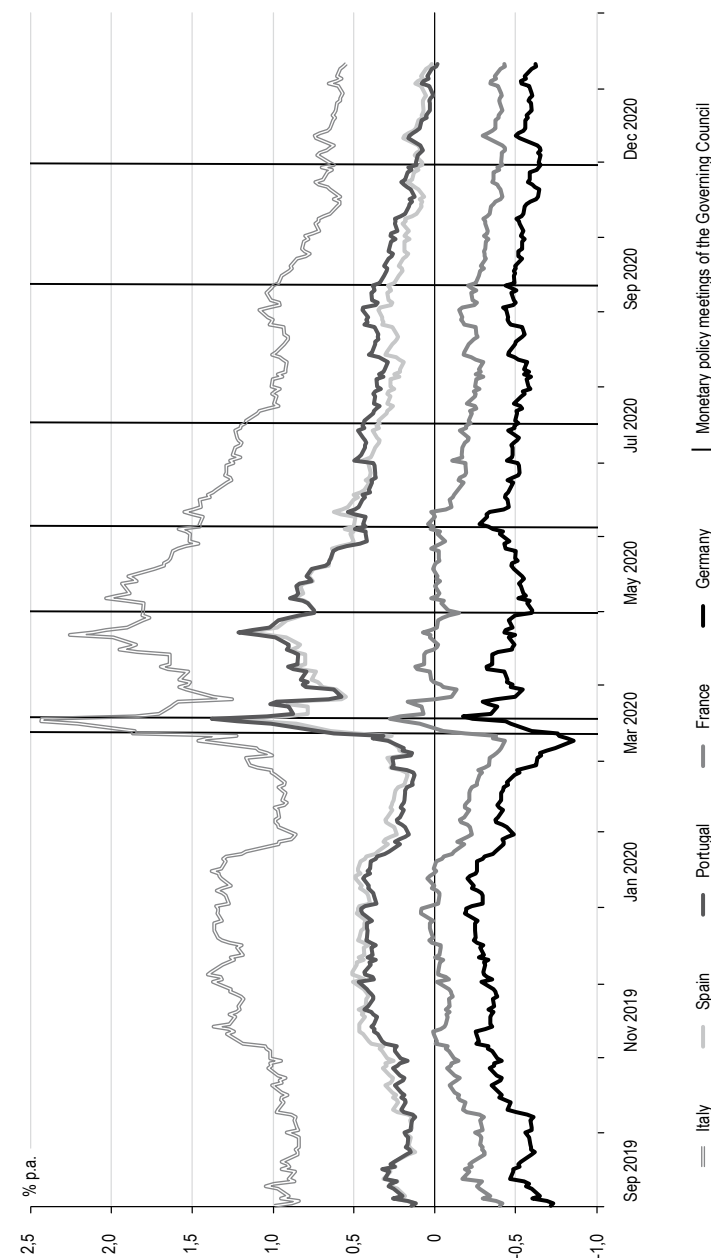
performance of the member states. So far, however, there have only been moderate deviations from the capital key. Italy and Spain, for example, were slightly overweighted, while Germany and France were slightly underweighted (GCEE 2020, item 113).

27. On April 30, 2020, funding conditions for TLTRO III operations were further eased. For the first time, banks can obtain central bank credit at -0.5 percent to -1 percent if they provide sufficient loans to the real economy relative to a benchmark. In addition, a series of seven pandemic emergency operations was launched. A further major step was taken on June 4, 2020, when the ECB decided to increase the PEPP by 600 billion euros to 1350 billion euros and to extend net purchases until June 2021. Thereafter, the revenues from maturing securities are to be reinvested in securities of the same type at least until June 2022. On December 10, 2020, the ECB increased the PEPP by a further 500 billion euros to a total of 1850 billion euros and extended the time horizon for net purchases until at least the end of March 2022. It also extended the extremely favorable terms of the TLTRO III operations by twelve months to June 2022, announced three additional operations and increased the maximum possible amount.

28. Figure 5a shows the composition of bond purchases and Figure 5b the resulting further expansion of the central bank balance sheet. The PEPP volume now totals 15.5 percent of economic output (GDP) in the euro area in 2019. This is in addition to extensive purchases under the PSPP. The ECB expects the euro area sovereign debt-to-GDP ratio to rise from 84 percent in 2019 to 98 percent in 2020, so the advised volume of bond purchases is more than sufficient to cover this increase. That is a lot of firepower to avoid a debt crisis. Currently, no sovereign has yet accessed the ESM emergency credit lines, the actual European fiscal policy support.

29. The monetary policy measures have directly intended (SMP, OMT) or at least indirect fiscal effects (LTRO, PSPP, PEPP). They reduce the cost of government debt financing and allow consolidation to be postponed. This may be positive and temporarily useful, but there are side effects for which one has to be prepared. Figure 6 shows the evolution of government bond rates since 2018. In May 2018, interest rates on Italian bonds rose by about one percentage point, partly due to the budget dispute with the EU. Since then, they have hovered at significantly higher levels than Portuguese or Spanish bond yields. In March 2020, there were signs of a significant rise in government

Figure 6: Government bond yields of euro area member states during the coronavirus crisis



Sources: ECB, Refinitiv Datastream.

bond yields due to the coronavirus crisis. As a result of the PEPP announcement, yields declined again. According to estimates from an ECB study, the PEPP decisions (March and June) and the extension of the APP lowered GDP-weighted ten-year government bond yields by over 45 basis points in March 2020 (Hutchinson and Mee, 2020).

III What follows from the ruling of the Federal Constitutional Court?

3.1 Ensuring ECB independence and primacy of price stability

30. When the FCC ruled on May 5, 2020, that the ECB and the ECJ had exceeded their competences due to a lack of a comprehensible proportionality assessment regarding the PSPP, the public outcry in Europe was great. It was argued that the FCC lacked competence in that regard and that its ruling would damage the independence of the ECB² and the primacy of price stability. After all, the ECJ considered the PSPP to be proportionate.

31. The FCC's considerations and concerns about the ECB's decision-making are expressed, for example, in the following sentences of the judgment:

Finally, 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.

It would have been incumbent upon the ECB 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. (Federal Constitutional Court, 5.5.2020, 2 BvR 859/15)

32. The FCC had provided its ruling with tangible consequences for monetary policy. In particular, it had allowed the Deutsche Bundesbank to participate in the programme only until August 5, 2020. By then, the ECB should have explained in a comprehensible way why the purchase of public bonds since 2015 is proportionate.

² The independence of the ECB is enshrined in Article 130 TEU (ex-Article 108 TEC): 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.

33. The FCC had stated that the Federal Government and the Bundestag share responsibility for European integration in line with the Treaty and must therefore work toward a proportionality assessment. In the meantime, the Governing Council has sent various unpublished documents on the PSPP decisions to the German constitutional bodies. It has also published a detailed discussion of proportionality in the summary minutes of the Council's meeting of June 3 and 4, 2020. This weighs the effectiveness, risks, and side effects of the new PEPP, which is intended to mitigate the negative economic impacts of the coronavirus pandemic. While PEPP was not the subject of the ruling, it has already given rise to an organ complaint. The Federal Government and the Bundestag then stated that the Governing Council had now comprehensively presented its proportionality assessment and had fulfilled the requirements of the FCC. As a result, the Deutsche Bundesbank continued its participation in the PSPP.

34. Neither the independence of the ECB nor the primacy of price stability has been lost in this process. It is true that the Governing Council exercises monetary policy independently of national and European institutions. However, the legality of its actions remains subject to judicial review. The Governing Council has not accepted the jurisdiction of a German court but has explained how it applies the principle of proportionality enshrined in the European Treaties.

35. Macroeconomic research justifies the benefits of central bank independence on the grounds that governments tend to prioritize economic growth and employment over price stability or even to misuse monetary policy to finance the state. They would like to cut interest rates before elections, for example, to boost employment. President Trump's statements on U.S. monetary policy during 2019 are a good example. Governments will willingly accept if inflation overshoots the target as a result of monetary policy easing. Thus, from the perspective of macroeconomics, if the central bank is subordinated to the Ministry of Finance, higher inflation can generally be expected without monetary policy being able to provide more real growth in the long term. To avoid this, the central bank should be allowed to pursue the mandate of price stability set by the legislature in an operationally independent manner.

36. Conversely, however, it does not automatically follow that the central bank must be independent of the government in order to combat recession

and deflation. This is because there is no recessionary or deflationary tendency of governments that it would have to overcome. In the coronavirus crisis, central banks and governments are working towards the same goal when expansionary fiscal policies are accompanied by bond purchases and lower interest rates. Both measures are intended to slow the slump in economic activity and the decline in inflation. Nevertheless, central bank independence in bond purchases is important, because otherwise governments might be tempted to ultimately resort to monetary financing of the debt, as then U.S. Federal Reserve Chairman Ben Bernanke wrote back in 2010:

There is a good case for granting the central bank independence in making quantitative easing decisions, ..., 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.

37. The concerns expressed by Ben Bernanke in his 2010 speech and by the FCC in its May 5, 2020 ruling are congruent. They are concerns about the fiscal dominance of monetary policy. Seen in this light, the FCC has sought to strengthen the ECB's independence with its reference to fiscal side effects of bond purchases (Feld and Wieland 2020).

3.2 Reviewing the proportionality of monetary policy measures

38. The FCC's requirement to review the proportionality of monetary policy is not extraordinary. In fact, it is a principle that the European Treaties have imposed on all EU institutions (Article 5 (4) TEU). In this respect, it is not surprising that the Governing Council, after the initial indignation over the ruling had subsided, decided to explain the proportionality of its measures more comprehensively to the public.

39. The primacy of price stability has not been jeopardized by this, or at least not again. The ECB already stipulated at the beginning of EMU that price stability need not be achieved at all times but only in the medium term:

The medium-term orientation reflects the fact that monetary policy cannot, and therefore should not, attempt to fine-tune developments in prices or inflation over a few weeks or months. 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.

40. When first presenting its strategy in 1998, the ECB already qualified the primacy of price stability on the grounds of proportionality considerations and set it as a medium-term objective. Accordingly, considerations of proportionality are nothing new, and the primacy of price stability is not threatened by the FCC's ruling.

41. Moreover, proportionality considerations already played a role in the ECB's first policy review – the so-called Midterm Review in 2003. Originally, the ECB defined price stability as an annual increase in the HICP of zero to two percent. The target zone thus included the numerically exact price stability of zero percent inflation. In the Midterm Review, the Governing Council decided to raise the target to below, but close to, two percent. One reason was to gain more distance from the effective lower bound on interest rates. In view of subsequent developments, this was a very far-sighted measure. A second reason was that, in the ECB's view, there were positive measurement errors regarding inflation measurement.

42. In its own interest, the Governing Council should regularly conduct a proportionality check. It should be part of the strategy and regular decisions, similar to the monetary cross-check against monetary trends. If a proportionality check leads to considering some risks or side effects associated with certain measures, this is not detrimental but part of an appropriate monetary policy – a package insert and prescription requirement, so to speak.

3.3 Assessing proportionality with interest rate rules

43. A proportionality check requires weighing the advantages and disadvantages of a policy measure in terms of the intended objective against unintended side effects. If concrete, quantitative cost-benefit calculations are included in this process, this contributes to an effective and objective review. Accordingly, it would be useful if the Governing Council, in its communication, did not just explain the various arguments and trade-offs in arbitrary verbal terms, but backed them up with concrete quantitative metrics. Quantitative reference values, for example, for money growth or the development of central bank interest rates and balance sheets, should be developed and published regularly (Feld and Wieland 2020). There are examples of such reference values, for instance, the ECB's M3 reference value (Figure 3) and the Taylor rule. Both indicators provided warning signals before the financial crisis and can thus help prevent financial crises. Monetary policy rules can be used as reference variables to achieve a more systematic, i.e. less discretionary, policy. Rule-based policy allows for greater predictability and thus more effective expectation formation in the private sector about the evolution of monetary policy (Orphanides 2019, Cochrane, Taylor, and Wieland 2019). It strengthens the credibility of the central bank. Moreover, such benchmarks can be helpful for an independent central bank to establish an exit strategy on how it could reduce its high and currently rapidly rising bond holdings in the future.

44. The Fed has repeatedly presented the implications of five interest rate rules for the federal funds rate in its Monetary Policy Report. Among them are three variants of the Taylor (1993) rule. By 2019, the Fed's interest rate policy had moved closer to these rules again (Federal Reserve 2019, Taylor 2021). Since 2013, the German Council of Economic Experts has used two rules in its annual reports as reference points for the ECB's monetary policy, a variant of the Taylor rule and a variant of an interest rate change rule based on Orphanides and Wieland (2013). Variants of both rules are also considered by the Fed. The Taylor rule sets the level of the (real) interest rate depending on the deviation of the inflation rate from the target and the output gap.

45. The Taylor rule allows a simple calculation of a recommendation for the central bank's main policy rate, i_t^{T93} which reacts to developments in economic activity as well as to the deviation of the inflation rate from the central bank's target. It is a reaction function of the following form:

$$i_t^{T93} = \pi_t + 0,5(\pi_t - \pi^*) + 0,5(y_t - y_t^*) + r^*$$

46. π stands for the annual inflation rate, such as the GDP deflator or a consumer price index. The utilization rate of the economy is measured by the output gap ($y_t - y_t^*$), i.e. the difference between actual GDP and the potential GDP expressed as a percentage. The inflation target is π^* while r^* is the long-run real equilibrium interest rate. The level of potential and the equilibrium real interest rate must be estimated, and the estimates are subject to great uncertainty. In the original Taylor rule, the inflation target and the equilibrium real interest rate are set at two percent. The proportionality of instrument use is determined by the response parameters: 1.5 for inflation, 0.5 for inflation deviation from target, and 0.5 for the output gap.

47. Figures 7a and 7b show an application of the Taylor rule to the euro area. Two measures of inflation are used, the GDP deflator, which captures the prices of all goods and services produced in the euro area, and the so-called core rate of the Harmonized Index of Consumer Prices (HICP), which corresponds to the HICP excluding energy and food prices.

48. The increase in the ECB's main interest rate in the early years of EMU was pretty much in line with the Taylor rule, regardless of the inflation measure chosen. In the years before the financial crisis, however, monetary policy was too expansionary from the perspective of the Taylor rule. By contrast, the sharp easing in response to the 2008/2009 recession was consistent with the rule, as was the one percent interest rate level that the ECB maintained for several years afterwards. Until 2014, the rule indicated a slightly higher interest rate than the ECB's policy rate, but also suggested easing between 2012 and 2014. After 2015, the rule calls for policy tightening. In 2019, the gap between the Taylor rule and the ECB's interest rate was three percentage points. In addition, the ECB has engaged in extensive quantitative easing since 2015. Accordingly, the Taylor rule supports the FCC's concern about the proportionality of quantitative easing, as it suggested that monetary policy should have been tightened as a result of the economic recovery in the euro area.

Figure 7a: Taylor rule for the euro area with real-time data of the ECB and AMECO-Nowcasts: GDP deflator (projections based on current ECB staff projections (Dec. 2020))

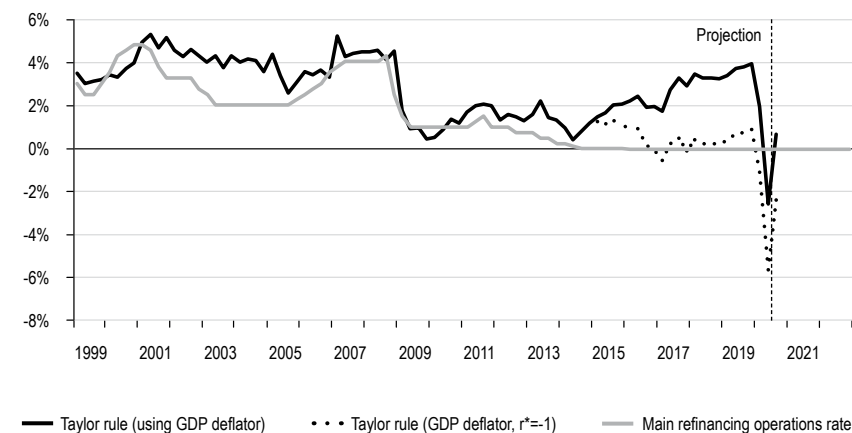
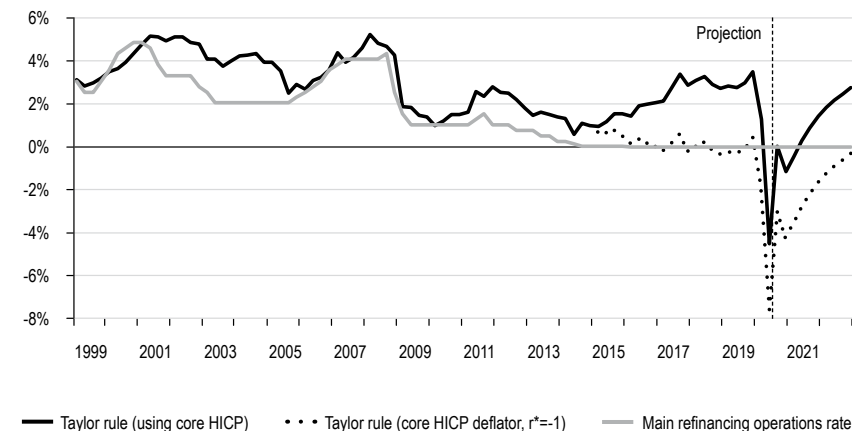


Figure 7b: Taylor rule for the euro area with real-time data of the ECB and AMECO-Nowcasts: Core HICP (projections based on current ECB staff projections (Dec. 2020))



Source: Wieland (2021).

49. However, the ECB, like the Fed, pointed to a significant decline in estimates of the long-term equilibrium interest rate, r^* . This has been used to justify a "lower for longer" strategy and additional quantitative easing. However, these estimates are associated with very high uncertainty (Beyer and Wieland 2019). The decline is attributed to, among other things, lower productivity growth and higher propensity to save due to demographic developments. Changes in r^* and in the level of potential output can be accounted for in the Taylor rule. To illustrate this, Figures 7a and 7b show variants of the Taylor rule with an equilibrium interest rate three percentage points lower (-1 percent). r^* gradually decreases to this level over three years starting in 2015. Accordingly, the Taylor rule recommends an interest rate of about zero percent by 2019 but does not call for quantitative easing. Thus, the PSPP, which has been implemented since 2015, deviates downward from the rule.

Figure 8: Estimates of the output gap of the euro area (quarterly data)



Source: Wieland (2021).

50. Unsurprisingly, the Taylor rule recommends extreme additional easing as a result of the coronavirus crisis. The reason is the deep negative output gap relative to the European Commission's estimate of potential output, which can be seen in Figure 8. However, the behavioral responses of households and firms in the wake of the pandemic also lead to a decline in potential output. For example, an analysis for the U.S. economy that combines a macroeconomic model with an epidemiological model suggests that the negative output gap accounts for less than one-quarter of the GDP decline (Eichenbaum, Rebelo, and Trabandt 2000). Moreover, the level of potential output is reduced further by the reduction in supply capacity due to government regulations, resulting in a much smaller gap than in Figure 8. This would have to be considered for a practical proportionality check, as would a conversion of the recommended interest rate cut into a quantitative easing with a similar effect. Using ECB estimates and model-based estimates, the ECB measures are likely to correspond roughly to an interest rate cut of 2.5 to three percentage points (GCEE 2020, item 150).

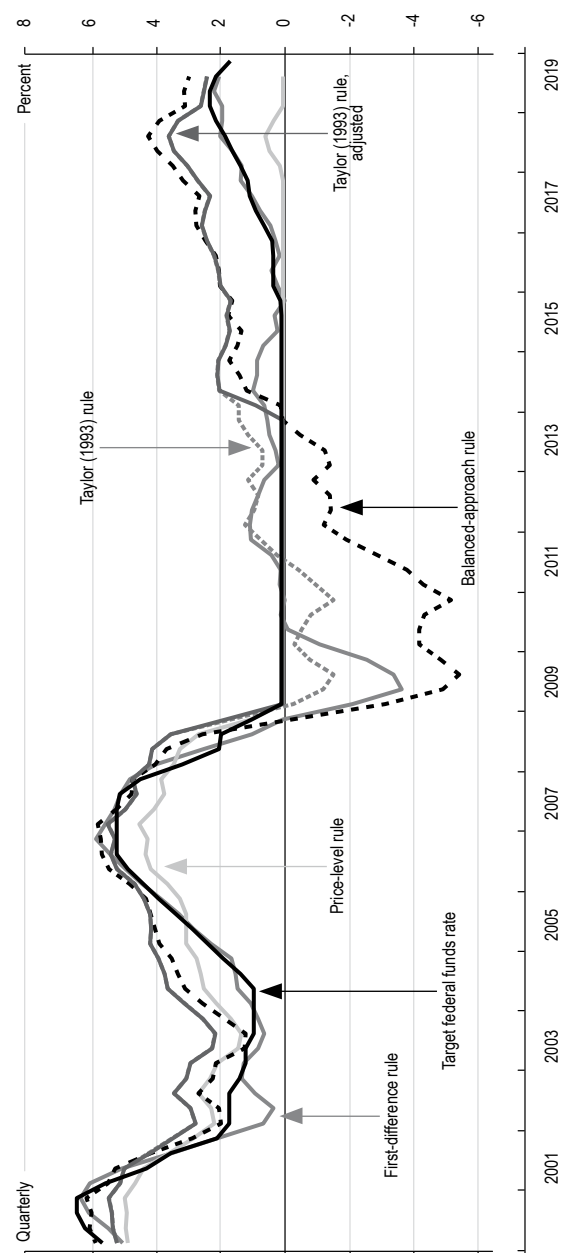
IV Is the U.S. Fed's new monetary policy strategy a model for the ECB?

4.1 The Fed's strategy review

51. In its strategy review, the Fed was guided primarily by the question of how a decline in the long-term real equilibrium interest rate would affect the effectiveness of its monetary policy. It sees the causes of such a decline in the fall in productivity growth, an increased propensity to save due to global demographic developments and fiscal policy developments. As a result, episodes in which nominal interest rates are close to zero percent or even take on negative values are to be expected more frequently.

52. In August 2020, the Fed announced a historic change in its strategy. In the future, it intends to target average inflation over several years. Since inflation has now been below two percent for many years, this is likely to put the Fed on track for an increase above the target. The Fed is thus pursuing a "make-up strategy". If the Fed cannot cut interest rates low enough for a certain period of time and inflation therefore remains below target, it intends to make up for this in subsequent years by overshooting the target. This is now formalized, but not new. The Fed has already used this argument to justify prolonged zero interest rates and bond purchases during the recovery period after the financial crisis. It has even published interest rate rules showing this in terms of the interest rate path, as illustrated in Figure 9.

53. Both the price-level rule and the adjusted Taylor rule, which are shown in Figure 9, produce a catch-up effect. The adjusted Taylor rule compensates for periods in which it prescribed an interest rate level in negative territory with a corresponding extension of the zero interest rate period. The price level rule implements a price level target that increases at a rate of two percent, so that deflationary periods are followed by longer inflationary periods in which the inflation rate exceeds two percent.

Figure 9: Historical federal funds rate prescriptions from simple policy rules (U.S. Fed Monetary Policy Report, July 2019)

Note: The rules use historical values of the federal funds rate, core personal consumption expenditures (PCE) inflation, and the unemployment rate. Quarterly projections of longer-run values for the federal funds rate and the unemployment rate are derived through interpolations of biannual 6-to-10-year-ahead projections from Blue Chip Economic Indicators. The longer-run value for inflation is taken as 2 percent. The target value of the price level is the average level of the price index for PCE excluding food and energy in 1998 extrapolated at 2 percent per year. The target federal funds rate data extend through 2019:Q2.

Sources: Federal Reserve Bank of Philadelphia; Wolters Kluwer, Blue Chip Economic Indicators; Federal Reserve Board staff estimates.

54. Compared with the ECB, it is to be considered positively that the Fed has been publishing principles for reducing the central bank balance since 2014 and has actually tightened monetary policy up to 2018. Both have failed to materialize at the ECB. Thus, interest rate policy prior to the coronavirus crisis has moved back closer to the recommendations of the interest rate rules. Moreover, the publication of interest rate rules makes sense. For one thing, they can provide reference values for monetary policy as proportional responses to macroeconomic developments. In addition, they can strengthen independence from political pressure to ease monetary policy.

55. While interest rate rules are a sensible element for the ECB strategy, the two most important outcomes of the Fed strategy review are to be viewed more critically. With the move to "average inflation targeting" the Fed hopes to raise inflation expectations. However, this may be difficult because market participants may speculate that once inflation reaches two percent, the Fed will refrain from further raising inflation. Additionally, some things remain unclear, such as over what period the average should be at two percent. Moreover, if the inflation rate were to overshoot the target, it could be quite difficult to reverse that.

56. It is possible that the Fed is underestimating the risk of inflation rising again and becoming too high, as well as other risks arising from a prolonged period of low long-term interest rates. The Fed assumes that demographic trends and declines in productivity will keep real interest rates low in the long run. Empirical studies suggest a strong decline in the equilibrium interest rate since the 2008-09 recession (Laubach and Williams 2015, Holsten, Laubach, and Williams, 2017). However, the estimates are quite uncertain (Beyer and Wieland 2019, GCEE 2017).

57. In addition, the causes that led to low real interest rates and low inflation could change again. The baby boomers will soon retire and will then at least no longer save as much, and perhaps even spend their savings for consumption in old age. There could be another reversal, leading to higher inflation and higher real interest rates (Goodhart and Pradhan 2020). Moreover, the relatively weak rise in inflation is related to globalization. A recent indication of this is the weak development of import prices in the euro area. It has contributed to the fact that the inflation rate measured by the consumer price index has been significantly lower than the inflation rate measured by the GDP deflator, which captures the prices of goods and services produced in the euro area (Wieland 2020).

58. Another risk is that the Fed is unlikely to tighten its monetary policy once unemployment falls below the so-called natural rate, which is associated with a stable inflation rate. Its value is imprecisely estimated, but certainly not less precise than the estimate of the long-term equilibrium interest rate, on which the Fed relies heavily.

59. The Fed's studies and assessments will certainly influence the ECB's strategy review. Yet, there are major gaps. It is particularly regrettable that the Fed has made no attempt to examine whether monetary policy may have contributed to the housing and credit boom before the financial crisis. The question of whether the Fed must therefore pay more attention to curbing credit and asset price booms in the future as part of monetary policy was similarly omitted. It can only be hoped that the ECB will take a different approach in this respect. After all, its strategy of monetary cross-checking did indeed provide warning signals before the financial crisis.

60. The numerical target of below, but close to, two percent inflation currently pursued by the ECB only has to be achieved in the medium term. This leaves a great deal of temporary room for maneuver both upward and downward. By no means does it rule out inflation overshooting the target.

4.2 Hierarchy of objectives for the Eurosystem versus the Fed's mandate

61. While the Federal Reserve Act, which determines the Fed's mandate, describes both price stability and maximum employment as objectives of equal importance, the ECB mandate expresses a hierarchy. Article 127 TEU (ex-Article 105 TEC) (1) states the following in this regard:

The primary objective of the European System of Central Banks (hereinafter referred to as "the ESCB") 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.

62. Ultimately, inflation is a monetary phenomenon. In this respect, it is indeed possible for the central bank to exert a lasting influence on it, i.e. to control the inflation rate, not in the short term but in the medium to longer term. Regarding unemployment and real economic growth, however, the options of monetary policy are severely limited. Both monetarist and New Keynesian theories assume only short- to medium-term real effects of monetary policy. In doing so, they rely on a wide range of empirical evidence. Accordingly, monetary policy can at best change economic output and employment levels in the short and medium term, as long as general wage and price developments have not fully responded to the change in monetary policy.

63. Another reason to give priority to price stability is the so-called time inconsistency problem of monetary policy. The short-term trade-off between employment and inflation sets an incentive to temporarily increase economic activity and employment with an (unexpectedly) expansionary monetary policy, at the risk that inflation will increase in the medium term and persist. Governments may be tempted to give in to this incentive, for instance, ahead of important elections. This is a significant argument for central bank independence from political control with respect to monetary policy and for a hierarchical mandate (Issing 2019). Indeed, in the 1970s, for example, the independent Bundesbank managed to avoid a sharp rise in inflation into double digits, as occurred in other leading industrialized countries in the aftermath of the oil crises (Issing and Wieland 2013).

64. Employment is very much affected by national regulations. The Fed has it much easier than the ECB; after all, the labor markets and labor market policies are relatively uniform in the United States, although the federal states have different regulations in some areas, such as the minimum wage. In the euro area, however, there are very fundamental differences in the member states' labor market constitutions and policies. Developments in employment and unemployment are therefore correspondingly heterogeneous. Very different trends emerge over longer periods of time, both within member states when reforms have been implemented and, in comparison, between member states. For the United States, the estimated natural rate of unemployment has changed little over long periods and has declined somewhat since the financial crisis. The Fed regularly publishes the assessments of members of the Federal Open Market Committee in the form of a survey.

65. In contrast, the concept of a natural rate of unemployment is hardly useful for the euro area as a whole, as conditions in the member states are too heterogeneous to form an average for the euro area. In the context of empirical estimates of the relationship between inflation and economic performance, the output gap, i.e. the difference between current GDP and the potential level, can be used instead for the euro area.

V What should the ECB Governing Council change and what should it not change?

66. With this study, the Kronberger Kreis presents answers on whether the ECB's mandate should be reinterpreted, the strategy overhauled, new instruments introduced, or the use of monetary policy instruments better reviewed. These considerations take into account the experiences of the financial crisis, the sovereign debt crisis in the euro area and the coronavirus crisis.

5.1 Interpretation of the mandate

67. The ECB's mandate, as laid down in the Maastricht Treaty, must be operationalized and thus interpreted. The priority of price stability set out in the mandate has basically proved its worth. Indeed, before and after the Global Financial Crisis, the ECB managed to avoid high inflation as well as pronounced deflation. The inflation rate remained low and stable, especially by international standards. It never deviated far from the quantitative target of below, but close to, two percent set as part of the ECB's own strategy.

68. At the same time, the ECB took several extraordinary measures to combat the crisis, the announcement and (partial) implementation of which had a major, stabilizing impact on the development of the euro area and its member states. In this context, the separation of monetary and fiscal policy as stipulated in the mandate as well as the prohibition of monetary government financing had to be and still must be observed. The ECB cannot solve all the problems of the member states.

69. Fiscal policy responsibility lies with the governments and parliaments of the member states. Only the governments of the member states have the necessary democratic legitimacy to take far-reaching fiscal policy decisions. The strong independence of the Governing Council can only be justified by a mandate narrowly focused on price stability.

70. A judicial review of ECB policy as undertaken by the ECJ and the FCC makes sense in principle (see Kronberger Kreis 2016). This applies not least to the FCC's approach of setting certain limits to ensure the proportionality of monetary policy and the separation of monetary and fiscal policy. These

include, for instance, the capital key for government bond purchases as well as issuance and issuer limits. Such limits also help to avoid fiscal dominance of monetary policy and to preserve the independence of the ECB.

71. In addition, the mandate allows to support the objectives of the EU – if price stability is maintained. The economic policy objectives of the Union set out in Art. 3 TEU include a "sustainable development of Europe based on balanced economic growth", a "highly competitive social market economy" and "a high level of protection and improvement of the quality of the environment". However, the task of supporting the EU's general economic policy and contributing to the objectives of Art. 3 TEU is not to be understood as a mandate to pursue an independent economic policy, but rather as a duty to take into account the side effects of monetary policy. This is because the ECB lacks the democratic legitimacy for the balancing of interests necessary for an independent economic policy. For example, in the choice of instruments, consideration must be given to whether there are other instruments for which the negative side effects are smaller or can be avoided altogether. In particular, the new instruments of quantitative easing, such as government and corporate bond purchases, entail special side effects compared with the usual interest rate policy – for financial stability, for example.

72. Obviously, the ECB, like other central banks, considers the effects and side effects of its monetary policy on the business cycle and fluctuations in unemployment. This is one reason it cites for pursuing the goal of price stability in the medium term. It can use the remaining room for maneuver to have a stabilizing effect on the business cycle and fluctuations in unemployment with its monetary policy. This should also make it somewhat easier to stabilize inflation. However, such effects on the real economy are temporary. A permanent reduction in unemployment through monetary policy measures is not possible. The ECB should be careful not to promise too much in this regard.

73. Furthermore, financial stability is an important objective that can also be considered in monetary policy within the framework of the ECB's hierarchical mandate. The basis for financial stability is, first of all, appropriate regulation and supervision of the financial system. The ECB already has a significant role in banking supervision, especially for systemically important institutions. In addition, the ECB has the possibility to add macroprudential measures to those taken by member states, such as time-varying capital buffers, if it deems them insufficient to avoid excesses in lending.

74. Monetary policy should first and foremost seek to avoid contributing to financial system instability and the buildup of risks to banks and asset price developments. Macroprudential policy cannot limit such risks on its own. This was demonstrated, for example, during the credit-driven real estate boom in Spain before the financial crisis. Therefore, monetary policy should consider the financial cycle as well as those risks that arise from it for the financial system.

75. It should be noted that this may lead to conflicts of objectives between monetary policy and regulation as well as macroprudential policy. The close link between monetary policy and supervision, as has been the case in the euro area since the banking union, contains dangers. For example, the central bank may be tempted to avoid problems in its role as supervisor by providing central bank liquidity to banks for too long. One way to avoid this would be to establish a financial supervisor, who combines supervisory and macroprudential responsibilities, outside the ECB. However, this would require a change of European treaties.

76. Financial stability risks naturally include those arising from both climate change itself and the measures needed to mitigate or adapt to it. Massive changes in the economic system brought about by phasing-out fossil fuels can devalue assets and jeopardize the stability of banks.

77. By contrast, a broad interpretation of the mandate that could be used to justify the active use of the central bank balance sheet to finance and subsidize climate protection projects is not advisable. Instruments to curb greenhouse gas emissions are in the hands of governments and parliaments. At the EU level, there is already a system in place to trade emission allowances. Extending this emission trading system (ETS) to all sectors in the member states, and thus setting an effective price for greenhouse gas emissions, is a target-oriented solution. The central bank, however, cannot prevent climate change with its instruments. Additional monetary policy interventions that would favor the financing of certain companies relative to others could also unduly distort the emissions price set by member states. The central bank risks raising expectations that it must disappoint subsequently, thus attracting additional criticism and demands. Being deeply involved in the political arena and becoming embroiled in controversies, the central bank would be in danger of jeopardizing its independence, as a consequence. Moreover, following the same argument, the central bank balance sheet and interest rate

policy could just as easily be used to support other policy areas, such as trade policy by means of currency interventions or social policy by means of indirect or direct transfers.

78. Effects of climate policy measures on economic activity and price developments, however, may well lead to stabilizing monetary policy reactions. For example, the increase in prices for greenhouse gas emissions and the introduction of a CO₂ price on sectors such as buildings and mobility, can be expected to lead to an increase in inflation. The introduction of a carbon price for these sectors in Germany under the Climate Protection Act is expected to increase inflation measured by the HICP by up to 1.2 percentage points in 2021 (Nöh, Rutkowski, and Schwarz 2020).

5.2 Proven and new elements for the strategy

79. The monetary policy strategy, which the ECB defined in 1998 and confirmed in a Midterm Review in 2003, can basically be considered suitable and successful. However, certain shifts in communication and application have occurred in recent years, which are problematic. Transparency and consistency of communication should be improved. In addition, some aspects should be newly included or given greater and renewed consideration in the application of the strategy.

80. Key concepts are the quantitative target, i.e. the level of inflation that is still consistent with price stability, and the measure to which it refers. In 1999, the ECB started with a target of zero to below two percent inflation. The median level was thus one percent. In 2003, during its Midterm Review, the ECB determined that a level below, but close to, two percent was preferable and consistent with its strategy. The two main reasons were the greater distance to the zero interest rate floor, at which the effectiveness of monetary policy declines, and the measurement of inflation, which displays biases, for example, due to insufficient allowance for changes in the quality of products in the basket, leading to an overestimation of the actual inflation. The 2003 Midterm Review was thus very forward-looking, as the effective lower bound on the central bank interest rate has been a central element of the monetary policy debate in all industrialized countries for years. Empirical analyses show that the ECB's interest rate policy has been consistent with a numerical target of 1.7 to 1.8 percent (Bletzinger and Wieland 2017). Here, the evidence

suggests a symmetric response relative to this target. ECB President Draghi most recently interpreted the target of below, but close to, two percent as a value of 1.9 percent.

81. However, a significant increase in the target, for example to three or four percent, is not an option. This would not be compatible with the mandate of price stability. However, the measurement error is likely to have decreased relative to the 2003 Midterm Review, so that even at two percent there is somewhat more leeway. For example, as early as 2014, the ECB stated:

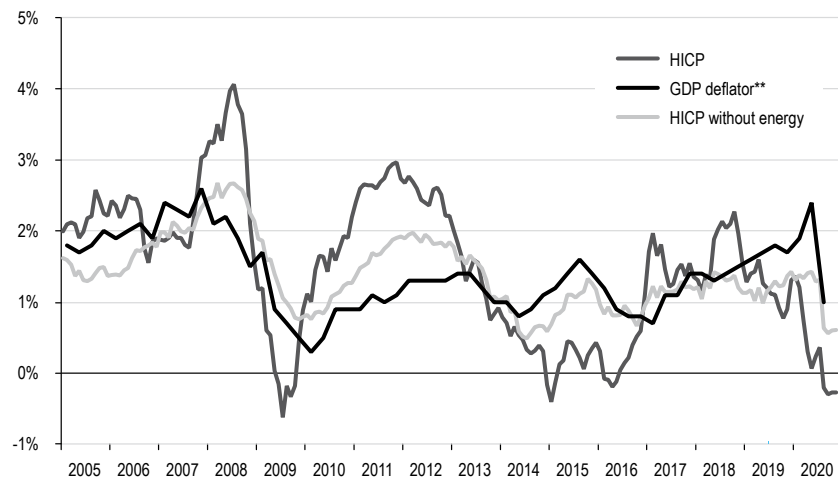
On the basis of the available evidence, it is not possible to estimate measurement bias in the euro area HICP. ... A number of technical measures ... to reduce the potential sources of bias were introduced during the development of the HICP following earlier research. (ECB, Monthly Bulletin April 2014, p. 42).

Moreover, the ECB now has far more experience with quantitative measures aimed at better combatting deflation risks. Another problem with a significant target increase would be that in the current environment, the ECB is likely to find it very difficult to bring inflation close to a higher target rate. This would likely damage the ECB's credibility.

82. An adjustment of the inflation target to exactly two percent would be less problematic. However, it does not entail a significantly larger distance from the zero lower bound. The fuzziness in the current inflation target acts like a small target zone for the inflation rate. A target zone gives some room for maneuver, which can be used if some flexibility is helpful in achieving other targets. For example, if the Phillips curve, i.e. the relationship between inflation and the output gap, is very flat near the potential level, a target zone can be welfare-improving (Orphanides and Wieland 2000). Furthermore, a target zone makes it easier for the ECB to take other measures of inflation into account.

83. Of greater importance is the preferred inflation measure. Efforts to improve the strategy should begin here. First, the HICP, which is at the heart of the strategy, does not cover all prices, as capital goods, construction costs or government services are excluded. Second, it includes imported goods and services, including oil and gas. However, import prices are a key contributor to the high volatility of the HICP as well as to the low average inflation since 2013. Third, the HICP captures an important block of household spending

Figure 10: Inflation in the euro area: Harmonised index of consumer prices and GDP deflator*



* Seasonally and calendar adjusted data ** Quarterly data

Sources: Eurostat, ECB.

only to a very limited extent. This is the cost of housing, as the HICP excludes owner-occupied housing.

84. It would make sense to focus more on the development of prices for goods and services produced in the euro area. This is measured by the GDP deflator. Figure 10 shows the development of the GDP deflator in comparison with the HICP and the core HICP.

85. Measured with the GDP deflator, inflation averaged 2.0 percent between 1999 and the first quarter of 2009 – without much difference to the HICP. But that has changed. In the recession years from 2009 to early 2013, when the euro crisis followed the Global Financial Crisis, prices for domestic goods and services increased by only one percent on average. During the economic recovery from mid-2013 to early 2020, domestic inflation measured accordingly was again higher at an average of 1.3 percent. In 2019, it was already at 1.7

percent, which would be in line with the ECB's HICP target. The increase in inflation during the economic recovery from 2013 to 2019 measured with regard to domestic goods prices is in line with the relationship between inflation and economic activity expected from a macroeconomic perspective. Moreover, it reflects some effect of monetary easing through 2018.

86. In 2020, domestic goods price inflation rose further to 1.9 percent in the first quarter and 2.5 percent in the second. At the same time, HICP declined sharply, falling into negative territory at -0.3 percent in September and October. This decline was related to a sharp drop in import prices, some of which are included in the HICP but excluded from the GDP deflator. The GDP deflator is published with a lag relative to the HICP. The increase to 2.5 percent is partly due to higher public goods inflation, mainly in France. This is caused by the extensive shutdown in the wake of the coronavirus pandemic. In the third quarter, the rate of inflation measured by the GDP deflator declined to just about one percent.

87. Finally, the HICP covers housing costs inadequately. It does not cover the costs of owner-occupied housing, only rented housing. In many countries of the monetary union, the share of owner-occupied housing is significantly higher than in Germany. There are two ways to account for this in inflation measurement. First, comparable rents could be used for owner-occupied housing. This would give rents a higher weighting in the HICP. Since rents are very stable in many member countries and react only with a lag to increasing house prices or construction costs, this should change the inflation rate only slightly. However, it would somewhat reduce the strong fluctuations in the HICP. Second, the development of the cost of purchasing owner-occupied housing can be taken into account. For this purpose, Eurostat has been developing corresponding indices for several years. These costs fluctuate widely and have grown strongly in some cases in recent years. In Germany, for example, annual growth rates have risen from two percent in 2014 to four to five percent in 2018 and 2019 (Wieland 2021).

88. Broad inflation developments should be considered in the Governing Council's decisions and their communication. Currently, the HICP is used exclusively and equated with inflation in general. In order to take other measures of inflation into account in strategy and communication, it is not necessary to abandon the definition of the target using the consumer price index. The vagueness of the current numerical target, or an explicit target zone, is sufficient

to include the evolution of other measures of inflation in communications. This allows to distinguish a situation in which the HICP weakens but other measures increase, as in recent years, from other situations in which all relevant inflation measures tend in the same direction.

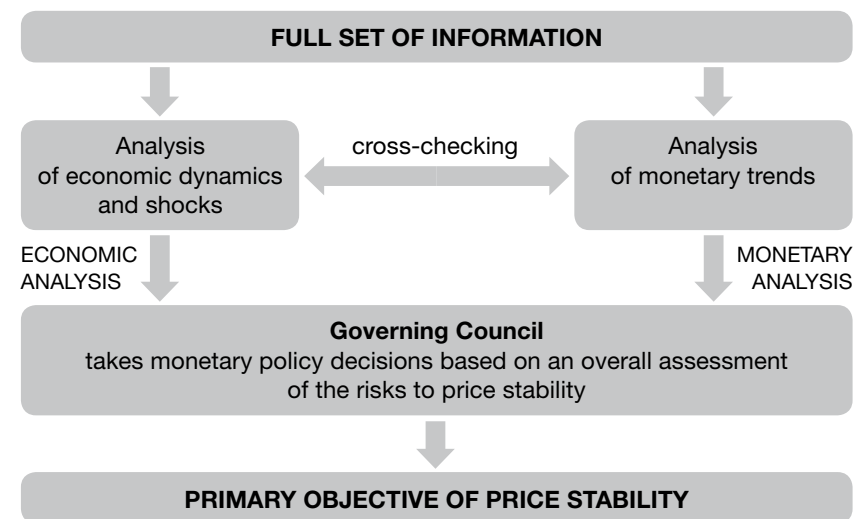
89. Furthermore, it would be important to give greater weight to the information and strategic elements in the strategy that point to increased financial stability risks, excessive lending and asset price developments. The monetary pillar of the ECB's two-pillar strategy is very well suited for this purpose. This is because the increase in the money supply is closely linked to credit supply developments and provides timely information.

90. Since 1998, the ECB has attached importance to monetary and credit developments under the monetary pillar of the strategy. In this context, the Governing Council examines whether the trend in money growth indicates risks to price stability over the medium and longer term. This serves to cross-check an inflation forecast based on the cyclical analysis. From the commercial banks' perspective, loans are the balance sheet counterpart of deposits, which are part of the broader monetary aggregates. For this reason, it is not surprising that money supply and bank loans show similar developments. Interestingly, it was directly apparent that their growth rates increased significantly from 2004 onward. Towards the end of 2005, the ECB then justified its turnaround in interest rates with signals from the monetary pillar (Trichet 2008).³

91. However, the monetary pillar has been increasingly relegated to the background in the ECB's communication for years. The reference value for the money growth rate (M3) has been dropped. From today's perspective, it should be noted that in the years before the financial crisis, money growth provided clear warning signals regarding excessive lending. In the years since the financial crisis, money growth has been much more moderate. This explains the observation that, despite the large balance sheet expansion in the years following the financial crisis, a sharp increase in the inflation rate failed to materialize. However, developments in the wake of the coronavirus crisis point in a different direction. The growth rate of the money supply has risen sharply

³ Beck and Wieland (2007, 2008) have developed a formal characterization which allows to integrate cross-checking into interest rate rules and to analyze its effect in macroeconomic models. A practical application yields a significant swing for the first time in mid-2004.

Figure 11: Two-pillar strategy of the ECB



Quelle: ECB.

and has been around ten percent since the second quarter of 2020, a level last reached just before the financial crisis (Figure 3). In contrast to the development before the financial crisis, the increase in money growth this time is related in particular to a strong increase in public sector credit. If this high money growth continues, it will give rise to risks of higher inflation or even stagflation in the medium term.

92. In any case, the transparency of monetary policy should be improved. This would be helped by a consistent Governing Council forecast instead of a mere ECB staff forecast. Alternatively, if this is too difficult, at least a regular survey of Council members on their own expectations for inflation, growth, unemployment and interest rates should be published (similar to the Fed's FOMC survey). Similarly, a forecast of the development of the balance sheet should be provided and a strategy for their reduction and normalization over the longer term should be published to counter any impression of

lasting monetary financing of government functions. The ECB should incorporate simple interest rate rules more fully into its communications to enhance policy predictability and credibility. Voting results of meetings should be announced regularly with the decision. Transcripts of meetings should be published with a few years' lag (five years in the U.S.). In this way, the assessment of the proportionality of the Governing Council's decisions could also be documented in a comprehensible manner.

5.3 The use of instruments: effectiveness and side effects

93. For decades leading up to the financial crisis, the monetary policy debate in the US and Europe was focused exclusively on interest rate policy. Then, in 2009, the central bank rate was lowered to near zero in the U.S. and not raised again until December 2015. In the euro area, the central bank rate was lowered later, first to zero percent and then to -0.5 percent. Central banks assume an effective lower bound on the nominal interest rate because savers can move into cash that earns a nominal interest rate of zero. For this reason, quantitative easing measures, in particular large-scale asset purchases, have been undertaken for many years now. They have an effect on economic development by reducing risk and term premia. In this way, an increase in bond and other asset prices as well as a devaluation of the currency can be achieved. In crisis situations, when risk premia are particularly high and asset prices come under pressure, asset purchases by the central bank are likely to have strong effects, even if the central bank interest rate is simultaneously restricted by a lower bound. In a phase of good growth and positive inflation rates, such as in the years 2015 to 2019, the effect is likely to be much smaller.

94. In the euro area, a monetary union of fiscally largely sovereign member states, however, government bond purchases are to be judged differently than in a federal state with a federal government like the United States. In the euro area, the Eurosystem has now become the most important creditor of the member states. This implies a mutual dependence between the ECB and the member states. If the ECB had to tighten monetary policy due to monetary policy considerations, some states might run into problems, especially those that would have to reckon with a sharp increase in financing costs due to a high level of debt.

95. There is a risk that corresponding pressure will build up on the central bank, which could ultimately lead to fiscal dominance. Therefore, government bond purchases in the euro area should remain a tool for crisis situations, such as deep recessions and the risk of deflation. The ECB should avoid an increase in issuance above the self-imposed limit of 33 percent. In the event of a crisis, it must be possible to restructure government debt in an orderly manner. A veto by the ECB, due to the prohibition of monetary financing, would be able to circumvent the introduced collective action clauses at a share of 33 percent and avoid a debt cut.

96. In contrast to the Fed, the ECB offered more longer-term refinancing operations from the beginning of the financial crisis. This instrument has been used intensively over the years, with multi-year, targeted and fixed-rate refinancing operations. In principle, the development of further instruments is to be welcomed. In the more bank-based financial system of the euro area, they are very useful. However, attention should be paid to ensuring normalization when macroeconomic developments have normalized. The central bank should not increasingly take maturity transformation risks away from the banks. Moreover, the central bank's very limited abilities to restrict the supply of additional liquidity to individual sectors of the economy should be assessed realistically.

97. It is often asked what remaining options there are for the ECB in a deep recession and deflation. Currently, the euro area is experiencing such a deep recession. The ECB has greatly expanded its asset purchases and introduced an interest rate of up to -1 percent for TLTROs. Still, the ECB has several possible options. For example, it could offer banks further long-term refinancing operations at even more generous conditions. It could increase its purchases of securities other than government bonds, such as corporate bonds and equities. In a crisis, such purchases would be particularly effective, as risk premia would be high and asset prices low. However, the ECB would then be exposed to greater risks on its balance sheet and would have to take appropriate precautions, such as increasing its provisions.

98. In the longer term, it would also be likely that the instrument of negative interest rates would be used to a greater extent. Generally, negative nominal interest rates should remain an instrument for severe crises. Prolonged periods of negative interest rates, as well as negative yields on long-term government bonds, entail several substantial risks for the financial system. Countries

may rely too heavily on them and take on too much debt. The situation is similar for the private sector. In particular, strong interest rate risks are building up in the banking system. Currently, this is already a reality in the euro area. However, lower negative interest rates in the short term could reduce the duration of such phases. This would only become feasible, should the use of digital means of payment progress even further and should cash holding decline. A digital central bank currency could contribute to this. However, its introduction would have to be very well examined, as it would likely result in a sharp decline in deposits in the banking system. Private-public partnerships could help, for example, by making central bank currency available via banks.

99. The so-called "yield curve control", i.e. the explicit control of the yield curve, is to be viewed critically. If expansionary monetary policy is to be successful, longer-term interest rates must ultimately be able to rise due to higher inflation expectations. Therefore, the central bank should not directly control the yield curve. A flat yield curve is a problem for banks as well, whose profitability probably suffers far more from it than from short-term negative interest rates.

100. Finally, direct monetary transfers from the central bank to households – so-called "helicopter money" (see, among others, Bartsch, Boivin, Fischer, Hildebrand 2019) – should be rejected. Such transfers would be a purely fiscal policy measure and would diametrically contradict the prohibition of monetary financing. In addition, similar effects on consumption behavior may already be induced by the quantitative easing implemented so far. This would be the case, for instance, if member states expanded their debt issuance as a result of central bank bond purchases and thus financed a broad-based increase in transfers to households.

VI Conclusions

The main findings of this study can be summarized as follows:

1. The hierarchical mandate of the ECB giving priority to price stability has proven its worth. The high degree of independence of the official body, the Governing Council, requires a narrowly defined mandate and the possibility of judicial review. The subordinate task of supporting the general economic policy and objectives of the EU is not to be understood as a mandate for an independent economic policy, but as a duty to consider the side effects of monetary policy.
2. The intended separation of monetary and fiscal policy as well as the prohibition of monetary government financing should be respected. The ECB cannot solve all the problems of the member states. Fiscal dominance of monetary policy must be avoided. Therefore, the ECB must explain how it intends to reduce the high government bond holdings on its balance sheet in the longer term.
3. It is clear that the ECB considers the effects and side effects of its monetary policy on the business cycle. This is one of the reasons why it has interpreted its mandate as aiming to ensure price stability in the medium term rather than always instantaneously. However, the same applies to financial stability. Here, it is important to avoid that monetary policy contributes to instability and increasing risks for banks and asset price developments.
4. Naturally, among the risks to financial stability to be considered are those arising from climate change or climate policy. However, it is inadvisable to interpret the mandate so broadly as to justify using the central bank's balance sheet to finance and subsidize climate change projects. So-called "green" asset purchases, which could be used to pursue such an additional objective, interfere deeply with the policy domain for which member states are responsible. They already have other appropriate and effective instruments, such as the price on CO₂ emissions.

5. The ECB's monetary policy strategy, which was developed in 1998 and reviewed in 2003, has proved to be quite effective. This applies especially to the definition of the target as an increase in the HICP of below, but close to, two percent increase in the medium term. Raising this target significantly would not be compatible with the price stability mandate.
6. However, it would be advisable for the Governing Council's statements to consider not only the HICP but also other measures of inflation. These include the development of prices for goods and services produced in the euro area. The HICP is more dependent on import prices, which have repeatedly fallen sharply in recent years. In addition, the HICP covers housing costs inadequately. The cost of newly built, owner-occupied housing has risen sharply since 2015.
7. The monetary pillar of the ECB's strategy is useful not only for assessing longer-term inflation trends but also risks to financial stability from excessive credit growth. The ECB should by no means abandon it, as is occasionally advocated. On the contrary, it should base itself more strongly on quantitative benchmarks. This also includes interest rate rules, such as the Taylor rule, which clearly indicated problematic developments before the financial crisis.
8. The transparency of monetary policy can still be significantly improved. For example, a survey of Council members views regarding the development of inflation, growth and the interest rate similar to what the Fed has been providing for years would be useful and easy to implement. Likewise, a forecast of the development of the balance sheet should be issued and a strategy for its normalization in the longer term should be published.
9. Securities purchases are a standard instrument of monetary policy and particularly important when nominal interest rates are close to or already below zero percent. However, in a monetary union with fiscally largely sovereign member states government bond purchases need to be assessed differently than in the United States. The central banks of the Eurosystem are now the largest creditors of the member states. There is a risk of fiscal dominance. Therefore, government bond purchases should remain a means for crisis situations.
10. With its longer-term refinancing operations and purchases of other private securities, the ECB's toolbox contains additional instruments that can be used when it is not desirable or possible to further reduce the key interest rate. However, direct monetary transfers from the central bank to households, so-called helicopter money, should be rejected. This is fiscal policy and contradicts the prohibition of monetary financing.

Bibliography

Altavilla, C., Carboni, G. and R. Motto (2015), Asset purchase programmes and financial markets: Lessons from the euro area, Working Paper 1864, European Central Bank, Frankfurt am Main.

Ahrend, R. (2010), Monetary ease: A factor behind financial crises? Some evidence from OECD countries, *Economics E-Journal* 4 (2010-12).

Andrade, P., Breckenfelder, J., De Fiore, F., Karadi, P. and O. Tristani (2016), The ECB's asset purchase programme: An early assessment, Working Paper 1956, European Central Bank, Frankfurt am Main.

Bartsch, E., Boivin, J., Fischer, S. and P. Hildebrand (2019), Dealing with the next downturn: From unconventional monetary policy to unprecedented policy coordination, BlackRock Investment Institute.

Bernanke, B. (2002), Deflation: Making sure "it" doesn't happen here, Remarks by Governor Ben S. Bernanke before the National Economists Club, Washington, D.C., November 21.

Bernanke, B. (2010), Central bank independence, transparency, and accountability, Speech, Tokyo, May 26.

Bernanke, B. (2015), Monetary policy and inequality, Speech, Brookings Institution, June 1.

Beck, G. and V. Wieland (2008), Central bank misperceptions and the role of money in interest rate rules, *Journal of Monetary Economics*, 55 (Supplement), 1–17.

Beyer, R.C.M. and V. Wieland (2019), Instability, imprecision and inconsistent use of equilibrium real interest rate estimates, *Journal of International Money and Finance* 94, 1–14.

Board of Governors of the Federal Reserve System (2019), Monetary Policy Report – July 2019.

Bordo, M.D. and J.S. Landon-Lane (2012), The global financial crisis: Is it unprecedented?, in: M. Obstfeld, D. Cho and A. Mason (Eds.), *Global economic crisis: Impacts, transmission and recovery*, Edward Elgar Publishing, 19–56.

Borio, C. and W. White (2003), Whither monetary and financial stability? The implications of evolving policy regimes, in: *Monetary policy and uncertainty: adapting to a changing economy*, proceedings of the Jackson Hole Symposium, Federal Reserve Bank of Kansas City, 28-30 August 2003.

Clouse, J., Henderson, D., Orphanides, A., Small, D. and P. Tinsley (2000), Monetary policy when the nominal short-term interest rate is zero, *Finance and Economics Discussion Series 2000-51*, Board of Governors of the Federal Reserve System (U.S.).

Cochrane, J.H., Taylor, J.B. and V. Wieland (2019), Evaluating rules in the Fed's report and measuring discretion, in: J.H. Cochrane and J.B. Taylor (Eds.), *Strategies for monetary policy*, Hoover Institution Press.

Colciago, A., Samarina, A. and J. de Haan (2019), Central bank policies and income and wealth inequality: A survey, *Journal of Economic Surveys*, 33 (4), 1199–2131.

Eichenbaum, M.S., Rebelo, S. and M. Trabandt (2020), Epidemics in the neoclassical and new keynesian models, NBER Working Papers 27430, National Bureau of Economic Research.

Federal Constitutional Court (2020), ECB decisions on the Public Sector Purchase Programme exceed EU competences, Press Release No. 32/2020 of 5. Mai 2020.

Feld, L.P. and V. Wieland (2020), The German Federal Constitutional Court ruling and the European Central Bank strategy, CEPR Discussion Paper 15320, Center for Economic Policy Research.

German Council of Economic Experts (GCEE) (2017), Towards a forward-looking economic policy, Annual Report 2017/18, Wiesbaden.

German Council of Economic Experts (GCEE) (2019), Dealing with structural change, Annual Report 2019/20, Wiesbaden.

German Council of Economic Experts (GCEE) (2020), Overcoming the coronavirus crisis together; Strengthening resilience and growth, Annual Report 2020/21, Wiesbaden.

Gertler, M. (2003), Commentary: Whither monetary and financial stability? The implications of evolving policy regimes, in: *Monetary policy and uncertainty: Adapting to a changing economy*, proceedings of the Jackson Hole Symposium, Federal Reserve Bank of Kansas City, 28-30 August 2003.

Greenspan, A. (2003), Remarks in general discussion: Whither monetary and financial stability? The implications of evolving policy regimes, in: *Monetary policy and uncertainty: adapting to a changing economy*, proceedings of the Jackson Hole Symposium, Federal Reserve Bank of Kansas City, 28-30 August 2003.

Goodhart, C. and M. Pradhan (2020), *The great demographic reversal: Ageing societies, waning inequality, and an inflation revival*, Macmillan Publishers.

Holston, K., Laubach, T. and J.C. Williams (2017), Measuring the natural rate of interest: international trends and determinants, *Journal of International Economics* 108 (Supplement 1) 59–75.

Hutchinson, J. and S. Mee (2020), The impact of the ECB's monetary policy measures taken in response to the COVID-19 crisis, *ECB Economic Bulletin* 5.

Issing, O. (2019), *Stabiles Geld – eine Illusion?*, Beiträge zu Ordnungstheorie und -politik, No. 180, Mohr Siebeck.

Issing, O. and V. Wieland (2013), Monetary theory and monetary policy: Reflections on the development over the last 150 years, *Journal of Economics and Statistics* 233 (3), 423–445.

Kahn, G.A. (2010), Taylor rule deviations and financial imbalances, *Economic Review*, 95 (Q II), 63–99.

Kapetanios, G., Mumtaz, H., Stevens, I. and K. Theodoridis (2012), Assessing the economy-wide effects of quantitative easing, *The Economic Journal* 122 (564), F316–F347.

Kronberger Kreis (2011), Systemstabilität für die Finanzmärkte, *Kronberger Kreis Studies*, No. 53, Stiftung Marktwirtschaft, Berlin.

Kronberger Kreis (2012), Wie viel Koordinierung braucht Europa? *Kronberger Kreis Studies*, No. 55, Stiftung Marktwirtschaft, Berlin.

Kronberger Kreis (2014), Europäische Bankenunion: Vom Prinzip Hoffnung zum Prinzip Haftung, *Kronberger Kreis Studies*, No. 59, Stiftung Marktwirtschaft, Berlin.

Kronberger Kreis (2016), Dismantling the boundaries of the ECB's monetary policy mandate, *Kronberger Kreis Studies*, No. 61, Stiftung Marktwirtschaft, Berlin.

Laubach, T. and J.C. Williams (2015), Measuring the natural rate of interest redux, *Federal Reserve Bank of San Francisco Working Paper* 2015-16.

Nöh, L., Rutkowski, F. and M. Schwarz (2020), Auswirkungen einer CO₂-Bepreisung auf die Verbraucherpreisinflation, *Working Paper* 03/2020, German Council of Economic Experts.

Orphanides, A. (2020), Monetary policy strategy and its communication. In: *Federal Reserve Bank of Kansas City Economic Policy Symposium Proceedings, Navigating the decade ahead: Implications for monetary policy*.

Orphanides, A. and V. Wieland (2013), Complexity and monetary policy, *International Journal of Central Banking* 9 (1), 167–204.

Orphanides, A. and V. Wieland (2000a), Efficient monetary policy design near price stability, *Journal of the Japanese and International Economies*, 14 (4), 327–365.

Orphanides, A. and V. Wieland (2000b), Inflation zone targeting, *European Economic Review*, 44 (7), 1351–1387.

Orphanides, A. and V. Wieland (1998), Price stability and monetary policy effectiveness when nominal interest rates are bounded at zero, *FEDS Working Papers 1998-35*, Washington, D.C.

Rajan, R.G. (2005), Has financial development made the world riskier? in: *The Green-span era: Lessons for the future*, proceedings of the Jackson Hole Symposium, Federal Reserve Bank of Kansas City, 313–369.

Reifschneider D.L. and J.C. Williams (2000), Three lessons for monetary policy in a low-inflation era, *Conference Series (Proceedings)*, Federal Reserve Bank of Boston, 936–978.

Shiller, R. (2000), *Irrational exuberance*, Princeton University Press.

Smets, F. and M. Jarociński (2008), House prices and the stance of monetary policy, *Federal Reserve Bank of St. Louis Review* 90 (4), 339–65.

Taylor, J.B. (1993), Discretion versus policy rules in practice, *Carnegie-Rochester Conference Series on Public Policy* 39, 195–214.

Taylor, J.B. (2007), Housing and monetary policy, in: *Housing, housing finance, and monetary policy*, proceedings of the Jackson Hole Symposium, Federal Reserve Bank of Kansas City.

Taylor, J.B. (2021), Simple monetary rules: Many strengths and few weaknesses, *European Journal of Law and Economics*, forthcoming.

Trichet, J.-C. (2008), Interview with Jean-Clause Trichet, President of the ECB conducted on July 11, 2008 by Jean Pierre Robin (*Le Figaro*), Benedikt Fehr (*Frankfurter Allgemeine Zeitung*), Paul Tansey (*Irish Times*) and Rui Jorge (*Jornal de Negcios*), published 18 July 2008.

Wieland, V. (2021), The decline in euro area inflation and the choice of policy strategy, *Sintra Conference 2020*, European Central Bank, forthcoming.

Kronberger Kreis Studies

- 67 Die geldpolitische Strategie der EZB: Was geändert werden sollte und was nicht (2021) *also in English*
- 66 Kein Rückzug in die Festung Europa! (2020) *also in English*
- 65 Unternehmensbesteuerung unter Wettbewerbsdruck (2018)
- 64 Weckruf für die deutsche Wirtschaftspolitik (2017)
- 63 Neue Diskriminierungsverbote für die digitale Welt? (2017)
- 62 Für eine echte Reform der Bund-Länder-Finanzbeziehungen (2016)
- 61 Das entgrenzte Mandat der EZB – Das OMT-Urteil des EuGH und seine Folgen (2016) *auch auf Englisch*
- 60 Erbschaftsteuer: Neu ordnen statt nachbessern (2015)
- 59 Europäische Bankenunion: Vom Prinzip Hoffnung zum Prinzip Haftung (2014)
- 58 Neustart in der Energiepolitik jetzt! (2014)
- 57 Renaissance der Angebotspolitik (2013)
- 56 Bildungsfinanzierung neu gestalten (2013)
- 55 Wie viel Koordinierung braucht Europa? (2012)
- 54 Reform der Geldbußen im Kartellrecht überfällig (2012) *also in English*
- 53 Systemstabilität für die Finanzmärkte (2011)
- 52 Öffentliche Finanzen dauerhaft sanieren – in Deutschland und Europa (2010)
- 51 Mehr Mut zum Neuanfang (2010)
- 50 Beschäftigung gering qualifizierter Arbeitsloser (2009)
- 49 Für einen wirksamen Klimaschutz (2009)
- 48 Staatsfonds: Muss Deutschland sich schützen? (2008)
- 47 Unternehmensmitbestimmung ohne Zwang (2007)
- 46 Erbschaftsteuer: Behutsam anpassen (2007)
- 45 Dienstleistungsmärkte in Europa weiter öffnen (2007)
- 44 Den Subventionsabbau umfassend voranbringen (2006)
- 43 Den Stabilitäts- und Wachstumspakt härten (2005)
- 42 Tragfähige Pflegeversicherung (2005)
- 41 Flexibler Kündigungsschutz am Arbeitsmarkt (2004)
- 40 Gute Gemeindesteuern (2003)
- 39 Mehr Eigenverantwortung und Wettbewerb im Gesundheitswesen (2002)
- 38 Privatisierung von Landesbanken und Sparkassen (2001)
- 37 Abgeltungssteuer bei Kapitaleinkommen (2000)
- 36 Die föderative Ordnung in Not – Zur Reform des Finanzausgleichs (2000)
- 35 Arbeitszeiten und soziale Sicherung flexibler gestalten (1999)

34	Die Aufgaben – Wirtschaftspolitische Orientierung für die kommenden Jahre (1998)
33	Osterweiterung der Europäischen Union (1998) <i>also in English</i>
32	Globalisierter Wettbewerb (1998)
31	Sozialunion für Europa? (1996) <i>also in English</i> (1997)
30	Steuerreform für Arbeitsplätze und Umwelt (1996)
29	Einwanderungspolitik – Möglichkeiten und Grenzen (1994)
28	Mehr Langfristdenken in Gesellschaft und Politik (1994)
27	Zur Reform der Hochschulen (1993)
26	Privatisierung auch im Westen (1993)
25	Einheit und Vielfalt in Europa – Für weniger Harmonisierung und Zentralisierung (1992) <i>also in English and French</i>
24	Zur Wirtschaftsreform in Osteuropa (1992)
23	Reform der öffentlichen Verwaltung (1991)
22	Wirtschaftspolitik für das geeinte Deutschland (1990)
21	Soziale Marktwirtschaft in der DDR – Reform der Wohnungswirtschaft (1990)
20	Soziale Marktwirtschaft in der DDR – Währungsordnung und Investitionsbedingungen (1990)
19	Mehr Markt in Hörfunk und Fernsehen (1989)
18	Reform der Unternehmensbesteuerung (1989)
17	Mehr Markt in der Energiewirtschaft (1988)
16	Das soziale Netz reißt (1988)
15	Mehr Markt in der Telekommunikation (1987)
14	Reform der Alterssicherung (1987)
13	Mehr Markt im Gesundheitswesen (1987)
12	Mehr Mut zum Markt – Konkrete Problemlösungen (1986)
11	Bürgersteuer – Entwurf einer Neuordnung von direkten Steuern und Sozialleistungen (1986)
10	Mehr Markt im Arbeitsrecht (1986)
9	Mehr Markt für den Mittelstand (1985)
8	Für eine Neue Agrarordnung – Kurskorrektur für Europas Agrarpolitik (1984)
7	Mehr Markt in der Wohnungswirtschaft (1984)
6	Die Wende – Eine Bestandsaufnahme der deutschen Wirtschaftspolitik (1984)
5	Arbeitslosigkeit – Woher sie kommt und wie man sie beheben kann (1984)
4	Mehr Markt im Verkehr (1984)
3	Mehr Beteiligungskapital (1983)
2	Vorschläge zu einer „Kleinen Steuerreform“ (1983)
1	Mehr Mut zum Markt (1983)

Kronberger Kreis Arguments („Argumente zu Marktwirtschaft und Politik“)

153	30 Jahre Wiedervereinigung: Mehr Mut zur Vielfalt (2020)
7	Für eine freie Preisbildung (2015) <i>Positionspapier</i>
106	Lehren der Finanzmarktkrise (2009)
104	Irrwege in der Sozialpolitik (2008)
102	Gegen die Neubelebung der Entfernungspauschale (2008)
96	Wider die Aushöhlung der Welthandelsordnung – Für mehr Regeldisziplin (2006)
63	Ökologische Steuerreform: Zu viele Illusionen (1999)
54	Gegen eine Mehrwertsteuererhöhung zur Senkung der Sozialabgaben (1997)
52	Arbeitslosigkeit und Lohnpolitik – Die Tarifautonomie in der Bewährungsprobe (1995)
43	Wirtschaftspolitik im geeinten Deutschland: Der Kronberger Kreis zu Kernfragen der Integration (1992)
17	Die Reform des Gemeindesteuersystems (1988)
3	§116 Arbeitsförderungsgesetz: Es geht um die Neutralität des Staates (1986)

For more information:
www.kronberger-kreis.de

Members of the Kronberger Kreis



Prof. Dr. Dr. h.c. Lars P. Feld

Spokesman of the Kronberger Kreis, Director of the Walter Eucken Institute, Professor for Economic Policy at the University of Freiburg, former Chairman of the German Council of Economic Experts.



Prof. Dr. Dr. h.c. Clemens Fuest

President of the ifo Institute, Director of the Center for Economic Studies (CES), Professor for Economics at the University of Munich, Member of the Scientific Advisory Council of the German Ministry of Finance.



Prof. Dr. Justus Haucap

Director of the Düsseldorf Institute for Competition Economics (DICE), Professor for Competition Theory and Policy at the University of Düsseldorf, former Chairman of the German Monopolies Commission.



Prof. Dr. Heike Schweitzer, LL.M. (Yale)

Professor for Civil Law, German and European Economic and Competition Law and Economics at the Humboldt University of Berlin, former Special Advisor to the European Commissioner for Competition.



Prof. Volker Wieland, Ph.D.

Director of the Institute for Monetary and Financial Stability, Professor for Monetary Economics at the Goethe University of Frankfurt, Member of the German Council of Economic Experts.



Prof. Dr. Berthold U. Wigger

Professor for Public Finance and Management at the Karlsruhe Institute of Technology (KIT), CESifo Research Network Fellow, Member of the Scientific Advisory Council of the German Ministry of Finance.