

# 04 MONETARY AND FISCAL POLICY IN THE EURO AREA: NORMALISATION AND STABILISATION

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## **A differing opinion**

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## SUMMARY

Inflation in the euro area is approaching the target set by the European Central Bank (ECB). Economic output is above the potential level estimated by the European Commission. Nonetheless, the ECB has continued to expand its monetary policy – as measured by the size of its balance sheet – and only intends to stop by the end of this year. The negative interest rate policy is to remain in place at least through the summer of 2019. It plans to reinvest principal payments from government bonds for an extended period of time to prevent its balance sheet from shrinking. There is a danger that the change of course in monetary policy will come too late. Inflation might rise more quickly, and we could see a further increase in the misallocation of credit, investment and resources and in the risks to financial stability.

The German Council of Economic Experts (GCEE) has already proposed a policy normalisation strategy in its Annual Report 2017/18. It would be beneficial to publish the ECB's Governing Council forecast or a survey of Council members' individual forecasts regarding the expected trajectory of the central bank's interest rates and balance sheet. In addition, a symmetric reaction to macroeconomic developments would be appropriate. It is right for the ECB to end its net asset purchases first and then to raise interest rates. However, it is now time to devise and communicate a procedure for reducing its balance sheet. Shrinking its balance sheet would help to tighten monetary policy and would provide greater scope for dealing with future crises. The high level of excess liquidity would also fall. This would make it possible to return to a corridor regime with low levels of reserves. This should help to stimulate the interbank market and reduce the TARGET2 balances. The expansion of the ECB's balance sheet poses risks and is fuelling demands – not least calls for monetary financing. The prohibition of this financing is crucial to the independence of central banks. Their holdings of government bonds should therefore be reduced.

Private, decentralised cryptocurrencies are competing with the money creation in official currencies. At the moment, however, they perform the basic functions of money only to a very limited extent. Central banks should explore the pros and cons of generally available central bank digital currencies. However, they do not yet need to introduce them.

Monetary policy can only partially stabilise heterogeneous fluctuations in a currency union. However, large member states such as France and Italy have gained greater capability for monetary stabilisation policy relative to the situation prior to monetary union, when their exchange rates were, in effect, unilaterally pegged to the Deutsche Mark. Furthermore, fiscal instruments at member state level can offset the lack of exchange rate flexibility. The intensity of use of these instruments reflects their political preferences. In particular, automatic stabilisers such as unemployment insurance and the tax system can make an effective contribution towards stabilising asymmetric shocks. Transfers between member states – for example in the form of a fiscal capacity at European level – are not necessary for this purpose. Yet, compliance with the Stability and Growth Pact and fiscal consolidation during good times are in every member state's own best interest.

The creation of the European Stability Mechanism (ESM) was the key step towards lending to countries at risk of losing access to the markets. Since then, public risk sharing in the euro area has grown significantly. The conditionality attached to lending by the ESM serves to ensure fiscal sustainability. An additional fiscal capacity – as a kind of insurance in the form of purely temporary transfers – does not increase a member state's borrowing capacity. However, it creates strong moral hazard and adverse incentives that undermine the regulatory framework of monetary union and the sustainability of sovereign debt at member state level.

## I. STABILISING THE EURO AREA

339. Inflation in the euro area increased considerably during the first half of 2018. Since May the growth rate of the overall Harmonised Index of Consumer Prices (HICP) has ranged between 1.9 % and 2.1 % year on year, which is just above the target set by the European Central Bank (ECB). Core inflation, which excludes energy prices, varied between 1.3 % and 1.4 % over the same period. Gross domestic product (GDP) rose by 2.4 % in 2017. Despite a slowdown in the first half of 2018, economic output continues to grow faster than its potential rate. Over the course of 2018 it is likely to exceed the potential rate estimated by the European Commission by about 1 percent. [▶ ITEM 240](#) However, the size of the output gap varies from one member state to another.
340. In order to **stabilise the euro area in a lasting way**, the ECB and the national governments must achieve the transition to a normal monetary policy and a sustainable fiscal policy. The Treaty on the Functioning of the European Union (TFEU) stipulates that the **ECB** must primarily use its monetary policy instruments to control the rate of inflation in the euro area as a whole. The **governments of the member states**, on the other hand, possess fiscal instruments that can be used to stabilise heterogeneous business cycle fluctuations.
341. The ECB faces the challenge of finding a **way out of the crisis mode** of bond purchases and negative interest rates towards a ‘normal’ level of its balance sheet and interest rates. These normal values are uncertain. Previously, a decline in the equilibrium real interest rate has been cited as a reason for keeping monetary policy loose. However, this estimated decline is empirically insignificant. A consistent use of such estimates has indicated for some time a need for tightening monetary policy (GCEE Annual Report 2017 items 330 ff., 355 ff.). The **German Council of Economic Experts (GCEE)** already emphasized the need for a **change of course in monetary policy** one year ago and proposed a strategy for normalising monetary policy (GCEE Annual Report 2017 items 358 ff.).

In June 2018, the **ECB’s Governing Council took a first step** in this direction. Since then, it expects to terminate its net bond purchases at the end of 2018. By then, the Eurosystem’s balance sheet will have reached a total of €4,700 billion. This is €2,700 billion more than at the end of 2014 – almost 25 % of the euro area’s annual GDP. The ECB’s Governing Council plans to reinvest the principal payments from maturing bonds for an extended period of time, which means that the **Eurosystem’s balance sheet will remain at a high level for some time to come**. The Council also expects to leave the central bank’s interest rates unchanged until “at least through the summer of 2019”.

342. The ECB is postponing interest-rate increases and the reduction of its bond holdings for too long. This raises the **risk that the change of course in monetary policy will come too late**. Inflation might rise more quickly than

expected. Increasing capacity overutilisation could lead to misallocation of resources. Interest rates would then have to be raised more rapidly in future. This might undermine the stability of the banking system and trigger a sharp correction of inflated asset prices.

343. Furthermore, the substantial government bond holdings exacerbate the **potential for conflicts** between the ECB's monetary policy and the member states' finances. This threatens the actual independence of the central banks. Because an increase in interest rates would raise the funding costs by highly indebted member states, the political pressure on the ECB not to tighten its monetary policy is also increasing. If the ECB were to give in to this pressure, monetary policy would be subordinated to a regime of **fiscal dominance**. By purchasing government bonds, the national central banks have also exposed themselves to a default risk. This situation has been brought into sharp focus by the costly election promises made by the Italian government's coalition partners as well as by reports concerning a proposal to write down Italian government debt held by Italy's central bank on the order of €250 billion.
344. The common monetary policy can only partially offset **heterogeneous business cycle fluctuations in the member states**. Differences in output gaps and inflation rates would require different monetary policies. The loss of national monetary policy in a currency union therefore means that national **fiscal policies** have to perform an **important stabilising function**. Because discretionary measures only work with a certain delay (Michaelis et al., 2015), automatic stabilisers such as the tax system and unemployment insurance play the main role (Elstner et al., 2016). For fiscal policy to be effective, the sustainability of government debt and public finances needs to be assured. Consolidating public finances helps creating fiscal space for difficult times in the future. The fiscal rules for monetary union are designed to achieve this objective. In addition, structural reforms that improve the flexibility of labour markets and product markets (GCEE Annual Report 2017 item 410; GCEE Annual Report 2015 box 12 and items 334 ff.) help to undergo necessary macroeconomic adjustments without substantial increases in unemployment.
345. There have been various calls for **new fiscal policy instruments** to be created **at European level**. France's president Emmanuel Macron, for example, has renewed previous French demands for a budget and a finance minister at the euro area level. ECB president Mario Draghi has also called for the creation of new fiscal policy capacities and instruments to support stabilisation policies at EU level (Draghi, 2018a). However, analysis by the German Council of Economic Experts shows that national fiscal policy can serve to stabilise asymmetric shocks and largely compensate for the loss of monetary policy geared solely towards national objectives. Moreover, the TARGET2 system compensates for abrupt private capital outflows – such as those during the financial crisis – in the form of public inflows via the central banks. If a member state is at risk of losing market access, the European Stability Mechanism (ESM) can help by providing loans with policy conditionality attached and, where necessary, organizing maturity extensions of outstanding government debt.

346. An **additional transfer mechanism** would be inconsistent with the principle that liability and control should remain on the same level. An insurance-like solution merely permitting temporary transfers that eventually had to be offset would not increase the borrowing capacity and action space of member states with sound public finances. Such a solution would also lack credibility. As **calculations by the GCEE** demonstrate, the sort of **fiscal capacity** proposed by the International Monetary Fund (IMF) would in the past have led to very high net transfers. These could have only have been offset over a very long period of time. Although significant long-term transfers would benefit their recipients, they would probably adversely affect acceptance of monetary union in the countries that pay for net transfers. They also create moral hazard and misguided incentives regarding economic policies pursued by the recipient countries, which can lead to the recipient status to become entrenched.

## II. EXITING FROM EASY MONETARY POLICY

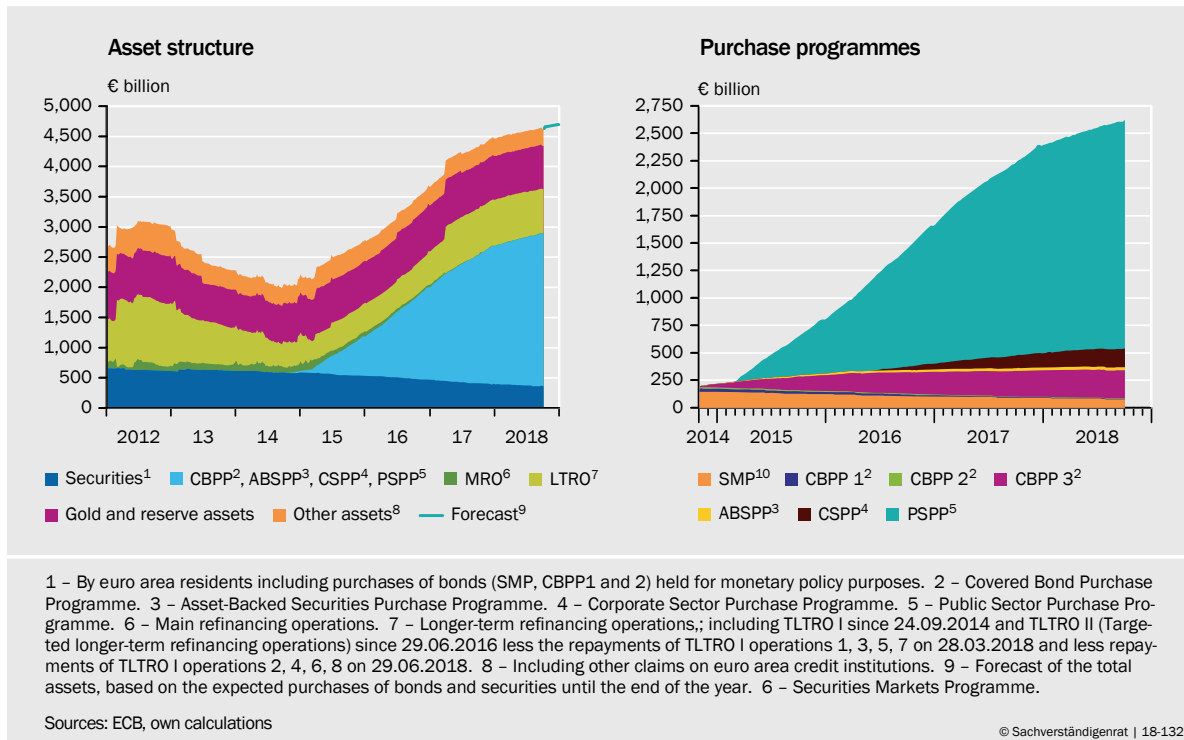
### 1. Monetary policy measures in 2018

347. Over the course of 2018 the ECB has **continued to raise the degree of expansion of monetary policy** – as measured by the size of its balance sheet – and intends to do so until the end of this year. Since January 2018 it has reduced its net asset purchases from €60 billion to €30 billion per month, as announced back in October 2017. In March 2018 it dropped the ‘easing bias’ from its communications. With this asymmetric approach, the ECB had been holding out the prospect of increasing the scale or duration of its bond purchase programme in the event that the economy performed worse than expected.

In June 2018 the ECB Governing Council announced that although it would continue its **net purchases** of €30 billion per month until September, it anticipated reducing these purchases to €15 billion per month from October onwards and then terminating them **at the end of the year**. This information constituted an **expectation** rather than a commitment. The Council reserved the right to amend its decision if the incoming data did not confirm its medium-term inflation outlook. In July, September and October it reaffirmed this expectation and decided in September to make additional purchases of €15 billion per month from October to December.

348. The Eurosystem’s balance sheet is therefore likely to have reached a total of more than €4,700 billion by the end of 2018. This represents roughly 42 % of the euro area’s GDP for 2017. It is approximately 2.2 times the size of its balance sheet at the end of 2014. [↘ CHART 48 LEFT](#) This increase is mostly attributable to additional purchases of government bonds under the Public Sector Purchase Programme (PSPP). [↘ CHART 48 RIGHT](#) The ECB’s Governing Council expects to reinvest principal payments from maturing bonds for an extended period of time. The central bank’s balance sheet would therefore remain very large relative to economic output for some time to come. The **ECB** is thus likely to **continue**

## ↘ CHART 48

**Asset structure and purchase programmes of the euro system**


**to play a very significant role as a buyer of government bonds** and, consequently, to influence medium- and long-term interest rates (GCEE Annual Report 2017 item 357).

349. Back in December 2015 the ECB decided to reinvest principal payments from bonds purchased under the PSPP and to do so “for an extended period of time and, in any case, for as long as necessary”. The first principal payments accrued as early as March 2017. It is estimated that **reinvestments** in the first half of 2019 could reach roughly €90 billion (Danske Bank, 2018). More than 6 % of the bonds purchased under the PSPP are expected to mature in 2019. This would amount to reinvestments of approximately €132 billion (Generali Investment, 2018). Reinvestments of a similar volume are expected for 2020 (UniCredit Research, 2017). Any change in the average maturity would have additional effects. If the ECB were to buy more longer-term bonds, this would place greater pressure on the longer end of the yield curve.
350. The ECB Governing Council also stated in June 2018 that it expected to **keep the key ECB interest rates unchanged at least through the summer of 2019** and, in any case, for as long as necessary to ensure that the level of inflation remained aligned with its current expectations of a sustained adjustment path. Consequently, the main refinancing operations rate will remain at 0.0 % for some time while the deposit facility rate will stay at -0.4 %. The latter rate determines the level of interest rates in the market under the ECB’s full-allotment policy and in view of banks’ reluctance to lend to each other.
351. More detailed information on the ECB Governing Council’s expectations is generally to be welcomed because it improves the transparency and effectiveness

of monetary policy (GCEE Annual Report 2013 items 185 ff.). The signal given by this enhanced forward guidance is likely to significantly influence the level of medium-term interest rates irrespective of the anticipated end to net purchases of bonds (GCEE Annual Report 2017 items 350 ff.; GCEE Annual Report 2016 items 388 ff.). The ECB's communication in June therefore implies a **further expansionary move of monetary policy**. The ECB's Governing Council reaffirmed its policy rate outlook in July, September and October.

## 2. The need to normalise monetary policy

352. In June 2018 the ECB's Governing Council noted that **substantial progress** had been made **towards a sustained adjustment in the rate of inflation**. This was its justification for announcing that net purchases of bonds could be terminated at the end of 2018. Nonetheless, it believes that its highly expansionary monetary policy needs to continue in order to ensure that the rate of inflation remains close to but below 2 %. It reiterated this assessment at its meetings in July, September and October.
353. In its Annual Report 2017/18 the **GCEE** already proposed a concrete **strategy for normalising monetary policy** (GCEE Annual Report 2017 items 381 ff.). This strategy included
- (i) expanding forward guidance into a forecast by the ECB's Governing Council,
  - (ii) first ending net bond purchases, then raising interest rates and reducing the balance sheet,
  - (iii) reacting symmetrically and proportionally to macroeconomic developments during the normalisation phase, and
  - (iv) avoiding fiscal and financial dominance.

### Expanding forward guidance to an ECB Governing Council forecast

354. Although the ECB's new, enhanced **forward guidance** provides additional information on its interest-rate expectations, it has not fundamentally changed the way in which it communicates. The **ECB's Governing Council does not publish its own forecast for the central bank's interest rates and balance sheet**. Another practical alternative – as practised by the Federal Reserve, the US central bank – would be to conduct and publish a survey of Council members' own forecasts for inflation, growth and interest rates (GCEE Annual Report 2017 item 392).
355. What's more, the ECB Governing Council – unlike many other central banks – does **not publish its own quantitative inflation forecast**. Although it discusses forecasts produced by the Eurosystem's staff, it does not make them its own forecast. In June 2018 the **Eurosystem's staff** predicted annual HICP growth rates of 1.7 % for each of the years 2018, 2019 and 2020. In June 2017 their forecasts for 2018 and 2019 had been only 1.3 % and 1.6 % respectively.

The constant rate for the overall index conceals a **rise in the annual rate for the overall index excluding energy prices** of 1.3 %, 1.7 % and 1.9 % for 2018, 2019 and 2020 respectively.

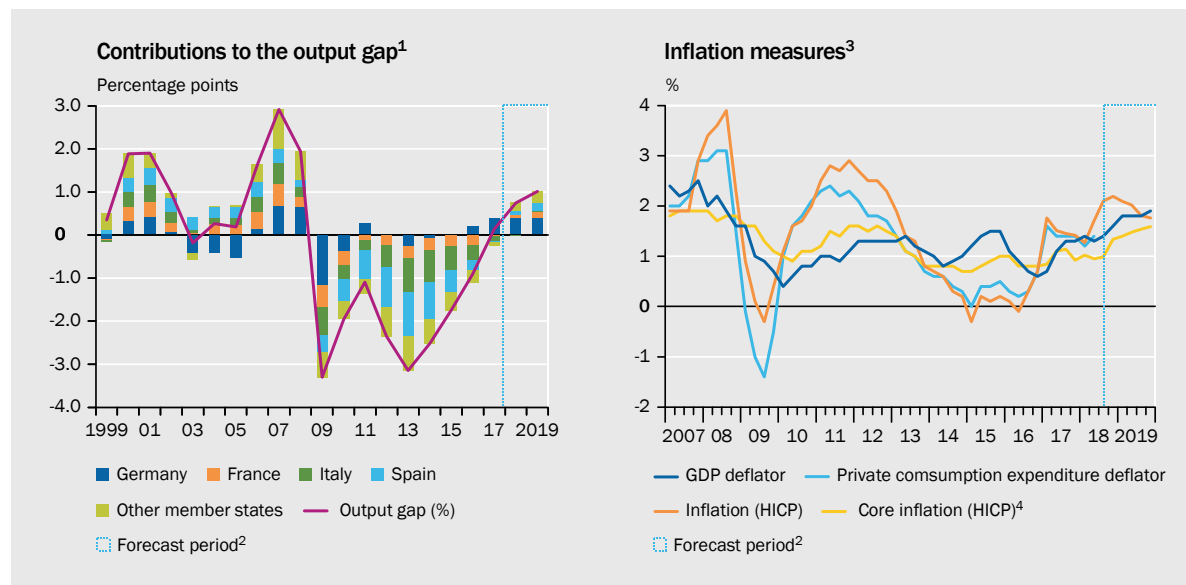
Owing to **expectations** for oil price futures, the forecast assumes that **energy price inflation will decline**. If this decrease does not materialise – as, according to ECB staff, other forecasting methods suggest – then consumer price inflation is likely to be higher. The ECB does not publish forecasts for other commonly used inflation measures, such as the GDP deflator or the consumption deflator. In September 2018 the staff produced an unchanged forecast for the overall index. It slightly reduced its outlook for the HICP excluding energy prices to 1.6 % for 2019 and 1.8 % for 2020.

356. In June the ECB’s experts predicted that **GDP growth** would slow down slightly from 2.1 % in 2018 to 1.9 % in 2019 and 1.7 % in 2020. In September 2018 they predicted a marginally lower growth trajectory of 2.0 %, 1.8 % and 1.7 %. This is still an improvement on the previous year. In June 2017 the staff projected 1.8 % for 2018 and 1.7 % for 2019. It does not publish an estimate for potential growth. The European Commission estimates it to be 1.5 %. We can therefore expect to see a further **three years of above-potential growth**. Economic output would thus rise well above its potential. [↘ CHART 49 LEFT](#) Positive output gaps help to push up inflation, which means that **inflation** might turn out to be **higher than expected**.

357. The **forecast** produced by the Eurosystem’s staff is predicated on assumptions about **interest rates** derived from the yield curve. It is not possible to check whether the staff’s forecast is consistent with the interest-rate path expected by the ECB’s Governing Council. In the case of the Federal Reserve, on the other hand, the interest-rate path resulting from surveys of the members of the

↘ CHART 49

Output gap and inflation measures in the euro area



1 – Real GDP minus potential output in relation to potential output. 2 – Forecast of the GCEE. 3 – Change in the relevant index on previous year. 4 – Excluding energy, food, alcohol and tobacco. 5 – Forecast of the ECB.

Sources: ECB, European Commission, Eurostat, own calculations

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Federal Open Market Committee (FOMC) can be compared with the expectations contained in the yield curve. This is an argument for conducting **surveys of ECB Council members**. Furthermore, it would be good to produce a consistent forecast using an **interest-rate rule** that reflects the decisions taken by the ECB's Governing Council reasonably well.

358. It is also questionable whether the yield curve is consistent with the ECB staff's inflation and growth forecasts. This is because if inflation corresponds to the target and if growth corresponds to potential growth, then the interest rate should be converging towards the nominal equilibrium interest rate, which is roughly the sum of the inflation target and potential growth. The anticipated future short-term interest rates derived from the yield curve by ECB staff are converging towards a level of 1.5 %. With inflation close to 2 %, this constitutes a real equilibrium interest rate of -0.5 %. Assuming potential growth of 1.5 %, as estimated by the Commission, however, we would expect to see a positive equilibrium interest rate closer to this rate of potential growth. This would pose a **significant risk of interest rates rising faster** towards a higher equilibrium rate.

### Sequence of normalisation measures

359. As far as the sequence of normalisation measures is concerned, the ECB's strategy – as stated back in April 2017 – is **first to end its net bond purchases and then to raise its interest rates**. This is consistent with the sequence proposed by the GCEE. If instead the ECB were to start by abolishing the negative deposit facility rate, this would have an impact along the entire yield curve. Once the net purchases of bonds are ended, however, the supply and demand generated by market participants will again play a greater role in price formation. Medium- and longer-term yields will then more accurately reflect the market's assessment of risk. If medium- and longer-term interest rates on new loans start to rise again, this will also reduce the interest-rate risk on banks' balance sheets (GCEE Annual Report 2017 items 384 f.).

To date, however, the ECB has not indicated that it intends to **return its bond holdings to the original level**, nor has it set a timetable for reducing its reinvestments. This should soon be **specified within a normalisation strategy**. Moreover, the ECB runs the risk of reacting too slowly and too late because it continues its low-interest-rate policy and quantitative easing for too long.

### Symmetric reaction and timely normalisation

360. As capacity utilisation in the economy has increased, disinflationary pressures have disappeared in recent years without the ECB having adjusted its policies accordingly. Instead, its policy follows an **asymmetric lower-for-longer strategy** that is designed to counter deflationary risks (GCEE Annual Report 2014 item 252; GCEE Annual Report 2017 items 351 ff.; Evans et al., 2016; Bletzinger and Wieland, 2017). The capacity overutilisation now arising in the euro area is adding upward pressure to inflation.

The normalisation strategy devised by the **GCEE** includes a **symmetric reaction to macroeconomic developments** (GCEE Annual Report 2017 items 358 ff.). A comparison of staff forecasts from June 2017 and June 2018 reveals significant upward revisions of inflation and economic growth forecasts for 2018 and 2019. A **symmetric strategy** would have responded to higher-than-expected inflation and economic growth rates by tightening monetary policy more than expected. The ECB could have cited this as a reason for **reducing and ending its bond purchases sooner**.

361. The ECB Governing Council has not provided its own assessment of the normal level of its balance sheet and interest rates to be expected over the longer term. These values are uncertain. ECB president Draghi has cited a decline of the equilibrium interest rate as an argument for continuing monetary policy easing (Draghi, 2016). However, this estimated decline is empirically insignificant. An analysis that takes into account the estimate of potential output that is consistent with the particular estimate of the equilibrium interest rate has for some time now indicated a need for tightening monetary policy (GCEE Annual Report 2017 items 330 ff., 355 ff.) In 2017 the **GCEE** therefore considered that a **change of course in monetary policy** is called for. If it turns out that the equilibrium interest rate has not declined, this would make the route back to normal interest-rate levels longer and would further increase the risk of tightening monetary policy too late.

### Risks of normalising policy too late

362. Indicators for decision-making such as forecasts or actual realizations of inflation and economic growth are often translated into interest-rate prescriptions with the help of **interest-rate rules**. These can factor in the equilibrium interest rate and the economic potential. The Federal Reserve, for example, now regularly publishes the prescriptions of several interest-rate rules (Federal Reserve, 2018). **Fed chairman Jerome Powell**, speaking during his recent congressional testimony, described them as helpful (Powell, 2018). These rules include two variants of the Taylor rule (Taylor, 1993), a change rule, and a rule targeting the price level rather than the rate of inflation.
363. In recent years, the **GCEE** has referred to an **application of the Taylor rule** to the euro area as well as to a **change rule** (GCEE Annual Report 2017 items 355 ff.; GCEE Annual Report 2016 items 410 ff.; Orphanides and Wieland, 2013). A Taylor rule based on core inflation, an output gap with potential output estimated by the European Commission, and a real equilibrium interest rate of 2 % would currently recommend a key policy rate of 3 %. [↪ CHART 55 PAGE 202](#) Lower estimates of medium-term equilibrium interest rates and output gaps put the Taylor interest rate closer to 2 %. This reference value underlines the risk of tightening monetary policy too late.

The change rule based on inflation and growth forecasts from the Survey of Professional Forecasters, which matches ECB decisions from 1998 to 2013 quite well, would have argued against the continued quantitative easing since 2015 (GCEE Annual Report 2016 item 417; Bletzinger and Wieland, 2017). In the first

half of 2018 it prescribed raising the policy rates. Thus, there is a significant **risk that the change of course in the ECB's monetary policy will come too late.**

364. As long as nominal central bank rates remain constant and the ECB's substantial balance sheet remains unchanged, the current increase in the rate of inflation implies a **decline of real interest rates.** ↘ [CHART 49 RIGHT](#) As a result, **monetary policy will have an even more expansionary effect.** Inflation might rise faster than expected, while increasing capacity overutilisation could lead to **misallocation** of credit, investment and resources (Acharya et al., 2016). Continuing low interest rates also pose a **risk** to financial stability (BIS, 2018a; GCEE Annual Report 2016 items 506 ff.).
365. The aim of quantitative easing was to stimulate economic activity by pushing up the prices of bonds and other assets such as equities and real estate. These **asset prices** did indeed **rise** (GCEE Annual Report 2015 item 289; GCEE Annual Report 2016 items 424 ff.). If the ECB's low-interest-rate policy continues for too long, there is a greater risk of exaggerations in asset price developments. ↘ [ITEMS 666 FF.](#) Subsequent, potentially abrupt corrections would have a negative impact on growth and inflation. Consequently, monetary policy itself should not further increase the risk of such exaggerated developments. Yet, this does not mean that monetary policy needs to react directly to asset price rises by systematically 'leaning against the wind' (GCEE Annual Report 2014 items 273 ff.).
366. Monetary policy also influences **risks in the banking system.** As long as new loans are granted at very low, fixed long-term interest rates, interest-rate risk will increase. For example, **the proportion of home loans with fixed interest periods of more than ten years** granted by German commercial banks as a percentage of their total new lending **rose** from just under 30 % in 2008 to almost 45 % in 2017. At the same time the proportion of their short-term refinancing increased from roughly 35 % to more than 40 %. Interest-rate risk arises from the fact that the effective interest rate on these very long-term loans has fallen from around 5 % to below 2 %. The short-term funding rate could exceed this level in just a few years' time as monetary policy is being normalised.
367. And, finally, the pressure on bank profitability is growing and is creating incentives to take on greater risks in order to sustain this profitability. This risk appetite is being accompanied by an **increase in maturity transformation** (GCEE Annual Report 2016 item 421). It would be better to start the exit from the low-interest-rate policy earlier in order to give the financial system more time to adjust. If the central bank delays this exit due to increasing financial stability risks, because it finds itself subject to **financial dominance**, it may be hard to avoid major disruptions later on.

### 3. Scaling back the central bank balance sheet

#### The Federal Reserve's approach to date

368. Back in September 2014 the **Federal Reserve** outlined its normalisation process going forward in its Policy Normalization Principles and Plans. It announced that it would be scaling back its balance sheet by reducing its reinvestment of principal payments from maturing bonds. It presented further details in June 2017. It has been reducing these reinvestments since October 2017. Principal payments are now only reinvested if they exceed an increasing monthly limit. The limit for government bonds was initially 6 billion US dollars and is being raised in three-month-steps to up to 30 billion US dollars (these amounts are 4 billion US dollars and 20 billion US dollars respectively for principal payments from mortgage-backed securities).
369. The **long-term size of the Fed's balance sheet** remains uncertain. On the one hand, demand for cash increases in line with nominal economic growth. And on the other hand, the extent to which reserves are held depends on the operational implementation of monetary policy and, potentially, the regulation of banks' liquidity. The Federal Reserve's vice chairman for supervision, Randal Quarles, reckons that the central bank's bond portfolio will shrink by 400 billion US dollars in 2018 and by 460 billion US dollars in 2019. He estimates that the process of **normalising the Fed's bond holdings** is likely to have been **completed** during the period **2020 and 2022**, although the exact level would depend on the operational regime in place at that time (Quarles, 2018). He said that the Fed was still discussing whether to retain its so-called 'floor regime' with high levels of excess reserves or whether it should return to a 'corridor regime' [▾ BOX 7](#), under which supply is more closely aligned with banks' demand for reserves.
370. Unlike the Federal Reserve, the **ECB's Governing Council** has not provided any information about reducing its reinvestments. This may be because the euro area's economic recovery has – in comparison with the United States – been delayed by the euro area sovereign debt crisis. As part of its normalisation strategy it would now be time for the ECB to devise and **communicate** a procedure for **normalising its balance sheet** going forward. In July, September and October, however, ECB president Draghi confirmed that the Governing Council had not yet discussed this matter (Draghi, 2018b, 2018c).

#### Balance sheet size as a monetary policy instrument

371. Back in the late 1990s research at the Federal Reserve developed analytical foundations for quantitative easing – including **analysis of the optimal balance sheet size for monetary policy purposes** – which were discussed by the FOMC (Orphanides and Wieland, 2000; Bernanke, 2002; Clouse et al., 2003; GCEE Annual Report 2014 items 264 ff.). Quantitative easing was viewed as a continuation of monetary policy focused on the same objective but with new instruments once the policy rate has been reduced to virtually 0%. The metric

applied to quantitative easing was the balance sheet's size relative to nominal GDP rather than its absolute size (GCEE Annual Report 2014 box 13). This metric takes account of the fact that demand for cash increases in line with real economic output and the price level. **Tightening monetary policy** therefore involves **reducing the balance sheet's size** relative to nominal GDP.

372. **Quantitative easing's impact** on bond prices, other asset prices and exchange rates – through the transmission channel of portfolio reallocation – **is linked to size of the portfolios held** at the central bank relative to the level of market demand for the relevant assets and currencies (Orphanides and Wieland, 2000; GCEE Annual Report 2015 items 284 ff.; GCEE Annual Report 2016 items 388 ff.). These transmission channels via risk premiums and risk appetite have now also been modelled in models with more microeconomic foundations (Ellison and Tischbirek, 2014; Cúrdia et al., 2015; Gertler and Karadi, 2013).
373. Consequently, if the ECB were to **reduce its bond holdings** as part of its normalisation strategy, this would improve its ability to respond effectively to future recessions and crises. Bond purchases would remain an instrument that the central bank has in its toolkit for exceptional situations. They could be used during periods of recession and deflation if, in addition to lowering interest rates to levels near 0 %, further easing is required. The intention here would be to influence medium- and longer-term interest rates as well as – through the effects of portfolio rebalancing – asset prices and exchange rates. If the central bank were now to reduce its bond holdings, it would create additional commensurate **room for manoeuvre in the future** (Fisher, 2018).
374. This is especially relevant to the **ECB** because it is already close to its self-imposed limit of a 33 % share of individual government bond issues (GCEE Annual Report 2017 items 341 ff.). It introduced this limit to ensure that it could not block the pari-passu treatment of creditors in the event of any debt restructuring. The ECB should therefore respond to economic recovery and rising inflation not only by raising interest rates but also by **reducing the reinvestments of its portfolio**.
375. Like the Fed, the ECB should **communicate regarding** the reduction of its portfolio ahead of its start. This would enable market participants to prepare accordingly. It would also send a strong signal to highly indebted member states that they needed to make timely adjustments to their levels of new borrowing in order to avert higher risk premiums (GCEE Annual Report 2017 items 397 ff.). The reduction of these reinvestments will significantly **reduce** the huge amounts of **excess liquidity** currently in the system. The decline of excess liquidity is likely to induce a **reduction of the TARGET2 balances** (Eisenschmidt et al. 2017; GCEE Annual Report 2017 box 9) ↘ [BOX 6](#)

↳ BOX 6

**TARGET2 balances: interpretation and conclusions from the debate on the payment system**

The TARGET system was launched in 1999 with introduction of the euro, to ensure safe and efficient payment transactions in the monetary union – one of the Eurosystem's responsibilities. This system also constitutes a mechanism for risk-sharing and stabilisation in the monetary union. Even before the union's creation, it was discussed that in the event of a banking crisis and private capital outflows from individual member states, private outflows would be replaced with public inflows in the form of central bank lending to commercial banks and TARGET balances would emerge (Garber 1998, 1999).

TARGET2 was introduced in 2008. Since 2009, sizable TARGET2 claims and liabilities have been created in the Eurosystem as a result of the financial crisis and euro area debt crisis. Their causes and the consequences for economic policy have repeatedly been the subject of heavy debate. The German Council of Economic Experts considers the TARGET2 imbalances to be largely a symptom whose structural and economic policy causes should be focused on and corrected if necessary (GCEE Annual Report 2011 Box 7, GCEE Annual Report 2012 Box 7, GCEE Annual Report 2017 Box 9).

**How the TARGET2 payment system works**

Financial transactions between European banks are settled via the national central banks. In case of a bank transfer from Italy to Germany, for example, Banca d'Italia debits the central bank account of the Italian bank, while Deutsche Bundesbank simultaneously credits the amount to the central bank account of the German bank. If refinancing occurs on the interbank market through a loan by a German bank, the bilateral balances net each other out and the central bank reserves of both banks remain unchanged. If there is no opposite transfer based on interbank loans, this creates a TARGET2 liability for Banca d'Italia to the ECB. This is then charged interest at the rate on Main Refinance Operations, accumulated and carried on the balance sheet (Deutsche Bundesbank, 2018a). At the same time, this creates a TARGET2 claim on the ECB for Deutsche Bundesbank .

**Development of TARGET2 balances**

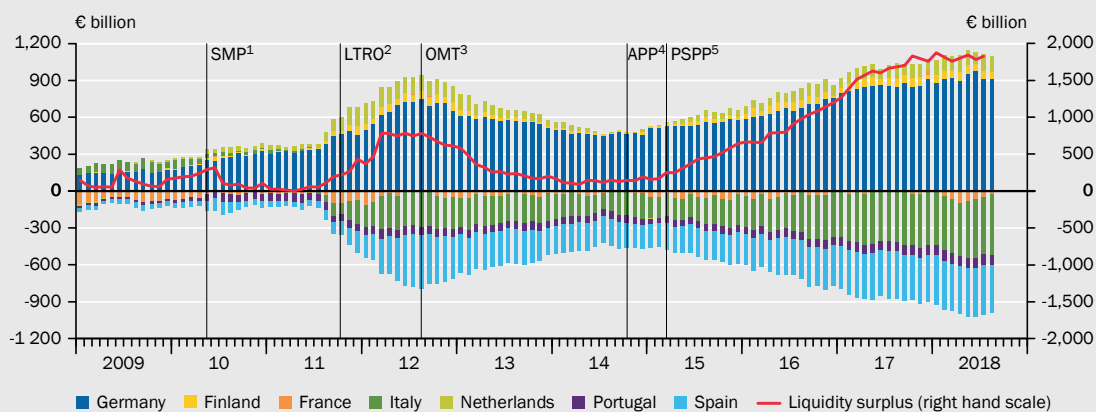
TARGET2 balances remained close to zero until the end of 2008, as excess liquidity from banks, usually from countries with current account surpluses flowed, in the form of interbank loans, to banks in countries with current account deficits (Auer, 2014). That changed with the financial crisis which led to a “sudden stop” of capital flows into some member states. The ECB responded by switching to a full allotment at a fixed rate regime for its refinancing operations and broadening the collateral framework. Excess liquidity increased considerably as a result. ↳ CHART 50 LEFT Investors withdrew more and more capital from the crisis countries during the European sovereign debt crisis (Whelan, 2017; GCEE Annual Report 2011 Box 7). With the introduction of the long-term refinancing operations (LTROs) in 2011, commercial banks in crisis countries obtained very large amounts of central bank liquidity and financed large portfolios of domestic sovereign bonds. As a result, TARGET2 balances within the Eurosystem rose sharply. Following the announcement of the OMT programme in summer 2012, financial market conditions eased. Excess liquidity, the central bank balance sheet and TARGET2 balances declined noticeably between autumn 2012 and summer 2014. Commercial banks used the early repayment option for the LTROs during this time.

In 2015, TARGET2 balances began to rise again with the start of bond purchases under the Expanded Asset Purchase Programme (EAPP). The analysis of Eisenschmidt et al. (2017) suggests that the most recent rise is notably driven by Eurosystem bond purchases and not due to a new crisis developing. They show that 80 % of the purchases were cross-border transactions. 50 % of them were executed with counterparties outside the euro area. If they were to sell, for example, under the public sector purchase programme, bonds of euro area member states via Frankfurt, one of the most important centres of financial intermediation in the euro area, the subsequent resale of the bond to

the respective national central bank would generate a TARGET2 claim against the Eurosystem for Deutsche Bundesbank.

#### CHART 50

### TARGET2 balances in selected euro area member states



1 – Securities Markets Programme, introduced in May 2010. 2 – Longer-Term Refinancing Operations, introduced in October 2011. 3 – Outright Monetary Transactions, announced in August 2012. 4 – Asset Purchase Programme, started in October 2014. 5 – Public Sector Purchase Programme, started in March 2015.

Sources: ECB, own calculations

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### Dealing with causes and risks of TARGET2 balances

The development of TARGET2 balances is related to the excess liquidity and the ECB's unconventional monetary policy. Given the economic recovery and the rise in inflation, the German Council of Economic Experts already called for a change of course in monetary policy in 2017. Excess liquidity and TARGET2 balances can also be expected to decline along with a normalisation of monetary policy and a reduction of the central bank bond portfolio. In the longer term, the ECB should again tighten its collateral framework and end the full allotment policy. Together with a revival of the interbank market, possibly in a collateralised form, this would contribute to a further reduction of excess liquidity and TARGET2 balances.

As long as no member state leaves the euro area, TARGET2 claims are not associated with default risk. If a country were to leave, its national central bank's claims on or liabilities to the ECB would need to be settled in full (Draghi, 2017). If a country with liabilities were to leave the euro area and not be prepared to settle Eurosystem claims, this would generate a loss. Such loss would have to be borne by the remaining members of the Eurosystem in accordance with the capital key. If, for instance, Italy were to leave and not settle its liabilities, this would result in losses of some €153 billion to Deutsche Bundesbank. This would correspond to around 4.7 % of German GDP. Deutsche Bundesbank (2018a) however, assumes that this scenario does not materialize.

One criticism of the TARGET2 payment system is the lack of regular settlement (Sinn and Wollmershäuser, 2012). In this context, reference is frequently made to the US Fedwire payment system, which requires annual settlement of balances of the different district Federal Reserve Banks. These are settled in a two-stage process of depositing and redistributing gold certificates and US Treasury bills (Klose and Weigert, 2012; Voll, 2014). However, the positions of the district Federal Reserve Banks are settled directly among them without any intermediate entity, as in the Eurosystem. The Interdistrict Settlement Accounts (ISAs) serve this purpose. \*A common portfolio is reallocated on a regular basis. For the euro area, this would mean central banks holding government bonds of other countries on their balance sheets. Applying this system would directly expose Deutsche Bundesbank to default risk on foreign government bonds that could materialise even without a member state leaving the monetary union. Such a system does not appear very advantageous compared to a claim on the Eurosystem as in the TARGET2 system. Moreover,

collateralisation with government bonds would run counter to the EAPP design, which at Deutsche Bundesbank's insistence is intended to exclude joint liability. Finally, it should be noted that in the United States there is a further redistribution between districts in later steps with assets transferred back.

In contrast, central organisation of monetary policy and the payment system solely through the ECB would dispense with TARGET2 balances. The risk-sharing function currently manifest in the TARGET2 balances would remain in place via the regional distribution of central bank liquidity. However this would require mutualisation of assets (including the gold reserves) of national central banks, which are currently the owners of the ECB. As long as the monetary union is comprised of member states still largely independent in terms of budget and economic policy and there is a possibility for exiting the European Union, such extensive mutualisation does not seem appropriate.

Studies by Fagan and McNelis (2014) and Tornell (2018) use macroeconomic models with “sudden stops”, to show that providing unlimited liquidity through TARGET2 could encourage a tendency to overindebtedness. This could contribute to more frequent occurrences of abrupt capital outflows. Placing a direct cap on TARGET2 balances however could result all the more in speculative attacks (Garber 1999). It would make sense, however, to press ahead with breaking up the sovereign-bank nexus, abolishing sovereign privileges in banking regulation and creating additional incentives and rules to prevent overindebtedness on the part of governments and the private sector.

### Role of balance sheet size for financial stability and independence

376. In the **United States** there is currently a **debate** as to whether the Federal Reserve should retain its present regime of a large balance sheet and, consequently, very substantial excess reserves or whether it should return to its pre-crisis regime of significantly lower, scarce excess reserves. **Proponents of a large central bank balance sheet** argue that this will **reduce risks to financial stability** (Greenwood et al., 2015; Greenwood et al., 2016). Greenwood et al., (2016) claim to have identified a tendency for private financial intermediaries to use dangerously large amounts of short-term liabilities in order to finance risky investments.

They argue that the government could counter this trend by issuing large quantities of short-term debt securities. This would reduce market demand for short-term debt securities by private borrowers. Thereby the government could reduce the excessive amount of maturity transformation in the private financial sector. They argue, however, that it would be even better if the Federal Reserve would assume this task. It should create high excess reserves, by holding a **large portfolio of short- to medium-term government bonds**.

377. It is also argued that a large central bank balance sheet would suitably **supplement regulatory measures** such as the Liquidity Coverage Ratio (LCR). These measures serve to limit excessive private maturity transformation. The greater availability of reserves would mitigate the adverse effects of frictions and costs resulting from this regulation. However, banks can also use government securities to meet regulatory requirements such as the LCR (Quarles, 2018).



378. **Critics of large central bank balance sheets**, however, point to the dangers that can arise if the **Fed develops into a multi-purpose institution**. They argue that this enables the central bank – outside the scope of crisis situations – to influence credit allocation in the economy, to help various industrial sectors and to perform fiscal tasks that should actually be reserved for Congress (Plosser, 2018; Taylor, 2018). Moreover, the combination of a large bond portfolio and high levels of interest-earning excess liquidity would raise the likelihood of potentially significant losses. The resulting volatility in profits paid to the government could trigger **Congress to exert greater influence on the Fed** (Fisher, 2018). Finally, they argue, it is beneficial to determine interest rates in a **market where reserves are scarce** (Levy, 2018; Nelson, 2018). A large balance sheet with huge excess reserves would prevent **price signals** from efficiently allocating reserves in the banking system.

Furthermore, **balance sheet size cannot really be separated from its role in monetary policy**. This would be inconsistent with the effects that quantitative easing has via portfolio rebalancing effects, reaching as far as exchange rates. In particular, the effects of large central bank balance sheets in the leading industrialised nations on exchange rates and capital flows have attracted criticism from emerging markets. Mishra and Rajan, (2018), for example, suggest that these measures be reserved for crisis situations.

379. In the **euro area** there are additional reasons for reducing the central bank's balance sheet. Unlike the Federal Reserve, the Eurosystem has purchased large portfolios of member states' bonds. If the enlarged balance sheet were to remain permanently, national central banks would have to permanently hold substantial bond portfolios. This would amount to **additional monetary financing of member states' activities**. It would also **weaken bond markets'** important signalling and **disciplining functions** for public finances in the member states (GCEE Annual Report 2016 items 427 f.).

The large balance sheet also reflects the high level of longer-term funding that commercial banks obtain from the central bank. It can thus contribute to a situation whereby banks avoid a necessary restructuring or resolution.

### Balance sheet size, excess reserves and operational regime

380. The question of how large the normal balance sheet should be at the end of the normalisation phase has implications for the **amount of excess reserves** in the banking system and the **operational regime** used to implement monetary policy. Prior to the financial crisis the ECB, the Federal Reserve and other central banks conducted monetary policy in a **regime with an interest rate corridor** (corridor regime). Since 2008, however, they have been using a regime with an effective **interest rate floor** (floor regime). ↘ [BOX 7](#)

↳ BOX 7

**Liquidity management: Interest rate corridor versus interest rate floor**

Central banks provide central bank money in the form of cash and reserves, that is, demand deposits that commercial banks hold at the central bank. The central bank has a monopoly in its own currency. This enables it to determine the quantity or price. Cash is issued in the quantity for which there is demand at the prevailing interest rate. The interest rate itself is determined by the liquidity supplied to the commercial banks. Prior to the financial crisis the ECB, the Federal Reserve and many other central banks provided liquidity under a corridor regime. During the crisis they mainly switched to a regime with substantial excess reserves and an interest rate floor in order to significantly increase the amount of liquidity in the banking system.

Until the end of 2008 the Eurosystem conducted its monetary policy under a corridor regime that offers two standing facilities. The ceiling of this corridor is the interest rate on the marginal lending facility, under which banks can obtain liquidity until the next business day. The floor is the interest rate on the deposit facility, which allows banks to deposit excess reserves with the central bank until the next business day. The interest rate on one-week borrowing via the main refinancing operations lies within the corridor. This regime generates a certain amount of scarcity, which creates incentives for interbank lending (Nelson, 2018; Plosser, 2018) because banks can lend each other excess liquidity at an interest rate within the corridor until the next business day. The Federal Reserve adhered to a corridor with a floor of 0 % until October 2008.

In October 2008 the ECB implemented changes which ultimately led to the introduction of a **system with an interest rate floor** a so-called floor regime. As funding in the interbank market had ground to a halt owing to a mutual loss of trust, the ECB's Governing Council decided to make unlimited amounts of liquidity available at a given interest rate via its main refinancing operations. From a technical point of view this is achieved by conducting fixed-rate tenders with full allotment. In addition the ECB relaxed its collateral standards, which enabled commercial banks to provide far more collateral. The overnight interest rate converged towards the deposit facility rate, creating a considerable amount of excess liquidity. [↳ CHART 51 LEFT](#) Purchases of securities helped to further increase the volume of excess liquidity. There is barely any refinancing in the unsecured interbank market. The negative interest rate on deposits effectively continues to determine the market rate. Any tightening of monetary policy would need to involve raising this interest-rate floor. The Federal Reserve has also been paying interest on deposits since 2008. It has raised this floor from 0.0 % to 2.2 % since December 2015. The effective interest rate on federal funds is therefore around this level.

- 381.** Unless the **substantial size of the central bank's balance sheet and the excess liquidity** is significantly reduced, a **floor regime is essential**. This allows regulating the level of interest rates separately from the size of the balance sheet. The GCEE, on the other hand, takes the view that the **balance sheet should be reduced as part of the normalisation** of monetary policy. This would also make it **possible to return to the corridor regime**. A liquidity management strategy that creates a **shortage of excess liquidity** will ensure that the market interest rate remains within the corridor and should help to **stimulate the interbank market** (Bindseil and König, 2011; Fisher, 2018; Nelson, 2018). The interbank market would support the efficient allocation of scarce reserves in the banking system.
- 382.** For the Eurosystem this would mean **ending its full-allotment policy over the longer term** and requiring **higher collateral standards**. The collateral

thus freed up could be used to strengthen a collateralised interbank market. Short-term market interest rates could fluctuate within the corridor. The central bank and market participants would receive price signals and information about commercial banks' demand for liquidity.

## III. NEW CHALLENGES

### 1. Balance sheet risks and central bank independence

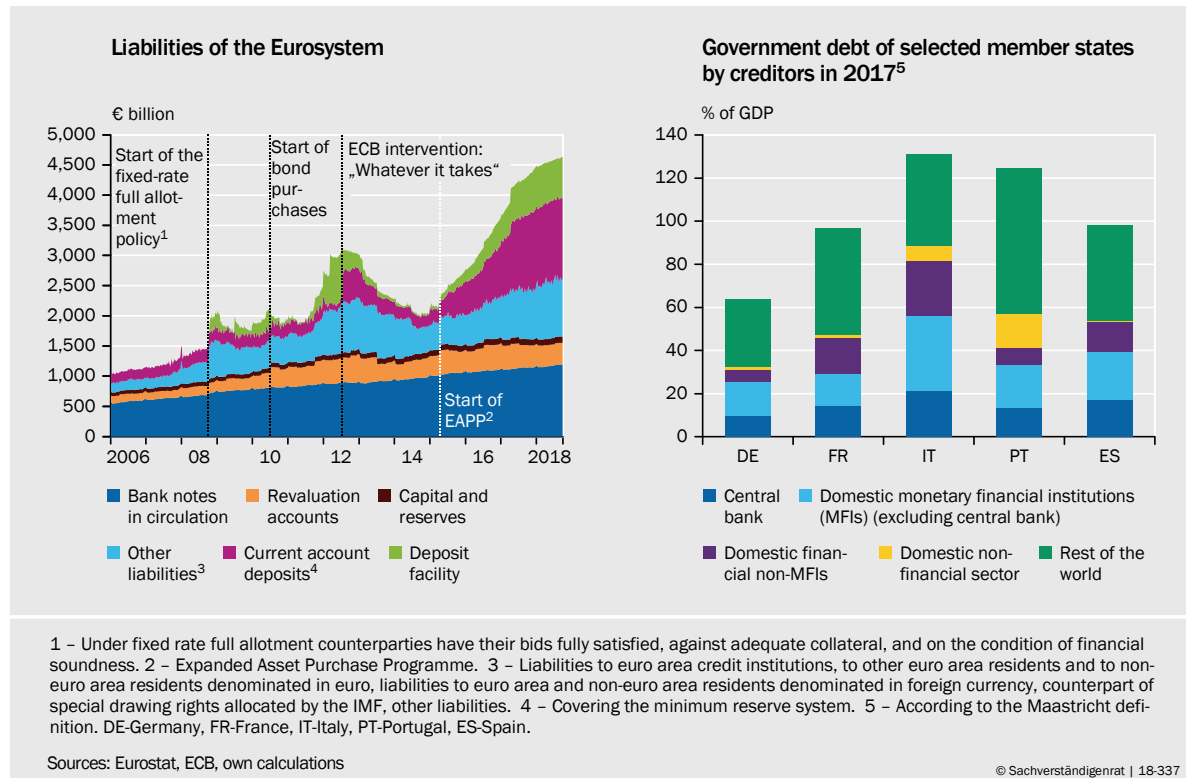
383. The measures taken by the central banks to deal with the financial crisis have attracted vehement criticism from various political quarters. The fiscal consequences of these measures are also fuelling demands. The rising cost of interest on excess reserves as part of the normalisation process is causing central banks' profits to decline. The large size of balance sheets poses risks that can cause central banks' profits to become more volatile. In the United States fears are being expressed that Congress might curtail the **independence of the Federal Reserve** (Fisher, 2018; Nelson, 2018; Plosser, 2018). This would merely require a simple majority.
384. The **independence of the ECB**, however, can only be curtailed as a result of unanimous treaty changes by the member states. There are, nonetheless, ways of exerting influence, such as by appointing Governing Council members or bringing political pressure to bear. Moreover, the national **central banks in the euro area** are now **major creditors of the member states** as the Eurosystem's aggregate balance sheet has grown by more than 120 % since the autumn of 2014. [↘ CHART 51 RIGHT](#) The central banks of the large member states hold a substantial proportion of government debt: 9.7 % of GDP in Germany, 13.2 % in Portugal, 14.4 % in France, 17.4 % in Spain and as much as 21.3 % in Italy. Total government debt held by domestic creditors amounts to some 30 % to 90 % of GDP: 32.2 % in Germany, 47.6 % in France, 53.9 % in Spain, 57.3 % in Portugal and 88.6 % in Italy.

#### Making provision for central banks' balance sheet risks

385. The task of a central bank is not to maximise its profits but to fulfil its statutory stability mandate. This gives rise to **balance sheet risks** that can lead to losses. The central bank can demand appropriate collateral in order to hedge the credit risk associated with refinancing operations. Such hedging options are not available for purchases of securities. It is **customary** to **make provision** for such risks. However, these risks have taken on a **new dimension** as balance sheets have grown significantly.
386. The central banks in the Eurosystem have set aside specific **provisions for balance sheet risks**, which have been constantly increased as their net asset purchases have been extended. At the end of 2017 the provisions set aside for general risks relative to the national volumes of assets purchased under the

## ↘ CHART 51

## Liabilities of the Eurosystem and government debt of selected member states by creditors



PSPP by the central banks of Germany, Spain, Italy and the Netherlands amounted to 3.6 %, 7.5 %, 7.7 % and 1.5 % respectively. Their financial buffers – which include revaluation accounts, share capital and reserves, and provisions – are 8.7, 1.9, 4.9 and 20.4 times the size of their provisions for balance sheet risks respectively.

387. Deutsche Bundesbank hedges the following risks, among others, by setting aside provisions: **exchange-rate risks, default risks arising from securities purchase programmes, credit risks** arising from refinancing facilities and, since 2017, **interest-rate risks**. The interest-rate risks have increased as a result of the continuation of the asset purchase programme. The open interest-rate position, it is claimed, increases the probability that future charges resulting from a potential rise in key interest rates might result in an annual net loss – possibly for several years (Deutsche Bundesbank, 2018). The high income earned from the negative interest rate on the deposit facility and current accounts that banks hold at Deutsche Bundesbank would disappear. The negative interest rates on outstanding long-term tenders could then give rise to losses.

388. The central bank’s asset portfolio is exposed to **price movements**. Whether these result in losses depends on whether the bonds are held to maturity or are sold before then. The ECB Governing Council has decided value bonds held due to the asset purchase programmes at **amortised cost**. Provisions are made for **permanent impairment losses**. This has been the case for one security bought under the Corporate Sector Purchase Programme (CSPP) (Deutsche Bundesbank, 2018).

However, Deutsche Bundesbank has mainly bought government bonds above par, which means that the difference impacts negatively on the interest earned. Income and risks arising from the PSPP are not shared across the Eurosystem. No account is taken of risks arising from Deutsche Bundesbank's TARGET2 claim or from the issuance of banknotes that would lead to losses in the hypothetical case that a country were to leave the monetary union and also fail to settle its liabilities (Deutsche Bundesbank, 2018). ↘ BOX 6

389. Based on a survey of 57 central banks, Bunea et al. (2016) describe how they have **dealt with losses** in the past. Accordingly, central banks first of all apply specific risk provisions and then draw on general reserves. If this does not allow the loss to be fully absorbed, it is possible to transfer the loss to future years and then to offset it with future balance sheet surpluses. In this case, the central bank would operate with negative equity. Alternatively, the loss could be recognised as a claim on the government in order to avoid any negative equity. And, finally, the government could recapitalise the central bank by paying in a capital contribution. This would ensure that the government could not attach conditions to future monetary policy.

#### Problematic debt reduction proposals at the expense of central banks' balance sheets

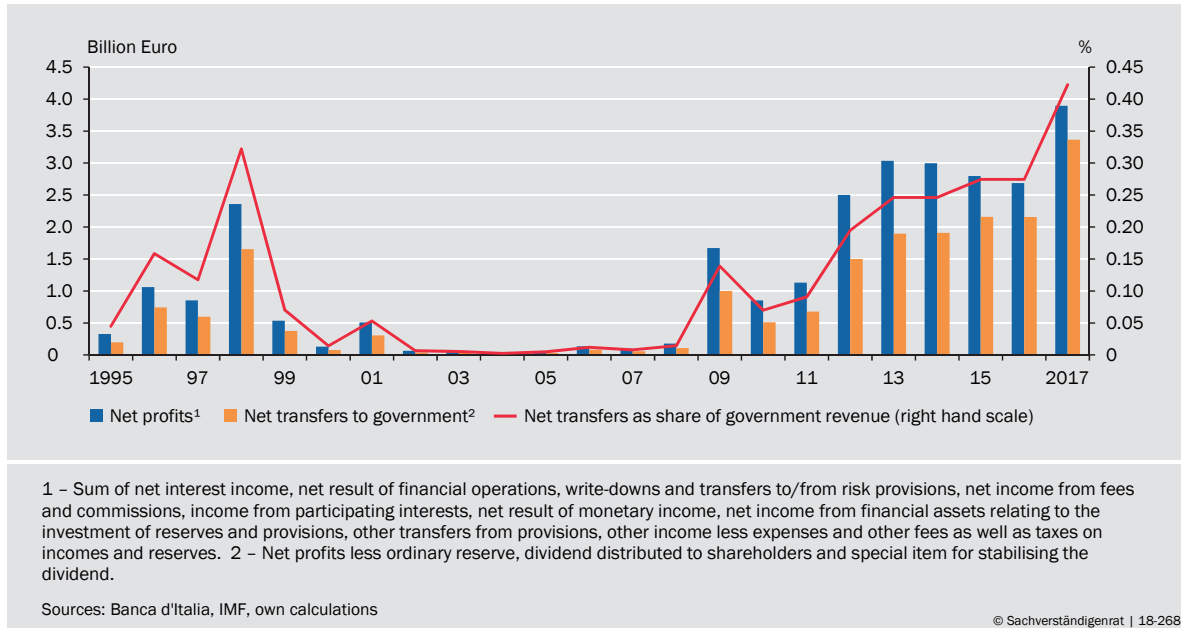
390. Given the high levels of government debt in some member states, it has been repeatedly proposed or demanded that **government debt be reduced at the central bank's expense**. Economists presented detailed proposals in this regard as far back as 2014. Their suggestion was that the ECB should purchase government bonds, convert them into zero-coupon perpetual bonds and **offset the losses against the national share of future ECB profits** (Pâris and Wyplosz, 2014).
391. At the beginning of 2015 the Greek government cast doubt on whether **Greece** would redeem matured bonds that the ECB had purchased as part of the support provided under the Securities Markets Programme (SMP) (Reuters, 2015). ESM bridge financing enabled the bonds maturing in July and August 2015 to be repaid before the third support package was finalised (GCEE Special Report 2015 item 20). In order to ensure the effectiveness of other programmes, the ECB decided to apply pari-passu treatment that would become relevant in the event of haircuts.

Reports in May of this year about a paper drafted during the formation of Italy's coalition government attracted considerable attention (Frankfurter Allgemeine, 2018; Handelsblatt, 2018). Accordingly, Italy should force through that the **Banca d'Italia waive debts of €250 billion** on its Italian bond portfolio. Most recently, Europe minister Savona called for a debt restructuring at the ECB's expense (Die Welt, 2018).

392. If, hypothetically, there were to be a debt reduction of €250 billion at the expense of Banca d'Italia, this would incur substantial central bank losses, which in turn would result in negative equity. This would mean a default on more than

↪ CHART 52

Central Bank Profits in Italy



two-thirds of the €370 billion in government bonds held by the Italian central bank. This would constitute large-scale monetary financing, which is prohibited under European law. The rules of the PSPP would prevent this loss from being shared across the Eurosystem.

The financial buffers available to the Italian central bank for this purpose would consist of roughly €25.2 billion from provisions for general risks and reserves, around €25.6 billion from share capital (€7.5 billion) and reserves (€18.1 billion) as well as approximately €73 billion from valuation reserves – a total of roughly €124 billion. Even if all financial buffers were used, the loss of €250 billion would result in negative equity of more than €126 billion at Banca d'Italia.

One option here would be to use future surpluses to reduce the central bank's **negative equity**. These surpluses are mainly derived from net interest income. The annual net profit for 2017 was €3.9 billion; Banca d'Italia's net surpluses during the pre-crisis years of 2005 to 2007 ranged between €50 million and €130 million. ↪ CHART 52 This means that it would take decades to reduce this negative equity to zero, let alone build up substantial reserves. In the past, after the budget deficit had grown, the Italian central bank appears to have loosened monetary policy to such an extent that revenue from seigniorage rose (Demopoulos et al., 1987). This is not possible within the monetary union.

### Monetary policy when a central bank has negative equity

393. **Central banks cannot become insolvent.** Because they themselves produce irredeemable legal tender, they can always meet their liabilities. They can therefore continue to conduct monetary policy operations even if they have negative equity. Examples of **successful stability-oriented monetary policy being conducted with negative equity** are provided by Archer and Moser-Boehm (2013), who cite case studies on the central banks of Chile

(Restrepo et al., 2008), the Czech Republic (Cincibuch et al., 2008; Frait and Holub, 2011), Switzerland, Mexico and Israel. However, they also point to a number of cases in which losses arising from quasi-fiscal operations financed by money creation have led to **higher inflation**.

394. **Empirical studies** show that central banks can achieve their monetary policy objectives despite having incurred losses, provided that their liabilities consist of liquid and reliable assets (Bindseil et al., 2004). However, they also point to a positive correlation between central bank losses and high inflation (Dalton and Dziobek, 2005; Stella, 2008). A **central bank's ability to generate real income** by creating money **is limited**. One limit is the net present value of seigniorage revenue, assuming that the level of inflation corresponds to the central bank's inflation target. A debt reduction programme, such as the one proposed by Pâris and Wyplosz (2014), would absorb this present value.

Furthermore, this gives rise to a conflict between generating income and achieving the inflation target, as noted by Reis, (2013) and Sims, (2016). Attempts to increase seigniorage by expanding money creation would push inflation above its target. Real seigniorage revenue actually decreases above a certain inflation rate. If the cumulative losses on the balance sheet were to exceed the net present value of the maximum seigniorage revenue, people would lose trust in their national currency and would refuse to hold it (Buiters, 2008). There is thus a significant correlation between excessive monetary financing and hyperinflation, which is almost always attributable to a regime of fiscal dominance (Sargent and Wallace, 1981; Sargent, 1982; King and Plosser, 1985).

395. Even before such extreme scenarios materialise, there are **political economy arguments** against tolerating substantial losses along with long periods of negative equity and **in favour of central banks being recapitalised** by the government. Central banks stand in the focus of the public. Heavy losses and negative equity are likely to cause **reputational damage** and increase the **risk of political influence**. Correspondingly, studies reveal a positive correlation between a central bank's credibility in terms of its ability to perform its monetary policy function, on the one hand, and the amount of its equity on the other (Bindseil et al., 2004; Jordan, 2011; Archer and Moser-Boehm, 2013). Del Negro and Sims (2014) show that ex-ante commitments to recapitalise central banks help these institutions to fulfil their price stability mandate.
396. **Several conclusions** can be drawn as far as the **monetary union** is concerned. The prohibition of direct monetary financing provides the basis for the Eurosystem's ability to fulfil its price stability mandate. Decisive action must be taken to block attempts to circumvent this prohibition. Proposals that anticipated future seigniorage revenue should be used already now to reduce government debt ignore the fact that one cannot rule out the possibility that a member state might leave the monetary union. The ECB's positive – albeit modest – equity is beneficial. This applies even more so to the national central banks' share capital, reserves and provisions, which are much larger.

The large holdings of government bonds could fuel demands from political quarters. Because the monetary union is a union of fiscally largely sovereign

states, central banks' balance sheets should not be an instrument of redistribution. In this respect the ECB's Governing Council took the wise decision that the bond holdings purchased under the PSPP and the associated risks should remain with the respective national central banks. These government bond holdings should be scaled back as part of the normalisation of monetary policy.

## 2. Cryptocurrencies: Competition in money creation

397. Bitcoin and other cryptocurrencies have emerged as new private competitors for the revenue earned from money creation. The global financial crisis has supported their development. Their initiators wanted to create a decentralised payments system that manages without the guarantees provided by state institutions (Nakamoto, 2008; Diehl and Thiele, 2017). Cryptocurrencies are a digital form of payment that is created and transferred using cryptographic methods. They are mostly decentrally organised.



Private cryptocurrencies enable value to be transferred digitally from one participant to another ('peer-to-peer transfer of value'). They are mostly based on a decentrally maintained transaction database ('distributed-ledger technology'). Nodes in the network can keep a copy and can suggest and validate changes. In this case there is no need for a central, trusted authority as in conventional payments systems. Payment transactions are recorded in the publicly accessible distributed ledger. The network uses cryptographic methods to verify the transaction in order to reach consensus. To this end Bitcoin uses a protocol based on the provision of cryptographic computing power ('proof of work'). 'Miners' use massive computing power to solve algorithms. The right solution earns a 'block reward', which enables new Bitcoins to be created. The use of a blockchain is intended to prevent transactions from being copied, falsified or executed multiple times. However, temporary majority computing power could be misused for multiple transactions. The proof-of-work method potentially entails very high energy consumption, which limits Bitcoin's appeal. According to the Bitcoin Energy Consumption Index, the cryptocurrency's current energy consumption would be sufficient to supply approximately 6.5 million homes in the United States with electricity (Digiconomist, 2018). Besides, other cryptocurrencies use consensus algorithms that require far less energy and whose majority principle is not derived from computing power. There is a wide range of applications of distributed-ledger technology beyond the field of financial services (Bouveret and Haksar, 2018). Part of cryptocurrencies' appeal is that they enable participants to execute transactions without relying on banks or credit card companies.

398. At present, **cryptocurrencies perform the basic functions of money** as a medium of exchange, a means of payment, a unit of account, and a store of value only to **a very limited extent** (Diehl and Thiele, 2017). Euro cash is the legal tender in the euro area. In comparison with cash and demand deposits the transaction costs incurred by some cryptocurrencies such as Bitcoin are too high for them to function as a **means of payment**. Other cryptocurrencies appear to offer less expensive solutions. The high volatility of cryptocurrencies is a drawback if they are to function as a **unit of account**. The transaction volumes



and networks of cryptocurrencies are still much too small for them to establish themselves as a widely accepted unit of account and a means of payment.

399. Due to rapid price increases Bitcoin has gained a high profile as an **object of speculation**. Its volatility prevents it from functioning as a **store of value**. Consequently, a number of regulatory authorities and central banks define most cryptocurrencies as ‘crypto assets’ or ‘crypto tokens’ and warn about the risk of prices losses (ECB, 2015). ‘Stable coins’ such as Tether claim to offer a more stable alternative by pegging themselves to a fiat currency such as the US dollar. And, last but not least, the pseudonymity of many cryptocurrencies and the anonymity of some presents the intelligence services and financial regulators with challenges in terms of tax evasion, money laundering and terrorist financing.
400. Digital payment methods and cryptocurrencies have reignited the debate about **currency competition** and monetary policy in the absence of state monopoly on currency issuance (King, 1999; Woodford, 2000; BIS, 2018a, 2018b; Bofinger, 2018; He, 2018; Schilling and Uhlig, 2018). **Cash and demand deposits** could increasingly be replaced by **cryptocurrencies**. If the currency issued by the central bank were no longer to function as an unlimited unit of account, this might restrict its monetary policy options. The ‘dollarisation’ of various countries – especially as a result of crises, wars and dysfunctional state institutions – serves as an example of this effect. In order to move interest rates in cryptomarkets it might be necessary to buy and sell crypto assets as well as conducting traditional refinancing operations.
401. For some time now there has been a **wide range of electronic payment systems** available, which has been massively expanded by the spread of the internet and mobile commerce (such as Paypal and Tencent). In the member states of the euro area the amount of cash as a proportion of the M1 money supply has fallen from 23 % to 14 % since the 1980s (Bofinger, 2018). Nonetheless, the supply of cash is growing steadily and is generating seigniorage revenue. ↘ [CHART 51 LEFT](#) Cash’s function as a store of value is a key factor driving the demand for larger banknotes, which is partially coming from abroad. This starts with the 50-euro banknote (Mersch, 2014; Wieland, 2016).
402. In Sweden the demand for cash has already fallen dramatically. Whereas in 2010 cash still accounted for 40 % of all payments made in the retail sector, by 2016 this proportion had fallen to only 15 %. The country’s central bank is therefore exploring whether it might be possible and sensible to issue a generally available **digital central bank currency** (an ‘e-krona’) (Sveriges Riksbank, 2017). This could be introduced either as a state cryptocurrency or in the form of generally available accounts held centrally at the central bank. This would amount to a **significant change of the system**. If transactions in the digital central bank currency could be executed immediately, securely and virtually cost-free and interest were paid on deposits, they would probably offer an **attractive alternative to** cash, cryptocurrencies and, in particular, **bank deposits**.
403. Barrdear and Kumhof (2016) have calculated that there would be **potential growth** of up to 3 % of GDP in the case of the United States if it were to

introduce a digital central bank currency. This gain would come from a reduction of transaction costs, lower equilibrium interest rates and additional government revenues, which would make it possible to reduce distortionary taxes. However, this change of the monetary system could have **disruptive consequences for banks' business models** (BIS, 2018b; Fatás and Weder di Mauro, 2018). Deposits held with the commercial banks would be increasingly likely to migrate to the central bank and influence the banks' funding options. Banks might try to compensate for their lower profitability by raising their deposit rates and charges. Services which in the past have been provided for free would need to be financed by additional charges. Deposits might suddenly flee to the central bank during crises. Bordo and Levin (2017) suggest that any digital currency should be issued as part of a public-private partnership involving the commercial banks in order to prevent any adverse impact on these financial institutions.

404. A generally available **digital central bank currency** would be likely to change **monetary policy**. If access to cash were made more difficult or if cash were totally abolished, the central bank could impose negative interest rates during recessions and deflationary periods. This would mean that negative interest rates would apply to demand deposits held at banks and, ultimately, to the loans provided by banks. This would improve the stabilising effect of monetary policy (Agarwal and Kimball, 2015; Bordo and Levin, 2017). It would no longer be necessary to significantly increase balance sheets. Balance sheet losses resulting from quantitative easing during periods of low interest rates could be avoided. Seigniorage, however, would be likely to decrease during phases when interest rates were positive (BIS, 2018b). In an environment of negative interest rates any restriction of access to cash would probably provoke a political backlash.
405. Central banks should thoroughly explore the technical options for introducing a generally available digital central bank currency as well as its potential impact on the financial sector. **At present**, however, the **GCEE does not consider it necessary to introduce a digital central bank currency** in the euro area. The cryptocurrencies currently available do not pose a threat to the central bank currency because they perform the functions of money as a medium of exchange, a means of payment, a unit of account, and a store of value to only a very limited extent. Consequently, their influence on the central bank's income from money creation is likely to remain small. **Cash** is a highly successful business model for the central banks that enhances their good reputation among the population and therefore – in the assessment of the GCEE – **should continue to be made available**. Although this limits the possibility of introducing negative nominal interest rates during crises, monetary policymakers can implement quantitative easing measures (Wieland, 2016; GCEE Annual Report 2014 items 234 ff.).

## IV. STABILISATION POLICY IN A HETEROGENEOUS MONETARY UNION

### 1. Role of monetary and fiscal policy

406. With the start of European monetary union (EMU), responsibility for monetary policy was transferred to the European level. Responsibility for fiscal and economic policy remained with the governments of the member states. **Flexible exchange rates** enable countries to adjust swiftly to asymmetric shocks and allow them to conduct a **stabilising national monetary policy**. This option is not available in a **monetary union**. A common **monetary policy can only partially offset heterogeneous business cycle developments** in the member states.
407. An extensive economic **literature on optimal currency areas** examines the question of what **other mechanisms and instruments** can **compensate for this loss of flexibility**. It shows that improved international mobility of labour and capital (Mundell, 1961), greater openness and trade (McKinnon, 1963), more international risk sharing via the financial markets (Mundell, 1973) and greater flexibility of nominal prices and wages can compensate for the drawbacks of fixed exchange rates. Furthermore, the state can offset the loss of flexibility by using public spending, taxation or international transfers (Kenen, 1969; Gali and Monacelli, 2008; Adao et al., 2009; Farhi and Werning, 2017).
408. The **free movement** of goods, services, labour and capital belongs to the **basic pillars of the European Union**. The introduction of a single currency saw growing **integration of financial markets** and especially increased international **risk sharing in bank financing**. The monetary union includes TARGET, a **common payments system** that compensates sudden capital outflows with official inflows and helps to avert speculative attacks. [↪ BOX 6](#) Additional **reform efforts** have been undertaken to increase the flexibility of wages and prices and improve the competitiveness of the member states (Lisbon Agenda).
409. In addition, **national fiscal policy** was given an important **stabilising function**. Stabilisation means building up fiscal buffers during good times in order to allow headroom for public borrowing during economic downturns. When the economy is weak this enables governments to provide additional public spending and to finance transfer systems such as unemployment benefits. **Sustainable fiscal policy** ensures that debt sustainability is not put at risk and market access is maintained. This is why the **Stability and Growth Pact** was introduced and monetary financing was explicitly prohibited. Furthermore, the risk premiums demanded by financial markets were seen as performing a disciplining function.
410. The sovereign debt crisis in the euro area emphasised the fact that a **crisis mechanism was needed** in case a member state was at risk of losing access to

the markets. The **ESM was created** for this purpose. It allows a member state to obtain loans guaranteed by the other members. For the case that a member state is overindebted, the ESM should be supplemented with an orderly restructuring process that allows bailing in private creditors (GCEE Annual Report 2016 box 2).

411. There have been various calls for **additional fiscal policy instruments** to be created at **European level**. A **fiscal capacity** is intended to enable the European level to support member states by providing additional transfers in the event of asymmetric shocks and recessions. As the European Treaties stipulate that **individual member states are responsible for their own fiscal policies**, one would expect to see a response at member state level to any asymmetric shocks. Unemployment benefits and the progressive tax system in particular act as automatic stabilisers.

However, high levels of debt are limiting several member states' fiscal space. It is therefore especially important to use the current recovery as an opportunity to complete the fiscal consolidation that has so far remained insufficient (GCEE Annual Report 2017 items 520 ff.). If a member state is at risk of losing access to the markets, however, the ESM is available. The introduction of a **fiscal capacity** in this framework **would be a paradigm shift** and would transfer fiscal policy responsibility to the European level (Feld, 2018). Thus, a **thorough examination is in order**.

## 2. Degree of heterogeneity

412. First of all it is necessary to define what is meant by an asymmetric shock. There are only a few examples that can be linked to a specific exogenous event. These include the German reunification and major natural disasters such as earthquakes, tsunamis and volcanic eruptions. A further example is the sudden collapse of a market-dominant company such as Finland's Nokia when smartphones were introduced. Such events are too rare to justify fundamental changes to the fiscal policy order of European Union.

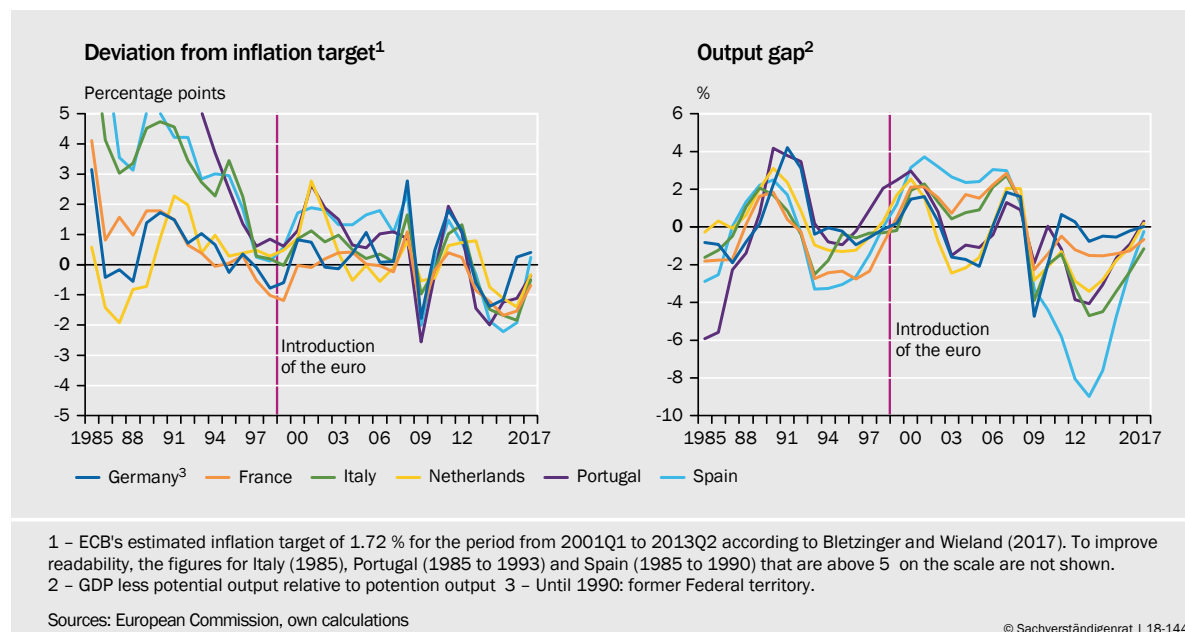
In addition, however, there are **further causes of heterogeneous developments**. Although the global financial crisis was a symmetric shock, its impact varied from one member state to another. This means that a **common shock can produce an asymmetric effect**. Asymmetric shock propagation results from differences in economic structure, institutional framework and economic policies, for which the member states are responsible. Differing initial conditions are also likely to play a role.

413. An initial indication of a high degree of **heterogeneity in the euro area** can be obtained by comparing the extent to which the national inflation rates diverge from the ECB's target and the national GDP figures differ from the European Commission's estimated potential output. This finding applies to the period before as well as after the relevant countries joined the monetary union.

↳ CHART 53

## ↘ CHART 53

## Inflation and output gaps of selected member states in the euro area



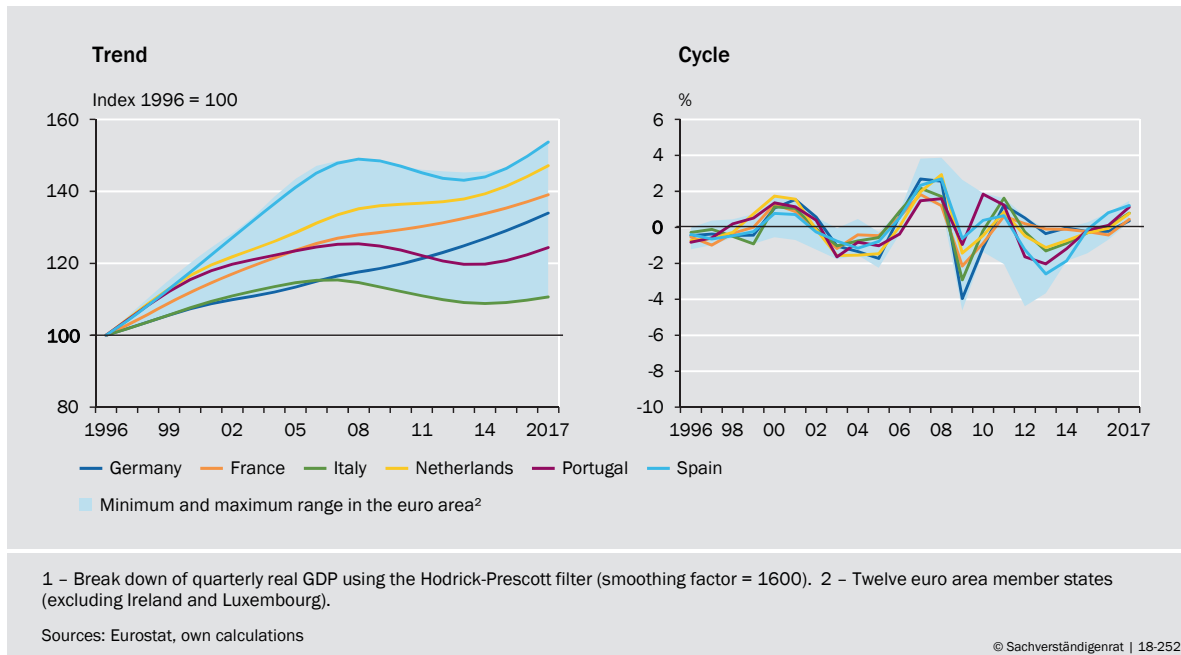
414. However, estimates of the **output gaps** depend to a large extent on the **method used to estimate potential output**. For example, calculations using the Hodrick-Prescott filter – a simple statistical method – reveal much greater differences between member states' structural trends and smaller differences in their cyclical volatility. ↘ CHART 54 Yet, policymakers should respond to adverse structural trends by implementing structural reforms, including reforms of the tax system and state activity. Fiscal stabilisation policies would be counterproductive because the problems have not been caused by a shortfall in demand.
415. In addition to univariate **time-series methods** such as the Hodrick-Prescott filter, structural vector autoregressive models (Bayoumi and Eichengreen, 1992a; Campos and Macchiarelli, 2016, 2018) and factor models (Kose et al., 2012; Lee, 2013; Ferroni and Klaus, 2015) can provide evidence of the degree of cyclical **synchronisation**. These studies find a high degree of cyclical synchronisation. Southern European member states are, however, less strongly synchronised with the rest of the euro area. The degree of volatility within the euro area also varies from country to country (Belke et al., 2017).

And, finally, it should be noted that real-time estimates of **output gaps** are highly **uncertain** and are extremely prone to revision (Deutsche Bundesbank, 2014; GCEE Annual Report 2017 box 3). This significantly limits the ability to actively manage the economy (Elstner et al., 2016). International institutions have in the past mainly overestimated the degree of capacity underutilisation. More than three-quarters of the European Commission's estimates, for example, have had to be revised upwards. ↘ ITEM 260

416. An interest-rate rule such as the **Taylor rule** can be used to show what monetary policy implications differing inflation rates and output gaps would have had if the member states could have implemented their own monetary stabilisation policies. ↘ CHART 55 The calculations shown in the chart use

↳ CHART 54

Trend/cycle decomposition of GDP in the euro area<sup>1</sup>



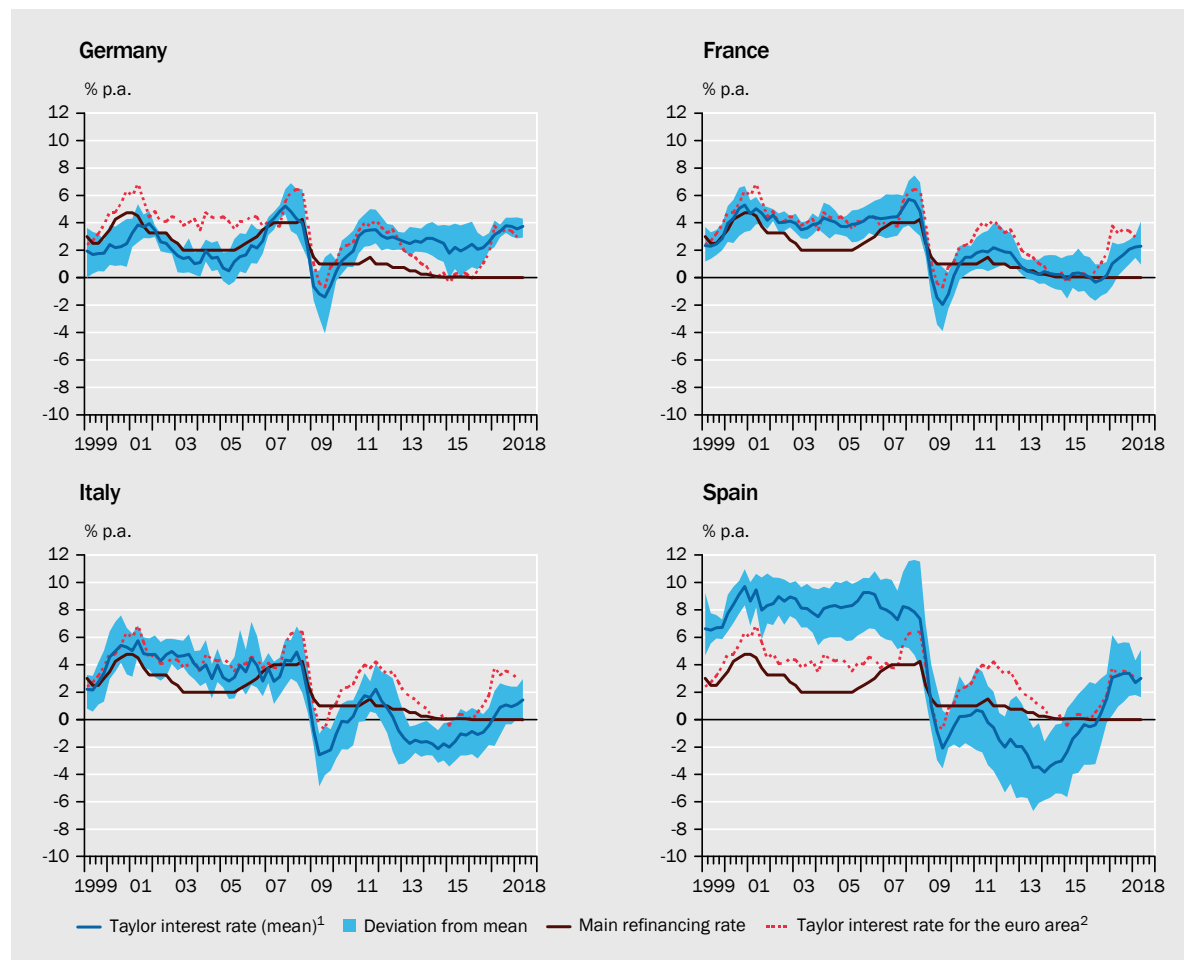
estimates of the long-term real equilibrium interest rate and of the rate of potential growth for Germany, France, Italy and Spain, which have been calculated using different methods. Various measures of inflation have also been used. The coefficients for the monetary policy response to differing inflation deviations from target and output gaps are, according to Taylor (1993), set to 1.5 and 0.5 respectively. This produces a range of interest-rate prescriptions for each of the four member states (Michaelis and Wieland, 2018).

417. There are **four distinct phases** here. Between 2000 and 2007 the ECB's interest rate for its main refinancing operations was almost always too low for Spain, Italy and France compared with the Taylor rate. The Taylor rule would have recommended money market rates more than 3 percentage points higher for Spain, which was undergoing a very strong real-estate boom at the time. The German economy was experiencing a recession from 2001 to 2003. The Taylor interest rate for Germany was therefore below the ECB rate. In 2008 and 2009 the ECB rate was comparatively high for all four countries. However, the ECB took additional unconventional and quantitative easing measures.

During the subsequent years up to 2016 the ECB rate was comparatively high for Spain and Italy, more or less appropriate for France and too low for Germany. Since 2017 the ECB's interest rate for all four countries and the euro area as a whole has been well below the range of Taylor rates. The Taylor rule thus indicates that monetary policy is currently too expansionary. During the periods in which the **Taylor rate diverges in different directions from the ECB rate** it indicates that there is a **role for member states to conduct stabilisation policies**.

↘ CHART 55

Taylor rules for selected euro area countries



1 - The calculation is based on all combinations of four inflation measures (HICP, core HICP, GDP and consumption deflator) and four output gaps (AMECO, IMF, HP filter and segmented linear trend). Following Hofmann and Bogdanova (2012) and Taylor (1993), the respective long-term trend growth is used for the real equilibrium interest rate. This is estimated based on the respective output gaps (AMECO, IMF, HP filter and segmented linear trend). The segmented linear trend consists of a break-point during the financial crisis for each country which follows from a break-point unit root test based on Perron (1989). Following Hofmann and Bogdanova (2012), respective implicit inflation targets for the used inflation measures are calculated: The average deviation of each inflation measure from the HICP for the period between the first quarter 1999 and the second quarter 2018 is added to the 2 % inflation target of the ECB. 2 - Taylor rule equation:  $i = r^* + \pi + 0.5(\pi - \pi^*) + 0.5(y)$ .  $i$  is the implied Taylor rule interest rate for the money market; it is a function of the real equilibrium interest rate,  $r^*$ , of the current inflation rate,  $\pi$ , in deviation from the central bank target,  $\pi^*$ , and of the output gap,  $y$ .

Sources: ECB, European Commission, IMF, own calculations

### 3. National stabilization policy potential and options

- 418. It is difficult to identify the sources of asymmetries and asynchronous economic cycles. This ultimately requires a **structural multi-country model** that takes account of the individual regions and mutual influences. This kind of model can identify structural shocks and structural parameters. The latter capture the various economic structures. These are determined, among other things, by national regulation and economic policy. Such a model also allows to assess to what extent the member states of a currency union **lose monetary policy stabilisation options** and can **compensate for this by using fiscal policy instruments**.
- 419. A number of **academic studies** show that **various fiscal instruments** can, at least theoretically, compensate largely or even fully for the loss of exchange-

rate flexibility. What these studies have in common is that they are based on the Keynesian **assumption of rigid prices**. This is because if the price level adjusts flexibly, the real exchange rate could react sufficiently quickly even in a currency union. Galí and Monacelli (2008) demonstrate, for example, that the optimum solution is if monetary policy stabilises inflation at the level of the currency union while fiscal policy performs a country-specific stabilisation role. The fiscal policy instrument considered in their New Keynesian model is national **government consumption**. Beetsma and Jensen (2005) come to a similar conclusion, but also show that coordination of national fiscal policy across member states can further improve economic outcomes.

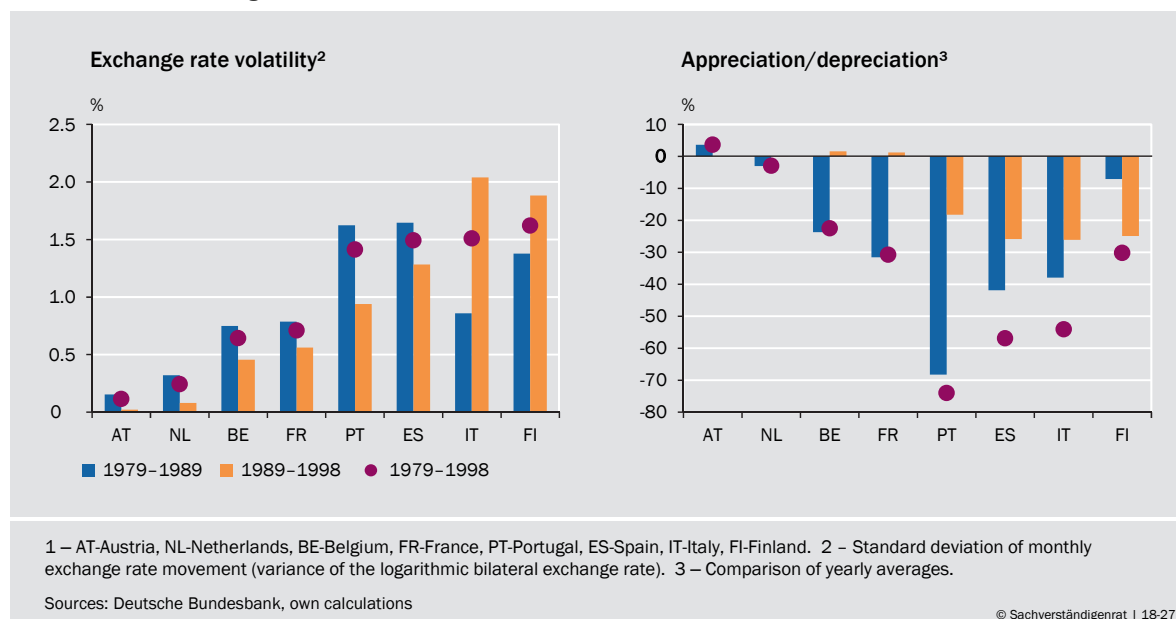
Instead of government consumption, Ferrero (2009) uses **national income tax rates** in order to improve the stabilisation outcome. If **consumption taxes** are taken into account, the loss of exchange-rate flexibility can actually be completely offset (Adao et al., 2009). Farhi and Werning (2017), on the other hand, show that **international fiscal transfers** are an effective instrument for sharing risk in a currency union. They compare international transfers, government consumption, capital controls, taxes and domestic transfers to households who consume all of their disposable income ('hand-to-mouth households'). The effectiveness of individual instruments here depends on structural parameters such as the degree of openness or price rigidity.

420. In order to **empirically investigate** member states' **stabilisation policy** options, Weiske and Wieland (2018) estimate a **structural model for two regions** in the euro area. The **model structure** is based on the ECB's New Area-Wide Model (Christoffel et al., 2008). [↘ ITEM 581](#) It considers in particular how households and companies modify their behaviour in response to unexpected shocks and changes in monetary and fiscal policy. The model captures the extent to which actual economic developments deviate from the efficient equilibrium owing to wage and price rigidities. Monetary and fiscal stabilisation policy can therefore increase welfare. Empirically relevant frictions such as investment adjustment costs and behavioural economic assumptions such as habit formation are also considered.
421. The empirical model divides the euro area into **two regions: Region D** contains **Germany** as well as the Netherlands and Austria, whose currencies fluctuated only minimally against the deutschmark before the euro was introduced. **Region A** comprises **countries** which in the past had often **devalued their currencies against the deutschmark**. These include France, Italy, Spain, Belgium, Portugal, Greece and Finland. [↘ CHART 56](#) The French franc and the Italian lira, for example, lost roughly 31 % and 54 % of their value respectively compared with the deutschmark between 1979 and 1998. During the 1980s in particular many currencies in the European Monetary System (EMS) devalued against the deutschmark. Apart from the EMS crisis of 1992/1993, which triggered sharp devaluations in some countries (such as Italy), these countries managed in the 1990s to peg their currencies more closely to the deutschmark. This was accompanied by a convergence of inflation rates.

[↘ CHART 53](#)



## ↘ CHART 56

German mark exchange rates<sup>1</sup>

The period from the late 1980s to the early 1990s can best be described as a **unilateral pegging of exchange rates** to the deutschmark (Bayoumi and Eichengreen, 1992b; McKinnon, 1993; Wieland, 1996). Under this regime, countries in Region A largely had to follow the monetary policies pursued by Deutsche Bundesbank, which was targeting price stability in Germany.

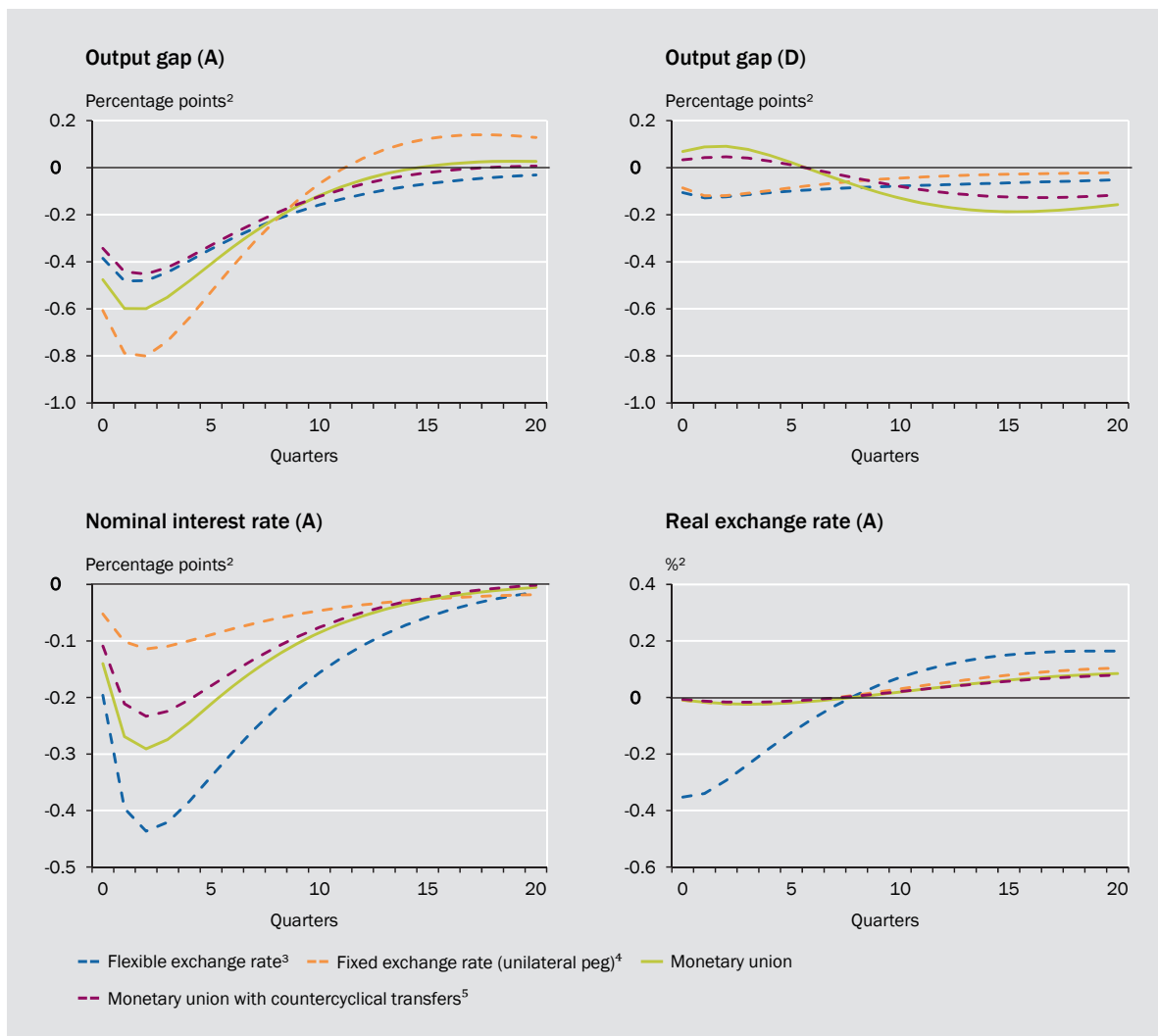
422. The potential and options for stabilisation policy can be illustrated by simulating an **asymmetric demand shock in Region A**. Weiske and Wieland (2018) consider an unexpected increase in risk premiums, which causes a shortfall of demand in Region A. This shock increases the rate of return that households expect to receive for holding risky investments. It replicates the sort of crisis situation that prevailed during the sovereign debt crisis in the early 2010s. The empirically estimated structural model makes it possible to investigate the consequences for the macroeconomy under various, partly counterfactual policy regimes. ↘ CHART 57
423. In the counterfactual case with **flexible exchange rates** monetary policy in Region A responds by cutting interest rates significantly. The currency of Region A falls sharply, which leads to a real depreciation. This improves competitiveness and supports the net exports of Region A. The interest-rate and exchange-rate responses to the asymmetric shock mitigate the macroeconomic consequences of the shock in Region A. At the same time they largely insulate Region D against any adverse effects. Over the medium term monetary policy in Region A ensures that inflation returns to the target. The assumption is that policy makers do not succumb to the temptation to maintain competitiveness for longer by resorting to a lasting devaluation, because inflation would then be permanently higher.
424. This regime of flexible exchange rates does not correspond to the situation that countries such as France and Italy were in before joining monetary union. Their situation at the time could best be described as a **regime of unilaterally**

**pegging their exchange rates** to the deutschmark. The task of monetary policy in Region A is then to maintain a stable exchange rate with Region D. The asymmetric shock in Region A therefore results in a **much lower output gap** than would be the case with flexible exchange rates. Monetary policy in Region A only reacts to the extent that monetary policy in Region D reacts to negative spillover effects. Price and wage rigidities prevent any significant real devaluation.

425. With the creation of a **currency union** Region A acquires a significant weight in the common monetary policy. In this case the interest rate therefore reacts much more strongly to the shock in Region A than in the original situation in which Region A's exchange rates were unilaterally pegged to the deutschmark. The recessionary effect in Region A is smaller than when its exchange rates were unilaterally pegged to the deutschmark, but it is still stronger than it would be with flexible exchange rates. This result is consistent with the findings of

▸ CHART 57

Asymmetrical demand shock in region A: differential political regimes<sup>1</sup>



1 – Estimated two-country New Keynesian model of euro area. Region A: France, Italy, Spain, Portugal, Greece, Belgium und Finland. Region D: Germany, Netherlands and Austria. Impulse-responses to a risk premium shock in region A. 2 – Deviation from the original equilibrium. Annualised interest rates. 3 – Flexible exchange between the two regions. 4 – Region A has a fixed exchange rate with region D. 5 – Transfers to non-ricardian households are increased by 0.5 percentage points of GDP in response to a reduction of 1 percentage point in the output gap.

Source: Weiske and Wieland (2018)

Wieland (1996), who has analysed the transition to monetary union by using a multi-country model of the G7 economies. This study reveals that major economies such as **France and Italy** have achieved **greater monetary policy stabilisation in the currency union** than they had in the EMS when their exchange rates were unilaterally pegged to the deutschmark. This aspect is neglected in theoretical studies such as Farhi and Werning (2017), who argue in favour of international transfers for stabilisation purposes.

426. **National fiscal policy** can make an **additional, stabilising contribution**. Weiske and Wieland (2018) consider the option of countercyclical government consumption as in Galí and Monacelli (2008) as well as countercyclical government transfers to households who are constrained to consuming their disposable income. The latter is fairly similar to the redistribution provided at national level by a taxpayer-funded or contributory unemployment benefit scheme, which works as automatic stabiliser. The example of the asymmetric shock in Region A shows that these domestic transfers contribute to stabilisation. The output gap in Region A even turns out to be somewhat smaller than in the simulation based on flexible exchange rates, but without countercyclical, domestic redistribution. [↪ CHART 57](#)
427. In estimating their model, Weiske and Wieland (2018) compute historical structural shocks, which they use for a **comprehensive evaluation of the policy regimes**. Based on the distribution of shocks, **standard deviations of the output gap and inflation** can be computed for different regimes. This involves using the estimated model parameters that reflect the empirical extent of wage and price rigidities as well as other frictions and behavioural assumptions. [↪ TABLE 14](#) The results confirm the example of the response to a shortfall in demand.
428. This shows, in particular, that a **countercyclical fiscal policy at national level** can **significantly reduce the consequences of asymmetric shocks**. Cyclical fluctuations of the output gap and inflation decreases substantially compared to a currency union without countercyclical fiscal policy. For Region A the standard deviation of its output gap has almost halved compared with the original situation prior to monetary union with a unilateral exchange rate peg to the deutschmark. The resulting standard deviation of the budget balance is below 1%. This would **not call the sustainability of fiscal policy into question**.

Countercyclical government consumption and investment spending can in principle achieve a similar effect implemented automatically. In practice, timely introduction is impeded by delays in decision-making and implementation as well as by the fact that estimates of the output gap are prone to revision.

429. The **GCEE** concludes from the above that member states such as France and Italy have gained influence over monetary policy as a result of monetary union compared with the preceding situation with a unilateral exchange rate peg to the deutschmark. For Germany, on the other hand, this implies a constraint on policy because the policy pursued by Deutsche Bundesbank prior to the union was fully oriented towards stabilising national fluctuations. The literature on

TABLE 14

Standard deviation of output gap, inflation and budget balance<sup>1</sup>

%

	Output gap		Inflation		Budget balance	
	Region A <sup>2</sup>	Region D <sup>3</sup>	Region A <sup>2</sup>	Region D <sup>3</sup>	Region A <sup>2</sup>	Region D <sup>3</sup>
Flexible exchange rate <sup>4</sup>	2.38	2.61	0.96	0.70	0	0
Fixed exchange rate (unilateral peg) <sup>5</sup>	4.73	2.68	1.12	0.63	0	0
Monetary union	3.05	3.77	0.96	0.71	0	0
Monetary union with countercyclical transfer payments <sup>6</sup>	2.46	2.92	0.91	0.67	0.83	1.02

1 – Estimated two-country New Keynesian model of the euro area. Seven country-specific shocks (technology, risk premium, investment, government spending, external demand, price and wage rises) in each country and one shared monetary policy shock. Estimation period: Q1 1999 to Q1 2018. The simulations do not take fiscal and monetary shocks into account. Output gap and budget balance in percent of in % of GDP. Inflation rate compared to the same quarter of the previous year. Theoretical moments based on estimated variance/covariance matrix of the shocks. 2 – Region A: France, Italy, Spain, Belgium, Greece, Portugal und Finland. 3 – Region D: Germany, Netherlands und Austria. 4 – Flexible exchange rates between the two regions. 5 – Region A has a fixed exchange rate with region D. 6 – Transfers to non-ricardian households are increased by 0.5 percentage points of GDP in response to a reduction of 1 percentage point in the output gap.

Source: Weiske und Wieland (2018)

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optimal currency areas shows that a variety of **fiscal policy instruments are available** to compensate for a loss of exchange-rate flexibility. Analyses indicate that **national fiscal policy** can contribute effectively to stabilisation. Consequently, the Stability and Growth Pact and a policy of budgetary consolidation during good times are in every member state's own best interest. **International transfers** – for example in the form of a fiscal capacity at monetary union level – are, however, **not needed** as a stabilisation device.

## V. ON A FISCAL CAPACITY FOR THE EURO AREA

### 1. Concrete proposals for a fiscal capacity

430. The French president Emmanuel Macron's calls for an additional budget at the level of the monetary union have placed the role of transfers between member states for stabilisation purposes firmly on the political agenda. The fiscal leeway of each member state is limited by the requirement of sustainability of its public debt. It could be increased by intergovernmental **transfers** if these do not have to be repaid or redeemed otherwise. Such transfers, however, would result in permanent redistribution between member states and are rightly not part of the institutional framework of the monetary union. A **transfer union** would **require** a comprehensive **relinquishment of national sovereignty** with respect to fiscal policy. Federal states such as the United States exhibit higher fiscal transfers between states, however debt issuance at the state level is very much constrained.
431. There are a number of concrete **proposals for a fiscal capacity**, which could, for example, take the form of a 'rainy day' fund or a European unemployment insurance, which intend to provide **insurance based on only temporary transfers**. [TABLE 15](#)

TABLE 15

Existing proposals for a fiscal capacity<sup>1</sup>

	Contributions	Payout conditions	Scope of payouts	Borrowing	Avoidance of moral hazard
Arnold et al. (2018)	Annual; 0.35 % of GDP	Deviation of the UR from its 7-year moving average	Proportional to deviation from moving average; 0.5 % of GDP for each pp above the moving average	Yes	Compliance with fiscal rules; optional: increased contributions after repeated payouts; cap to cumulated net transfers
European Commission (2018)	Annual, 6 % of previous year's seigniorage	On application, once per year and country; quarterly UR exceeds 15-year average and rises by at least 1 pp in comparison to the previous quarter; funds earmarked for public investment	Payouts to member states limited to 30 % of available funds; proportional to deviation from thresholds for UR multiplied by eligible public investment, conditions for repayment of the loan set discretionary; exemption for interest payments possible	Yes	Compliance with Stability and Growth Pact and Macroeconomic Imbalance Procedure in the previous 2 years
Bénassy-Quéré et al. (2018)	Annual; depending on the volatility of the trigger variable; volatility measured by a multiannual rolling window; contributions in the order of 0.1 % of GDP	Large changes in UR, employment or wage bill (e.g., exceeding 2 pp); earmarking of funds (e.g., for public investment or UE)	Single payout proportional to deviation from threshold (e.g., 0.25 % of GDP for each pp); transfers reduced proportionally if available funds are depleted	No	Re-insurance; earmarking; experience rating; increased contributions subsequent to repeated payouts; compliance with fiscal rules and country-specific recommendations of the European Semester
Beetsma et al. (2018)	Triggered by growth of exports in a specific sector relative to the euro area combined with a high export exposure in that sector	Triggered by contraction of exports in a specific sector relative to the euro area combined with a high export exposure in that sector	Proportional to export exposure in the sectors and the change in the euro area's exports in those sectors	No	Based on observable figures in world trade which are not under direct control of individual member states; transfers must add up to zero in each period
Dullien und Pérez del Prado (2018)	Annual; 0.1 % of GDP; of which 80 % in national and 20 % in common compartment; cap of 1 % of GDP for national compartment	National compartment: UR exceeds 5-year average by more than 0.2pp; no obligation to withdraw funds; common compartment: UR exceeds average by more than 2pp	National compartment: e.g., 25 % of average wage per employee; common compartment: progressively raising payouts; national compartments may run deficits up to 2 % of GDP; financed by loans from other national compartments and by borrowing from financial markets	Yes	Risk-based, progressively rising contributions once national compartments accumulated a deficit of 0.5 % of GDP; adjustment of contributions
Dolls et al. (2016)	Annual, standardised contribution rate on revenues from social security contributions	National UE-insurance has to meet minimum standards; co-financing of payouts; only to short-term unemployed are targeted; national UE rate must be raising at a faster rate than that of the euro area; UE spell must be between 2 to 12 months	No more than 50 % of the unemployment benefit of short-term unemployed	No	Co-financing with national funds; exclusion of seasonal and frictional unemployment by means of a 2 month waiting period
Artus et al. (2013)	In the amount of 20 % of the aggregate payroll multiplied by the structural UR	-	Replacement rate is set to 20 % of a worker's salary (roughly equal to 20 % of the aggregate payroll multiplied by the UR)	No	-

1 – UR–unemployment rate; pp–percentage points; UE–unemployment

Sources: Specified sources

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These include, among others, proposals by the International Monetary Fund (IMF) and the European Commission. [↘ BOX 8](#) Most of these proposals neither call for a concrete repayment of transfer payments, such that permanent transfers would be effectively precluded, nor do they demand an interest payment. Instead, they rely on the balancing effects of randomness. An exception is the proposal by the European Commission which provides loans rather than transfers, but where the Commission can decide on the conditions of the loan.

432. The aim of the proposals for a fiscal capacity is to insure against random shocks with asymmetric effects on member states. If these shocks are symmetrically distributed over a long time period, contributions and receipts triggered by such shocks would balance each other. Shocks represent exogenous events, which are independent from government policy. However, it is very difficult to identify them empirically. For example, this would require a model-based analysis. [↘ ITEMS 418, 422](#) This is the reason why proposals are not directly linked to concrete shocks, but rather to observable macroeconomic data. Relying on the output gap would ensure countercyclicality. Yet, due to its frequent revisions, most proposals rather rely on the unemployment gap. For an evaluation of a specific proposal, it is necessary to test whether it fulfils the following technical conditions: transfers should have a **countercyclical** effect, **permanent net transfers** or **very heterogeneous net burden** should be precluded.

[↘ BOX 8](#)

**The European Commission's (2018) proposal for an Investment Stabilisation Function**

The Investment Stabilisation Function proposed by the European Commission can lend to member states affected by asymmetric shocks if they apply for such loans. The EU would be allowed to borrow for this purpose. A guarantee of €30 billion is to be made available from the EU budget. The proposal would allow for loans to be granted to EMU member states affected by asymmetric shocks as well as Denmark (Exchange Rate Mechanism II). The European Commission would be able to decide at its discretion on the terms and conditions applicable to the loan, such as its duration and the interest rate. The amount of the loan is determined by the maximum level of eligible public investment and by the severity of the shock.

A member state meets the criteria for obtaining a loan if its unemployment rate in any one quarter exceeds the 15-year average and has risen by at least one percentage point compared with the corresponding quarter of the previous year. In addition, the country must have complied with the Stability and Growth Pact and with the Macroeconomic Imbalance Procedure in the previous two years. Member states can apply for these funds once a year. The amount of any one loan is limited to 30 % of the funds still available in the Investment Stabilisation Function. The funds must be used for public investment, which must not fall below the five-year average. Up to 100 % of the capital cost of a loan can be covered by a stabilisation fund. The fund is financed by the member states' payment of annual contributions amounting to 6 % of their seigniorage. The European Commission is responsible for approving and distributing loans as well as monitoring and imposing sanctions. The sanctions imposed can take the form of reductions of reimbursed interest payments or the early repayment of loans.

## Temporary or permanent net transfers

433. Calculations for the IMF’s proposal (Arnold et al., 2018) based on the development of the unemployment rate for the years 1990 to 2017 reveal – not least as a result of the capacity to borrow – **substantial, long-term net transfers** in total and between member states. These calculations are based on past data. They do not take into account the possible feedback effects of international transfers for overall economic activity.

The German Council of Economic Experts employs the method of Arnold et al. (2018) to check whether extending the period of time considered to 1970 to 2017, results in more balanced payments and a reduction in the overall extent of redistribution resulting from the proposal. However, it still leads to substantial long-term net transfers. Greece and Spain would have received cumulative net transfer payments of up to 31 % and 25 % of GDP respectively. [↘ TABLE 16](#) It would take several decades to reduce these net positions to zero. This is a multiple of any politically relevant time horizon, such as the duration of a legislative term. From this, it is clear that any **insurance function** performed by a fiscal capacity can, in practice, **hardly be distinguished from quasi-permanent transfers**. If such large and long-lasting net transfers cannot be avoided, this is likely to create strong adverse incentives. [↘ ITEM 441](#)

Although calculations for an alternative proposal made by Beetsma et al. (2018) result in lower net transfer receipts, individual member states such as Luxembourg and Ireland would still make substantial net transfer payments of 10.9 % of GDP and 5.5 % of GDP respectively. [↘ TABLE 16](#) These would probably reduce the willingness to share risks in this way and would create incentives for countries to increase their own transfer receipts.

434. Calculating the net positions under the baseline scenario of the IMF’s proposal for the period from 1970 to 2017, reveals that this would have led to **persistent positive net transfers** at the aggregate level (scenario 1). [↘ CHART 58 LEFT](#) The **fiscal capacity** would have had to **borrow considerable sums** amounting to 4 % to 5 % of the member states’ GDP. Arnold et al. (2018) consider several strategies to reduce long-term net transfer receipts. For instance, such recipient countries could have paid higher contributions during economic upturns in line with so called “experience ratings” (scenario 2). However, these contributions would have had to be substantial in order to compensate for the payments received during cyclical downturns.
435. Other proposals only specify transfers if the rise in the unemployment rate exceeds a certain level (scenario 3). This might help to trigger payments only in the event of evident crises and to avoid any borrowing by the fiscal capacity. Nonetheless, countries such as Spain and Greece would still have received **very high net transfer payments**. Finally, it would be possible to prohibit any borrowing by the fiscal capacity, but without modifying the other parameters of the proposal (scenario 4). The stabilisation effect would then vary considerably, depending on whether other countries had received payments in previous years. A further option would be to limit the cumulative disbursements and

TABLE 16

**Cumulative net transfers to the twelve euro area member states as part of a fiscal capacity<sup>1</sup>**

%

		AT	BE	DE	ES	FI	FR	GR	IE	IT	LU	NL	PT
Arnold et al. (2018) <sup>2</sup>	1990 – 2017	- 2.8	- 3.1	- 0.7	20.7	3.5	- 1.4	29.0	5.8	3.3	0.1	- 1.1	9.0
Arnold et al. (2018) <sup>2</sup>	1970 – 2017	- 2.6	- 0.8	0.7	25.2	3.3	0.7	30.8	7.3	4.2	0.3	0.6	10.0
Beetsma et al. (2018)	1995 – 2014	- 0.1	- 1.2	0.2	0.1	2.3	- 0.3	1.7	- 5.5	1.1	- 10.9	- 0.9	1.6

1 – As a percentage of nominal GDP. Time period under investigation determined by availability of data. AT-Austria, BE-Belgium, DE-Germany, ES-Spain, FI-Finland, FR-France, GR-Greece, IE-Ireland, IT-Italy, LU-Luxembourg, NL-Netherlands, PT-Portugal. 2 – Proposal of the International Monetary Fund. Cumulative payouts at the start of each year. Based on the assumption that the fiscal capacity can borrow and lend money on an interest-free basis..

Sources: European Commission, OECD, own calculations

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contributions paid per country (scenario 5). This would also tend to limit the stabilisation effect. This illustrates the trade-off between stabilisation and redistribution.

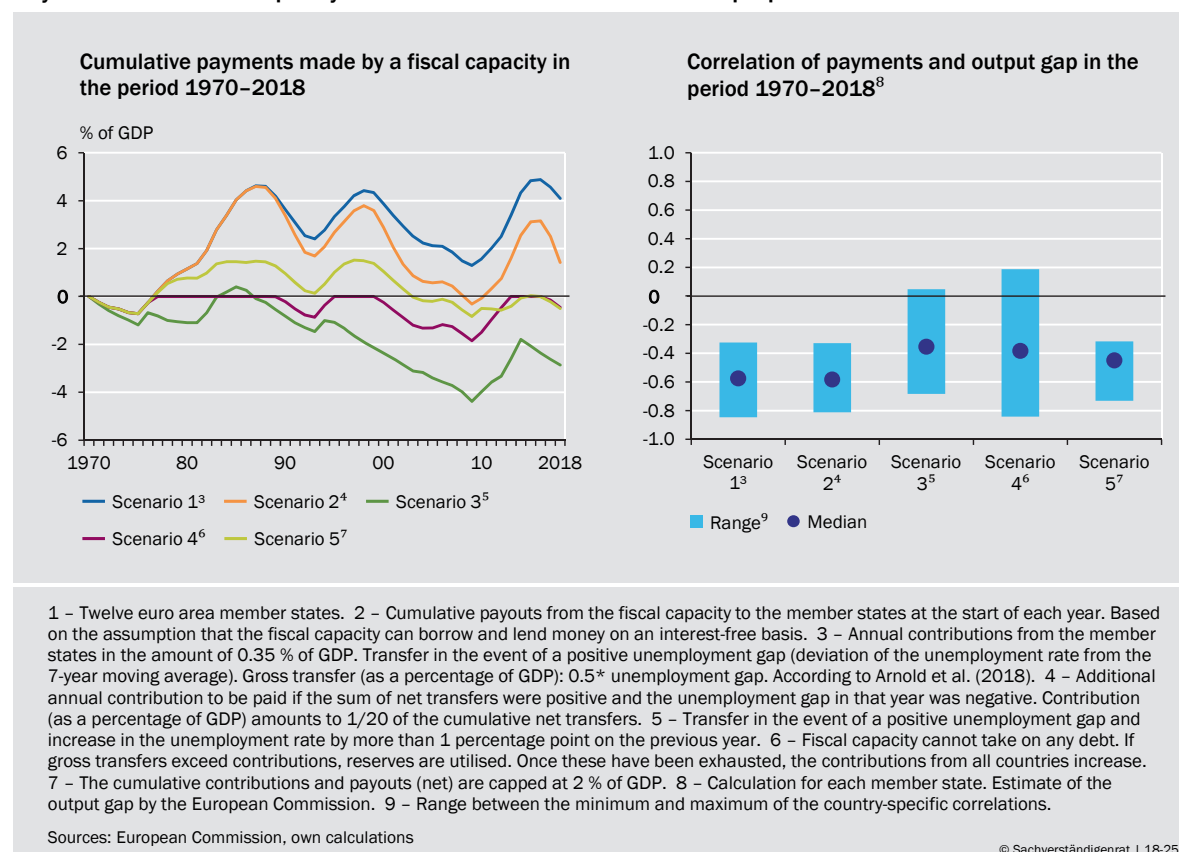
### Countercyclical transfers between member states

- 436. Measurement errors and revisions** of GDP and uncertainty about its potential level make it difficult to organise **transfers** between states in the form of a European fiscal capacity in such a way that they have a **timely and countercyclical** effect. [ITEM 259](#) Consequently, most proposals use the unemployment rate as the trigger for transfer payments. However, the ‘natural’ or structural unemployment rate, which was to serve as the reference point, is just as difficult to determine as the potential GDP. Moreover, it changes over time owing to structural changes and economic policy measures. The IMF’s proposal (Arnold et al., 2018; Lagarde, 2018) thus uses a purely statistical measure, namely a seven-year moving average. The size of the payments is determined by this **unemployment gap**.
- 437.** Calculations show that the **payments** under the IMF’s proposal would at least have been **negatively correlated with the output gaps** that the European Commission estimates (scenario 1). [CHART 58 RIGHT](#) There are also **differences between the different countries**. The statistical correlation for Germany has been very weak over the past 15 years. During the severe recession of the years 2008 and 2009, for example, Germany would have received payments if the fiscal capacity had been determined by the capacity underutilisation of roughly 5 %, but not if it had been based on the unemployment gap. The unemployment gap rose only marginally and had already begun to fall again by 2010.
- 438.** This provides a good example of the **problem of using a one-sided filter** to calculate the unemployment gap. In particular if the natural unemployment rate falls, the moving average can remain above the unemployment rate for years. The labour market reforms carried out in Germany in the early 2000s, for example, were among the factors that caused the unemployment rate to fall (GCEE Annual Report 2017 box 5). The unemployment rate in Spain is also currently more than seven percentage points below the moving average. The fall in unemployment here is likely to be partly of a structural nature. At any rate, it



↘ CHART 58

Payouts from a fiscal capacity for the euro area based on the IMF proposal<sup>1</sup>



is difficult to distinguish between structural and cyclical fluctuations in unemployment.

439. Beetsma et al. (2018) therefore link the transfer payments to **export income volatility** resulting from changes in global trade. A member state receives transfers if the euro area's exports fall especially sharply in those sectors in which the country accounts for a comparatively high proportion of the euro area's total exports. For most member states this results in countercyclical transfer payments in line with the European Commission's output gap estimates. However, the average correlation with the output gap between 1995 and 2011 is only -0.12. Spain and Ireland, which were both subject to an ESM programme, would in aggregate have actually had to make net payments to the fiscal capacity during the period from 2009 to 2012.
440. The practical **implementation** of these two proposals poses further **problems**. If the payments are not triggered until the data on unemployment and exports is available for the year as a whole, this might reduce the desired countercyclical effect of the transfers. One alternative would be to use forecasts. However, these are subject to forecast errors and are prone to revision. They would also be easier to manipulate than published data.

## 2. Transfers, risk sharing and adverse incentives

441. It is argued that there is a need for transfers between member states because of the particularly **low level of international risk diversification**. This is the flipside of the widespread ‘home bias’ found in households’ investment behaviour. Given the loss of exchange-rate flexibility within the euro area, it is claimed that it is especially important to increase fiscal risk sharing by means of transfers (Farhi and Werning, 2017; Berger et al., 2018). Studies that follow the method used by Asdrubali et al. (1996) show that the **contribution made by fiscal transfers to international risk sharing is modest**.
442. The **main contribution** to consumption smoothing in the euro area **comes from the savings channel**. This channel includes private and public savings which equal domestic savings and private and public international net borrowing. Although the contribution from international factor income – which is usually subsumed under the factor income or capital channel – is larger than the contribution made by fiscal transfers, it is still small (Asdrubali and Kim, 2004; Kalemli-Özcan et al., 2014; Alcidi et al., 2017; Milano and Reichlin, 2017a; Hoffmann et al., 2018).

In the **United States factor income** in particular but also **government transfers** to and between the federal states play a **greater role** than in the euro area (Asdrubali and Kim, 2004). Although the findings for other federal states are fairly mixed, they mainly indicate a larger role for the savings or factor income channel (see the overview in Feld et al. 2018). After all, it is claimed, financial markets provide **less risk sharing in times of crisis** – just when it is most needed. This is seen as an argument in favour of more fiscal transfers within the euro area because, in conjunction with an enhanced banking union, they would make it easier for member states to comply with fiscal rules (Berger et al., 2018).

443. There are **substantial differences** in average **per-capita income** between the EMU member states. This is also true of the **degree of domestic redistribution** between households with higher and lower incomes by the national tax and transfer system. Currently, at least, there is no the political support for any substantial redistribution of income between member states. It is for this reason that existing **proposals for a fiscal capacity** usually pursue an **insurance function**. This would merely involve providing temporary transfers between member states so that there would be no permanent net transfers. Furthermore, no member state should be able to expect to receive transfer payments in advance. A fiscal capacity at the European level would therefore differ fundamentally from transfer mechanisms such as the German fiscal equalisation scheme, which is explicitly intended to provide systematic and long-term redistribution (GCEE Annual Report 2014 items 606 ff.).
444. In order to achieve this objective, some of the proposals stipulate **ex-ante conditionality** (Arnold et al., 2018). This approach is often adopted for private insurance solutions that wish to avoid moral hazard. One theoretically ideal solution would be to make transfers contingent on the occurrence of an

asymmetric shock (Persson and Tabellini, 1996a). However, in practice it is not possible to implement this because shocks are unobservable and difficult to estimate. Instead, the ex-ante conditionality would make the **receipt of transfers** from the fiscal capacity contingent on preconditions. These would include **compliance with European fiscal rules**, as called for by the proposals of the European Commission (2018) or Bénassy-Quéré et al. (2018). It might also be possible to introduce a deductible for member states in order to reduce the adverse incentives arising from a fiscal capacity. This fiscal capacity would then take the form of **reinsurance**.

445. The GCEE is of the view, however, that there are a **number of good reasons** not to introduce a fiscal capacity at the European level. The literature on optimal currency areas shows that there are already **sufficient** fiscal and economic policy **instruments at the level of the member states** to compensate for the loss of exchange-rate flexibility. ↘ [ITEMS 406 F](#). Furthermore, a fiscal capacity that pays purely temporary transfers does not increase borrowing capacity (Advisory Board to Germany's Federal Ministry of Finance, 2016). The **decisive step towards more solidarity** was the **introduction of the ESM**, which supports member states at risk of losing access to the markets. The lending that it provides with policy conditions attached helps to ensure that reforms needed to secure fiscal sustainability are implemented.
446. Also for these reasons, the **degree of international risk sharing via the public sector** has **grown significantly** since the financial crisis and the sovereign debt crisis in the euro area. Milano (2017) and Milano and Reichlin (2017b), for example, have documented a sharp rise in risk sharing in the form of public lending. While international transfers continue to play only a minor role in the euro area, there has been much more risk sharing via the credit channel involving public institutions than in the United States. While there are significant public transfers between states there, there is hardly any public borrowing by the federal states because they have to balance their budgets. Milano and Reichlin (2017) estimate that the contribution to risk sharing between member states made by public institutions is 38 % in the euro area compared to 22 % in the United States. The establishment of the European Financial Stability Facility (EFSF), the European Financial Stabilisation Mechanism (EFSM) and the ESM as well as their lending have made a decisive contribution to risk sharing in the euro area.
447. The estimate by Milano and Reichlin (2017) does not even include the **ECB's credit facilities**, which have supplied national commercial banks with loans at below the market interest rate. The **TARGET2 payments system** actually enables private capital outflows to be replaced by public capital inflows. ↘ [ITEM 408](#) The crisis-hit countries in the euro area have been spared the type of sudden stop observed in emerging markets. The relaxation of the Euro system's collateral standards played an important role here. Furthermore, the provision of unlimited amounts of liquidity may encourage an tendency to borrow excessively and to more frequent incidents of sudden capital outflows. This, in turn, is an argument for **strengthening prudential regulation to prevent excessive borrowing** (Schmitt-Grohé and Uribe, 2016).

448. Strengthening the banking union is the best way to reduce banks' much-lamented preference for their home markets. There should a greater push to break the state-bank-nexus, and the privileged status conferred on government bonds in banking regulation should be ended. ↘ ITEM 488 Instead of expanding risk sharing via the public sector in the form of international transfers, the appropriate strategy would be to strengthen the capital market union in order to improve risk sharing via the financial markets. ↘ ITEM 521 Also, political measures taken to **strengthen one channel** – in this case public risk sharing – might **weaken other risk-sharing channels** (Poncela et al., 2016; Roeger and Vogel, 2017).
449. Moreover, proposals for a fiscal capacity suffer from the aforementioned **implementation problems. Output gaps and natural unemployment rates are unobservable.** Estimates are very uncertain and frequently subject to revisions for some time. The selection of certain trigger variables is arbitrary and could create incentives to use the leeway in interpreting and evaluating data and empirical estimates in a distorting way or to modify the procedure retroactively. As demonstrated for the proposals by the IMF (Arnold et al., 2018) and Beetsma et al. (2018), this is likely to result in individual countries receiving net transfer payments for a long period of time. The intended **insurance function** can, in practice, **hardly be distinguished from quasi-permanent transfers.** As in other fiscal transfer systems, this gives rise to political-economy type adverse incentives (Feld and Osterloh, 2013).
450. A fiscal capacity that performs an insurance function should really only be called upon if the insured event – an asymmetric shock – occurs. However, this event is very difficult to distinguish from other causes of asymmetric developments, such as sclerotic economic structures or economic policy measures that hurt competitiveness. This situation creates substantial **moral hazard with respect to** member states' **consolidation efforts** and their willingness to implement **structural reforms** (Persson and Tabellini, 1996b; Bucovetsky, 1997; Lockwood, 1999; Beetsma and Bovenberg, 2001), evidence of which is available for several federations (Rodden, 2006, Baskaran et al. 2017).

In addition, Fernández-Villaverde et al. (2013) find that the **improvement in financing conditions** has led to **fewer structural reforms** being implemented by the EU's periphery countries. The less a member state has increased its fiscal policy leeway in the past, the larger the transfer payments it would be able to expect to receive from a fiscal capacity. The transfer payment then constitutes a reward for earlier misconduct. Economides et al. (2016) investigate the welfare effects of fiscal transfers in a currency union by using the example of a model for Germany and Italy. The welfare effects of a pure insurance solution are very small. Redistribution has a significant positive impact on the recipient country. However, this results in a loss if moral hazard lead to misconduct. Perotti (2001) also points out the inefficiency of centralised transfers in a currency union for political economy reasons.

451. There are also **adverse incentives** in connection with the **trigger variables.** These create an incentive to produce a **distorted estimate of the output**

**gap.** Many proposals therefore relate to the level of, or change in, the unemployment rate following an asymmetric shock. But the greater the price and wage rigidities, the more sharply the unemployment rate reacts to shocks (Blanchard and Wolfers 2000). This significantly reduces the **incentives to implement structural reforms** in product and labour markets.

452. **Ex-ante conditionality** intended to prevent moral hazard **cannot be implemented** between sovereign states in the same effective way as in the case of insurers and private individuals or companies. The credibility of these preconditions and their implementation would be crucial to mitigate possible moral hazard. Compliance with European fiscal rules as a potential precondition would appear to lack credibility in the light of past experience. There is a time-inconsistency problem here: following a lack of compliance there is an **incentive to change the rules governing the disbursement of transfers** so that payment can be made to a member state affected by a shock.

Goodspeed and Haughwout (2012) use a political-economy model to demonstrate this effect. They analyse transfers made by the US government to the country's federal states in response to natural disasters. The federal states themselves can invest in preventive measures that would reduce the likelihood of a shock. After the event the political-economy equilibrium ensures that federal states with low levels of investment receive larger transfer payments. A deductible does not fundamentally alter the time-inconsistency problem or the political-economy incentives here either because in this case the federal level is also under political pressure to provide full insurance.

453. In principle, proposals for a fiscal capacity must be formulated precisely enough such that they can be evaluated systematically. There is a lack of such **comprehensive evaluations** with multiple methods including empirically estimated structural models. They would be needed to show that existing proposals can effectively preclude long-term net transfers, procyclical effects and moral hazard for fiscal and economic policy making by member states.
454. Given all of the above, the GCEE concludes that a **fiscal capacity** to stabilise macroeconomic shocks at European level **should not be introduced**. It is not necessary. Firstly, suitable instruments are already available at the national level and offer potential avenues for stabilising shocks within the framework of the Stability and Growth Pact. And, secondly, any country that loses access to markets can avail itself of the financing facilities provided by the ESM. To the extent that a member state meets the country-specific recommendations, access to these facilities is not likely to be subject to onerous policy conditions. Since the financial crisis we have already seen a massive expansion of risk sharing through public institutions.

Transfers between member states that perform an insurance function in a purely temporary and targeted countercyclical form are nearly impossible to implement, especially given the measurement problems involved. Moreover, they create substantial **moral hazard** likely to lead to misconduct which undermines the institutional framework of the monetary union and the sustainability of sovereign debt in the member states. The establishment of such

a fiscal capacity is associated with significant risks. It could be used to **circumvent** the **ESM** which could otherwise ensure the unity of liability and control by providing loans subject to conditionality following misguided economic policy. Ultimately, it could mean the introduction of a transfer union via the backdoor.

## A differing opinion

455. One of the council members, Isabel Schnabel, believes that **rejecting a fiscal capacity** – the position that is represented by the majority in this chapter – **goes too far**.

The majority argue that a **fiscal capacity** for stabilising macroeconomic shocks at European level is **not needed**, firstly because suitable instruments for stabilising shocks already exist at national level, and secondly because a country that loses access to financial markets can draw on the funding options provided by the ESM. They also argue that implementing an insurance-like fiscal capacity would be almost impossible and would create significant incentive problems. There is a danger, they believe, that the fiscal capacity would be used to circumvent the ESM and the conditionality that it imposes. Moreover, it would be virtually impossible to avoid long-term transfers, which might then lead to a “transfer union by the back door”. ↘ ITEMS 449, 454

These arguments are **not fundamentally rejected** here. Rather, the assessment differs whether a further instrument – in addition to the existing framework – might be necessary in certain situations and whether the problems mentioned above can be dealt with by designing the measures appropriately. It is difficult to come up with a clear answer to these questions because there are no real-life examples of such a fiscal capacity that would enable an empirical evaluation to be carried out.

456. In normal periods, national fiscal policy should be sufficient to smooth asymmetric shocks. But situations are conceivable in which a **country’s fiscal space** would be **insufficient, despite** appropriate fiscal discipline. This depends, not least, on how the fiscal framework has been designed. The more pro-cyclical the fiscal framework, the more sense a fiscal capacity could make.

Furthermore, a member state could **lose its access to financial markets**, making countercyclical fiscal policy impossible. Model analyses (Arnold et al., 2018; Claveres and Stráský, 2018) confirm that, under certain conditions, a fiscal capacity might have a noticeable stabilising effect compared with purely national fiscal policy, particularly if common monetary policy is constrained by the effective zero lower bound or if a country loses its access to financial markets.

457. Although the **option of accessing the ESM** helps to mitigate a crisis in a member state and thus has a stabilising effect (Milano, 2017), it is **not a substitute for macroeconomic stabilisation**. Firstly, financial assistance is

envisaged only if it is “indispensable to safeguard the financial stability of the euro area as a whole and of its Member States” (Article 12 of the ESM Treaty). It would thus probably be necessary to **reform the ESM** so that it could be used to restore macroeconomic stability in individual member states, even if they are not in the midst of an acute financial crisis.

Secondly, an ESM programme is typically applied for – not least because of the perceived stigma – at a relatively late stage, namely when the crisis has already materialised. Moreover, the outcome of the procedure is **bound up with considerable uncertainty**, due to the lengthy processes and the need to negotiate with a large number of parties. This uncertainty could compound a downturn, as could the conditions imposed under an ESM programme.

A fiscal capacity, on the other hand, could help to stabilise expectations and would, if structured accordingly, act as an **automatic stabiliser**. This might make it less likely that an ESM programme would be needed at all. Provided the country’s fundamentals were sound, this would be desirable and would not constitute a “circumvention”. ↘ ITEMS 76, 454

458. In the past, there has been **little macroeconomic stabilisation** at the level of the euro area. Alcidi et al. (2017) show that **75 % of the shocks in the euro area were not smoothed** in the period from 1998 to 2013. Furceri and Zdzienicka (2015) and the ECB (2018a) provide similar findings. The results for the time of the **crisis in the euro area** particularly stand out. Kalemli-Özcan et al. (2014) show that, particularly in Greece, Ireland, Italy, Portugal and Spain, **risk sharing** during the early stages of the sovereign debt crisis in 2010 **declined dramatically**, in part due to the pro-cyclical effect of the rise in government savings.

But even in the period from 2010 to 2013, i.e., after the EFSM, EFSF and ESM had been set up, the **unsmoothed proportion** stood at **94 %** (Alcidi et al., 2017). No normative conclusions can be drawn from such analyses, particularly as they should be interpreted with caution due to their high level of aggregation. However, the unusually **low level of risk sharing during crises** is reason enough to ask whether there are gaps in the euro area’s architecture.

459. The sharp drop in risk sharing was primarily linked to the collapse of the interbank market (Hoffmann et al., 2018). It is therefore reasonable that **strengthening risk sharing via the credit and capital markets is especially important** for international risk sharing. However, the **slow progress with Capital Markets Union** shows that increased risk sharing via resilient forms of funding can probably only be achieved gradually. ↘ ITEMS 538 FF.

But even in the long term, the extent to which **capital markets integration** can be **achieved at all** in the euro area is uncertain because of the cultural, language and institutional barriers. The same applies to the integration of labour markets. Based on the figures presented by Alcidi et al. (2017), more than half of the shocks would remain unsmoothed, even if risk sharing via the factor income channel were to triple (which seems ambitious, even in the medium term).

460. To answer the question of whether a fiscal capacity leads to **long-term net transfers**, feedback effects at macroeconomic level in general equilibrium would have to be factored in. In the calculations in ↘ TABLE 16 and Arnold et al. (2018), stabilising effects are not taken into consideration, and neither are possible issues stemming from adverse incentives. Moreover, the calculations are based on the assumption that transfers are paid irrespective of compliance with the fiscal rules. Arnold et al. (2018), however, explicitly stress that access to the fiscal capacity should be made contingent on the adherence to the fiscal rules and that the avoidance of permanent transfers is essential to political buy-in.

The simulations of Arnold et al. (2018) show, as does ↘ CHART 58 LEFT, that the **effects** of the fiscal capacity on long-term transfers **depend very heavily on its structure**. This is supported by various other studies (e.g. Beblavý et al., 2017; Dolls et al., 2018). At the same time, ↘ CHART 58 RIGHT indicates that a substantial stabilising effect can be achieved even with a more incentive-compatible structure (and smaller transfers).

461. With regard to the creation of adverse incentives, a range of possible design features were proposed that may **limit moral hazard** (Gros, 2014; Bénassy-Quéré et al., 2018), but typically also restrict the insurance effect. To avoid the creation of adverse incentives, it seems sensible to insure only large shocks (**reinsurance principle**), especially as the access to capital markets is most likely to be restricted during such shocks. Furthermore, **experience ratings** can be used, where the insurance premiums vary according to the degree of previous utilisation. This could be a way of limiting the extent of permanent transfers.

Finally, utilisation should be made conditional on whether a member state has previously adhered to the rules (**ex-ante conditionality**). This condition might also improve member states' compliance with the rules. Such a rule may be easily **enforceable** because a use of the funds against the rules by a member state would limit the other member states' access to these funds, provided the fiscal capacity were unable to take on any debt. It is therefore very much in the interests of the member states to prevent a misuse of funds.

462. But even if there were **adverse incentives**, this would not be reason enough to **reject a fiscal capacity** if it had a sufficiently large stabilising effect. This stabilisation would benefit not only the individual member state but the entire euro area, whether due to economic or political effects. Weighing up the potential positive and negative effects of a fiscal capacity would require a sufficiently **specific description and comprehensive evaluation** of the proposals put forward and of their design. ↘ ITEM 453
463. Overall, it can be concluded that a **fiscal capacity with an incentive-compatible structure**, preferably in the form of unemployment reinsurance, could indeed be **part of a package of reforms** for the euro area, provided that evaluations point to a generally positive impact. Bénassy-Quéré et al. (2018) argue that such a package of reforms would have to allow **greater market discipline and more risk sharing**. In the fiscal sphere, greater market discipline could be secured by ending the preferential treatment of sovereign



exposures and introducing a debt restructuring regime for sovereigns. The German Council of Economic Experts also supports these proposals.

464. However, **stabilising measures are also required** because debt restructuring, for example, would **otherwise not be credible** in the event of a crisis due to its high economic and social costs (Berger et al., 2018; Bénassy-Quéré et al., 2018). After all, market discipline can only be maintained if the consequences of a sovereign insolvency are bearable for the debtor – and for the euro area as a whole (Gros and Mayer, 2010). Besides a fiscal capacity in the form of **unemployment reinsurance**, a reformed **preventive credit line at the ESM** could help to provide liquidity if a country lost access to the markets despite having a sound economic policy. If such instruments would make market discipline more credible, they could ultimately **even reduce moral hazard**.

## A differing opinion

466. One member of the GCEE, Peter Bofinger, does not agree with the following statements made by the majority of the Council members in this chapter:

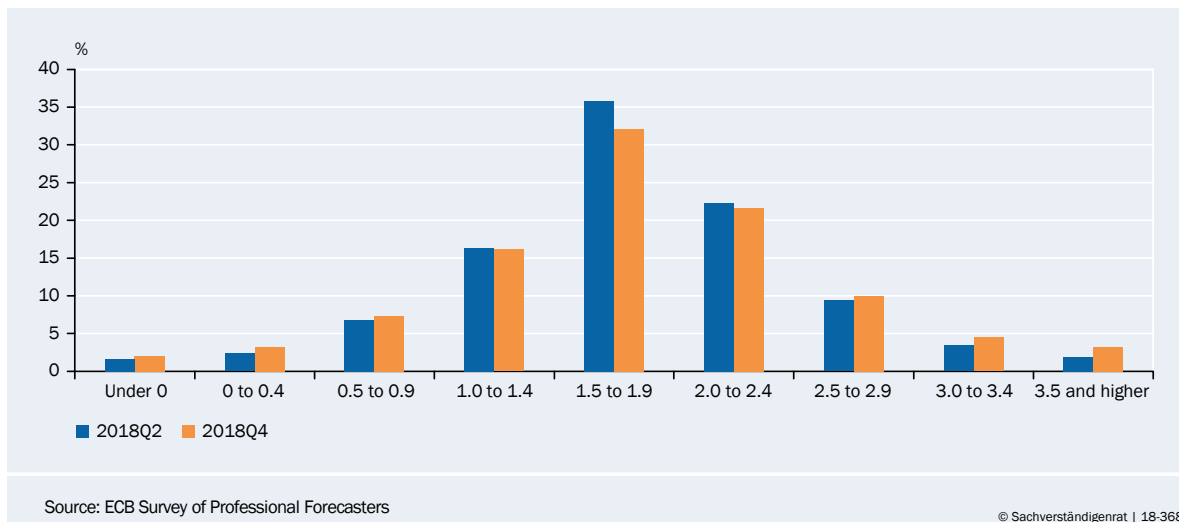
- „There is a danger that the change of course in monetary policy will come too late. Inflation might rise faster, and we could see a further increase in the misallocation of credit, investment and resources and in the risks to financial stability.“ ↘ EXECUTIVE SUMMARY
- „The ECB is postponing interest-rate hikes and a reduction of its bond holdings for too long. This increases the risk that the change of course in monetary policy will come too late.“ ↘ ITEM 342
- „Moreover, the ECB runs the risk of reacting too slowly and too late because it continues its low-interest-rate policy and quantitative easing for too long.“ ↘ ITEM 359
- „The capacity overutilisation now arising in the euro area is fuelling additional inflationary pressures.“ ↘ ITEM 360
- „Lower estimates of medium-term equilibrium interest rates and output gaps put the Taylor interest rate close to 2 %. This reference value underlines the risk of tightening monetary policy too late.“ ↘ ITEM 363
- „There is thus a significant risk that the change of course in the ECB’s monetary policy will come too late.“ ↘ ITEM 363
- „(...) the current rise in the rate of inflation will cause real interest rates to fall. (...) This means that monetary policy will have an even more expansionary effect. Inflation might rise faster than expected, while growing capacity overutilisation could lead to misallocation of credit, investment and resources (Acharya et al., 2016). Consistently low interest rates also pose a risk to financial stability (...).“ ↘ ITEM 364
- „It would be better for the ECB to start abandoning its low-interest-rate policy earlier in order to give the financial system more time to adjust.“ ↘ ITEM 367
- „The ECB should therefore respond to economic recovery and rising inflation not only by raising interest rates but also by reducing the reinvestments in its portfolio.“ ↘ ITEM 374

These statements reiterate the **negative assessment of the ECB’s monetary policy strategy** that have been expressed in the previous five GCEE Annual Reports. ↘ BOX 9 In retrospect it is clear that the ECB has, on the whole, conducted a highly successful monetary policy, while the fears expressed by the majority of the GCEE about inflationary trends and the stability of the financial system have – so far, at least – failed to materialise.

467. Rather, all currently available **forecasts** continue to forecast that **inflation** in the euro area will not exceed the target of close to but below 2 % by the year 2020 (ECB, 2018b). And, even over the longer term, the average rate of 1.9 %

▸ CHART 59

Aggregate probability distribution of longer-term inflation expectations in the euro area (HICP)



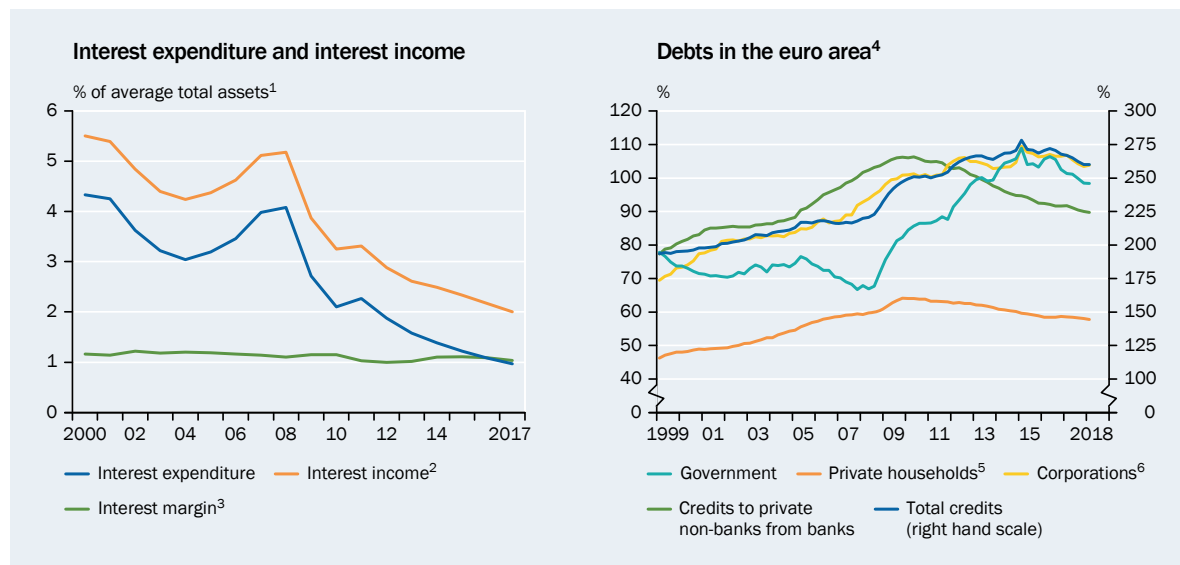
that the experts surveyed by the ECB are expecting for the Harmonised Index of Consumer Prices (HICP) is below the ECB’s target. Moreover, the risk of below-target inflation is still considered to be higher than the risk of an above-target rate. ▸ CHART 59

468. The fears expressed about the **impact that low interest rates would have on the stability of the financial system and banks’ profitability** have also failed to materialise thus far. Reporting on the 2017 financial year, Deutsche Bundesbank (2018b) pointed out that the pre-tax profits of all banking groups had comfortably exceeded their respective long-term averages. **The interest-rate margin has remained virtually unchanged since the early 2000s.**

▸ CHART 60

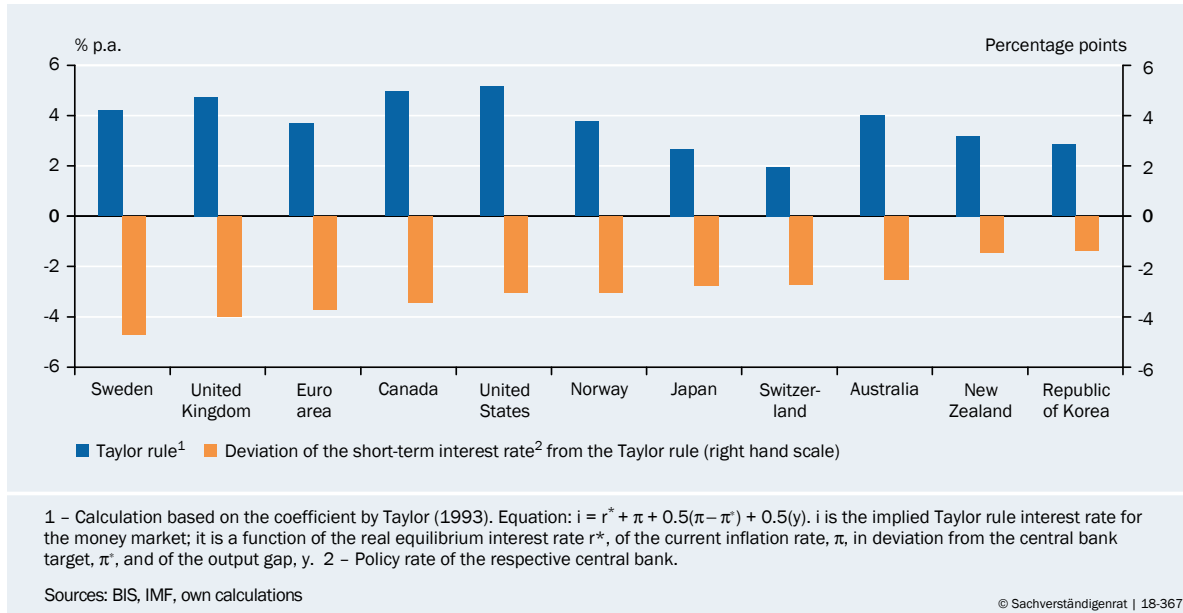
▸ CHART 60

Interest expenditure and income of German banks as well as debts in the euro area



## ↘ CHART 61

## Taylor rule and deviation of the short-term interest rate from the Taylor rule in selected economies



**Debt in the euro area** as a proportion of economic output has actually fallen slightly since the bond purchase programmes began. This is especially true of private non-bank debt held with banks. ↘ CHART 60

469. The fact that the majority of the GCEE's members have for years now been highly sceptical of the ECB's monetary policies could well be because their view has largely been based on a **guidance system of interest-rate rules** in the form of the Taylor rule and a change rule. These rules have been derived from past observations of how central banks have actually responded to inflation and to trends in the real economy. The original Taylor rule, for example, was developed by John Taylor to describe the Federal Reserve's monetary policy between 1987 and 1992 (Taylor, 1993). The change rule (GCEE Annual Report 2017 chart 41) mainly describes the ECB's policy stance in the run-up to the euro crisis. It is debatable whether these response patterns – observed during specific periods in history – can offer guidance on what might constitute the best policy stance to adopt in completely different economic conditions.
470. The fact that the Taylor interest rate for Germany has remained several percentage points above the actual rate since 2011 without there being any visible signs of inflationary trends to date is not, however, exactly a ringing endorsement of this **guidance system**. The advanced economies generally reveal significant divergences between their actual short-term interest rates and the Taylor rate for 2018. ↘ CHART 61 The fact that no recognised research institutes are forecasting any inflationary trends for either these economies or the global economy therefore suggests that we should adopt a cautious view of such monetary-policy rules of thumb.

↳ BOX 9

**Views on monetary policy in previous GCEE Annual Reports**

**GCEE Annual Report 2013/14 item 191:** “Projections based on the latest inflation and growth forecasts indicate that we will see the first interest-rate hike in 2014. Application of the original Taylor rule to the euro area also suggests that the current policy of low interest rates should be abandoned fairly soon.”

**GCEE Annual Report 2014/15 item 13:** “Against this backdrop the ECB slashed interest rates to almost zero and introduced comprehensive quantitative easing measures. However, this policy poses a risk to the euro area’s long-term economic performance. Firstly, low interest rates tempt the financial sector to take excessive risks. And, secondly, the ECB’s asset purchase programmes could cause governments to scale back their reform and consolidation efforts. The ECB should avoid any further massive expansion of its balance sheet unless there are observable signs or specific forecasts of deflation emerging in the euro area.”

**GCEE Annual Report 2014/15 Chapter 4, Executive Summary:** “The GCEE is of the view that although the risk of deflation is currently fairly low, there are also moderate risks to the longer-term performance of the economy that should not be neglected. The ECB should therefore avoid any further massive expansion of its balance sheet unless there are observable signs or specific forecasts of deflation emerging in the euro area.”

**GCEE Annual Report 2015/16 items 11 and 12:** “Simple interest rate rules, such as the Taylor Rule or a rule that explains past ECB interest rate decisions quite well, suggest that monetary policy should be tightened given the current economic outlook. While the risk of deflation is currently low, there are risks for the development of the economy in the longer term. (...) In addition, monetary policy is leading to a build-up of risks to financial stability which could pave the way for a new financial crisis.”

**GCEE Annual Report 2015/16 item 351:** “If the ECB responded to current inflation and growth prospects in the same way as it did in the past, it would not have contemplated extending the purchase programmes to public-sector bonds on such a scale. Considerable risks to financial stability will accumulate if this policy continues.”

**GCEE Annual Report 2016/17 item 10:** “In light of the macroeconomic developments, the extent of the ECB’s quantitative easing and the resulting low interest rates are neither appropriate for the euro area nor Germany.”

**GCEE Annual Report 2016/17 item 374:** “By contrast, the German Council of Economic Experts concludes, as it had done in its Annual Report 2015/16, that it would be appropriate, in light of the macroeconomic developments, to scale back the government bond purchases and bring them to an end earlier. (...) Moreover, several indicators currently suggest that the ECB’s policy is too accommodative in relation to growth and inflation developments in the euro area, even allowing for a certain decline in the equilibrium interest rate.”

**GCEE Annual Report 2016/2017 item 376:** “This means that the current negative short, medium and long-term interest rates are in no way consistent with the economic situation in Germany. These negative rates are contributing to various exceptional, and in some cases dangerous developments.”

**GCEE Annual Report 2016/2017 item 419:** “The ongoing low-interest-rate environment is putting pressure on the profitability of banks and insurance companies (GCEE Annual Report 2015 items 381 ff.). Low market rates and a flattening yield curve reduce banks’ interest margins (Borio et al., 2015; ECB, 2015b; Claessens et al., 2016; Jobst and Lin, 2016). This pressure on margins is actually likely to increase substantially over the coming years.”

**GCEE Annual Report 2016/17 item 454:** “Various indicators, however, suggest that the ECB’s policy is now too expansionary.”

**GCEE Annual Report 2017/18 Chapter 4, Executive Summary:** “Interest rate reaction functions suggest that the ECB should tighten its monetary policy considerably in order to reflect macroeconomic developments. Risks to financial stability also support a monetary policy normalisation.”

**GCEE Annual Report 2017/18 item 325:** “The ECB should thus quickly reduce and end its net asset purchases. Its monetary policy would then still remain highly expansionary measured by the size of the central bank balance sheet and the level of policy rates.”

## REFERENCES

- [Acharya, V.V., T. Eisert, C. Eufinger and C.W. Hirsch \(2016\)](#), Whatever it takes: The real effects of unconventional monetary policy, SAFE Working Paper, No. 152, Frankfurt am Main.
- [Adao, B., I. Correia and P. Telesa \(2009\)](#), On the relevance of exchange rate regimes for stabilization policy, *Journal of Economic Theory*, 144, 1468–1488.
- [Agarwal, R. and M. Kimball \(2015\)](#), Breaking through the zero lower bound, IMF Working Paper, No. 15/224, International Monetary Fund, Washington, DC.
- [Alcidi, C., P. D’Imperio and G. Thirion \(2017\)](#), Risk-sharing and consumption-smoothing patterns in the US and the Euro Area: A comprehensive comparison, CEPS Papers, No 2017/04, Centre for European Policy Studies, Brussels.
- [Archer, D. and P. Moser-Boehm \(2013\)](#), Central bank finances, BIS Papers, No 71, Bank for International Settlements, Basel.
- [Arnold, N.G., B.B. Barkbu, H.E. Ture, H. Wang and J. Yao \(2018\)](#), A central fiscal stabilization capacity for the Euro Area, IMF Staff Discussion Notes, 18/03, International Monetary Fund, Washington, DC.
- [Artus, P. et al. \(2013\)](#), Completing the Euro, Les notes du conseil d’analyse économique, No. 3, Paris.
- [Asdrubali, P. and S. Kim \(2004\)](#), Dynamic risksharing in the United States and Europe, *Journal of Monetary Economics*, 51 (4), 809–836.
- [Asdrubali, P., B.E. Sørensen and O. Yoroshina \(1996\)](#), Channels of Interstate Risk Sharing: United States 1963–1990, *The Quarterly Journal of Economics*, 111 (4), 1081–1110.
- [Barrdear, J. and M. Kumhof \(2016\)](#), The macroeconomics of central bank issued digital currencies, Staff Working Paper, No. 605, Bank of England, London.

- Bayoumi, T. and B. Eichengreen (1992a), Shocking Aspects of European Monetary Unification, NBER Working Papers, 3949, National Bureau of Economic Research, Inc, Januar.
- Bayoumi, T. and B. Eichengreen (1992b), Shocking aspects of European Monetary Unification, NBER Working Paper, 3949, National Bureau of Economic Research, Cambridge, MA.
- Beetsma, R.M. and A.L. Bovenberg (2001), The optimality of a monetary union without a fiscal union, *Journal of Money, Credit and Banking*, 33 (2), 179–204.
- Beetsma, R.M. and H. Jensen (2005), Monetary and fiscal policy interactions in a micro-founded model of a monetary union, *Journal of International Economics*, 67 (2), 320–352.
- Beetsma, R.M.W.J., S. Cima and J. Cimadomo (2018), A minimal moral hazard central stabilisation capacity for the EMU based on world trade, ECB Working Paper, 2137, European Central Bank, Frankfurt am Main.
- Belke, A., C. Domnick and D. Gros (2017), Business Cycle Synchronization in the EMU: Core vs. Periphery, *Open Economies Review*, 28 (5), 863–892.
- Bénassy-Quéré, A. et al. (2018), Reconciling risk sharing with market discipline: a constructive approach to euro area reform, CEPR Policy Insight, No. 91, Centre for Economic Policy Research, London.
- Berger, H., G. Dell’Ariccia and M. Obstfeld (2018), Revisiting the economic case for fiscal union in the Euro Area, IMF Departmental Paper, No. 18/03, International Monetary Fund, Washington, DC.
- Bernanke, B. (2002), Deflation: making sure „it“ doesn’t happen here, Speech, The National Economists Club, Washington, DC, 21 November.
- Bindseil, U. and P.J. König (2011), The economics of TARGET2 balances, SFB 649 Discussion Paper, 2011–035, Sonderforschungsbereich 649, Humboldt Universität, Berlin.
- Bindseil, U., A. Manzanares and B. Weller (2004), The role of central bank capital revisited, ECB Working Paper, No. 392, European Central Bank, Frankfurt am Main.
- BIS (2018a), 88. Jahresbericht, 1. April 2017 - 31. März 2018, Bank for International Settlements, Basel.
- BIS (2018b), Central bank digital currencies, Committee on Payments and Market Infrastructures, Bank for International Settlements, Basel.
- Bletzinger, T. and V. Wieland (2017), Lower for longer: The case of the ECB, *Economics Letters*, 159, 123–127.
- Board of Academic Advisors to the BMF (2016), Zwischen Fiskalunion und fiskalpolitischer Eigenverantwortung: Zum Vorschlag einer europäischen Arbeitslosenversicherung, Gutachten No. 03/2016 des Wissenschaftlichen Beirats beim Bundesministerium der Finanzen, Berlin.
- Bofinger, P. (2018), Digitalisation of money and the future of monetary policy, <https://voxeu.org/article/digitalisation-money-and-future-monetary-policy>, retrieved 12 June 2018.
- Bordo, M.D. and A.T. Levin (2017), Central bank digital currency and the future of monetary policy, Economics Working Paper, 17104, Hoover Institution, Stanford University, Stanford.
- Bouveret, A. and V. Haksar (2018), What are cryptocurrencies?, *Finance and Development*, 55 (2), 26–27.
- Bucovetsky, S. (1997), Insurance and incentive effects of transfers among regions: equity and efficiency, *International Tax and Public Finance*, 4 (4), 463–483.
- Buiter, W.H. (2008), Can central banks go broke?, CEPR Policy Insight, No. 24, Centre for Economic Policy Research, London, Mai.
- Bunea, D., P. Karakitsos, N. Merriman and W. Studener (2016), Profit distribution and loss coverage rules for central banks, ECB Occasional Paper, 169, European Central Bank, Frankfurt am Main.
- Campos, N.F. and C. Macchiarelli (2018), Symmetry and Convergence in Monetary Unions, LEQS – LSE „Europe in Question“ Discussion Paper Series, 131, European Institute, LSE, März.
- Campos, N.F. and C. Macchiarelli (2016), Core and Periphery in the European Monetary Union: Bayoumi and Eichengreen 25 years later, *Economics Letters*, 147 (C), 127–130.
- Christoffel, K., G. Coenen and A. Warne (2008), The new area-wide model of the euro area: a micro-founded open-economy model for forecasting and policy analysis, Working Paper Series, 944, European Central Bank, Oktober.

- [Cincibuch, M., T. Holub and J. Hurnik \(2008\)](#), Central bank losses and economic convergence, Working Paper, No 3, Czech National Bank, Research Department, Prag.
- [Clouse, J., D. Henderson, A. Orphanides, D.H. Small and P.A. Tinsley \(2003\)](#), Monetary policy when the nominal short-term interest rate is zero, *The B.E. Journal of Macroeconomics*, 3 (1), 91–125.
- [Cúrdia, V., A. Ferrero, G.C. Ng and A. Tambalotti \(2015\)](#), Has U.S. monetary policy tracked the efficient interest rate?, *Journal of Monetary Economics*, 70, 72–83.
- [Dalton, J.W. and C.H. Dziobek \(2005\)](#), Central bank losses and experiences in selected countries, IMF Working Paper, 05/72, International Monetary Fund, Washington, DC.
- [Danske Bank \(2018\)](#), ECB PSPP holdings model, Investment Research – General market conditions, 13 July.
- [Del Negro, M. and C.A. Sims \(2014\)](#), When does a central bank’s balance sheet require fiscal support?, Staff Report, 701, Federal Reserve Bank of New York.
- [Demopoulos, G.D., G.M. Katsimbris and S.M. Miller \(1987\)](#), Monetary policy and central-bank financing of government budget deficits: a cross-country comparison, *European Economic Review*, 31 (5), 1023–1050.
- [Deutsche Bundesbank \(2018\)](#), Geschäftsbericht 2017, Frankfurt am Main.
- [Deutsche Bundesbank \(2014\)](#), Zur Verlässlichkeit der Schätzungen internationaler Organisationen zur Produktionslücke, Monatsbericht April 2014, Frankfurt am Main, 13–38.
- [Die Welt \(2018\)](#), Italien plant ein Europa auf Pump, *Die Welt*, 10 October.
- [Diehl, M. and C.-L. Thiele \(2017\)](#), Stabiles Geld braucht eine stabilitätsorientierte Geldpolitik, ifo Schnelldienst, 70 (22), 3–6.
- [Digiconomist \(2018\)](#), Bitcoin Energy Consumption Index, <https://digiconomist.net/bitcoin-energy-consumption>, retrieved 12 June 2018.
- [Dolls, M., C. Fuest, F. Heinemann and A. Peichl \(2016\)](#), Reconciling insurance with market discipline: a blueprint for a European fiscal union, *CESifo Economic Studies*, 62 (2), 210–231.
- [Draghi, M. \(2018a\)](#), Rede von EZB-Präsident Mario Draghi anlässlich des 37. Treffens des International Monetary and Financial Committee (IMFC), Speech, Washington, DC, 20 April.
- [Draghi, M. \(2018b\)](#), Introductory statement to the press conference (with Q & A), Speech, Pressekonferenz der Europäischen Zentralbank, Frankfurt am Main, 26 July.
- [Draghi, M. \(2018c\)](#), Introductory statement to the press conference (with Q & A), Speech, Pressekonferenz der Europäischen Zentralbank, Frankfurt am Main, 13 September.
- [Draghi, M. \(2016\)](#), The international dimension of monetary policy, Speech, ECB Forum on Central Banking, Sintra, 28 June.
- [Dullien, S. and D.P. del Prado \(2018\)](#), How to stabilize the Euro Area economy without creating political discord: A compromise proposal for a European unemployment insurance scheme, Friedrich-Ebert-Stiftung, Madrid.
- [Economides, G., A. Philippopoulos and P. Varthalitis \(2016\)](#), Monetary union, even higher integration, or back to national currencies?, *CESifo Economic Studies*, 62 (2), 232–255.
- [Eisenschmidt, J., D. Kedan, M. Schmitz, R. Adalid and P. Papsdorf \(2017\)](#), The Eurosystem’s asset purchase programme and target balances, ECB Occasional Paper, 196, European Central Bank, Frankfurt am Main.
- [Ellison, M. and A. Tischbirek \(2014\)](#), Unconventional government debt purchases as a supplement to conventional monetary policy, *Journal of Economic Dynamics and Control*, 43 (C), 199–217.
- [Elstner, S., H. Michaelis and C.M. Schmidt \(2016\)](#), Das leere Versprechen der aktiven Konjunktursteuerung, *Wirtschaftsdienst*, 96 (8), 534–540.
- [European Commission \(2018\)](#), Proposal for a regulation of the European Parliament and of the Council on the establishment of a European Investment Stabilisation Function, COM(2018) 387 final, Brussels, 31 May.
- [Evans, C., J. Fisher, F. Gourio and S. Krane \(2016\)](#), Risk management for monetary policy near the zero lower bound, *Brookings Papers on Economic Activity*, 2015 (1), 141–219.
- [ECB \(2015\)](#), Virtual currency schemes – a further analysis, European Central Bank, Frankfurt am Main.



- [Fagan, G. and P. McNelis \(2014\)](#), TARGET balances and macroeconomic adjustment to sudden stops in the Euro Area, The Institute for International Integration Studies Discussion Paper, No. 465, Dublin.
- [Farhi, E. and I. Werning \(2017\)](#), Fiscal unions, *American Economic Review*, 107 (12), 3788–3834.
- [Fatás, A. and B. Weder di Mauro \(2018\)](#), Making (some) sense of cryptocurrencies: When payments systems redefine money, <https://voxeu.org/article/making-some-sense-cryptocurrencies>, retrieved 7 May 2018.
- [FAZ \(2018\)](#), 5 Sterne und Lega wollen 250 Milliarden Euro Schuldenerlass von der EZB, <http://www.faz.net/aktuell/wirtschaft/eurokrise/italien-5-sterne-und-lega-wollen-milliarden-schuldenerlass-15592535.html>, retrieved 3 September 2018.
- [FED \(2018\)](#), Monatsbericht Juli 2018, Board of Governors of the Federal Reserve System, Washington, DC.
- [Feld, L.P. \(2018\)](#), Whither a fiscal capacity in EMU, <https://voxeu.org/article/whither-fiscal-capacity-emu>, retrieved 31 July 2018.
- [Feld, L.P. and S. Osterloh \(2013\)](#), Is a fiscal capacity really necessary to complete EMU?, *Freiburger Diskussionspapiere zur Ordnungsökonomik*, 13/5, Walter Eucken Institut, Freiburg.
- [Fernández-Villaverde, J., L. Garicano and T. Santos \(2013\)](#), Political credit cycles: the case of the Eurozone, *Journal of Economic Perspectives*, 27 (3), 145–166.
- [Ferrero, A. \(2009\)](#), Fiscal and monetary rules for a currency union, *Journal of International Economics*, 77 (1), 1–10.
- [Ferroni, F. and B. Klaus \(2015\)](#), Euro Area business cycles in turbulent times: convergence or decoupling?, *Applied Economics*, 47 (34–35), 3791–3815.
- [Fisher, P.R. \(2018\)](#), Should the Fed “Stay Big” or “Slim Down”? Remarks by Peter R. Fisher Tuck School of Business at Dartmouth, Conference paper, Currencies, Capital, And Central Bank Balance Sheets: A Policy Conference, Stanford, 4 May.
- [Frait, J. and T. Holub \(2011\)](#), Exchange rate appreciation and negative central bank capital: is there a problem?, in: Milton, S. and P. Sinclair (Eds.), *The Capital Needs of Central Banks*, Routledge, New York, 107–131.
- [Gali, J. and T. Monacelli \(2008\)](#), Optimal monetary and fiscal policy in a currency union, *Journal of International Economics*, 76 (1), 116–132.
- [Garber, P.M. \(1999\)](#), The TARGET mechanism: will it propagate or stifle a Stage III crisis?, *Carnegie-Rochester Conference Series on Public Policy*, 51 (1), 195–220.
- [Garber, P.M. \(1998\)](#), Notes on the role of target in a stage III crisis, NBER Working Paper, No. 6619, National Bureau of Economic Research, Cambridge, MA.
- [Generali Investment \(2018\)](#), ECB: End of QE brings reinvestment policy into focus, *Generali Investments – Focal Point*, Cologne.
- [Gertler, M. and P. Karadi \(2013\)](#), QE 1 vs. 2 vs. 3...: A framework for analyzing large-scale asset purchases as a monetary policy tool, *International Journal of Central Banking*, 9 (1), 5–53.
- [Goodspeed, T.J. and A.F. Haughwout \(2012\)](#), On the optimal design of disaster insurance in a federation, *Economics of Governance*, 13 (1), 1–27.
- [Greenwood, R., S.G. Hanson and J.C. Stein \(2016\)](#), The Federal Reserve’s balance sheet as a financial-stability tool, Conference paper, Jackson Hole Symposium: Federal Reserve Bank of Kansas City, Jackson Hole.
- [Greenwood, R., S.G. Hanson and J.C. Stein \(2015\)](#), A comparative-advantage approach to government debt maturity, *The Journal of Finance*, 70 (4), 1683–1722.
- [Handelsblatt \(2018\)](#), 5 Sterne und Lega wollen Schuldenerlass von 250 Milliarden Euro von der EZB, 16 May.
- [He, D. \(2018\)](#), Monetary Policy in the Digital Age, *IMF Finance and Development*, 55 (No. 2), 13–16.
- [Hoffmann, M., E. Maslov, B.E. Sørensen and I. Stewen \(2018\)](#), Are Banking and Capital Markets Union Complements? Evidence from Channels of Risk Sharing in the Eurozone, mimeo.
- [Hofmann, B. and B. Bogdanova \(2012\)](#), Taylor rules and monetary policy: A global „Great Deviation“?, *BIS Quarterly Review*, September 2012, 37–49.

- Jordan, T.J. (2011), Braucht die Schweizerische Nationalbank Eigenkapital?, Speech, Pressekonferenz der Europäischen Zentralbank, Basel, 28 September.
- Kalemli-Özcan, S., E. Luttini and B. Sørensen (2014), Debt Crises and Risk-Sharing: The Role of Markets versus Sovereigns, *The Scandinavian Journal of Economics*, 116 (1), 253–276.
- Kenen, P.B. (2009), Revisiting the Substitution Account, mimeo.
- Kenen, P.B. (1969), The theory of optimum currency areas: an eclectic view, *Monetary problems of the international economy*, 41–60.
- King, M.A. (1999), Challenges for monetary policy: new and old, Conference paper, Symposium on “New Challenges for Monetary Policy” sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, 27 August.
- King, R.G. and C.I. Plosser (1985), Money, Deficits, and Inflation, *Carnegie-Rochester Conference Series on Public Policy*, 22, 147–195.
- Kose, M.A., C. Otrok and E. Prasad (2012), Global Business Cycles: Convergence or Decoupling?\*, *International Economic Review*, 53 (2), 511–538.
- Lagarde, C. (2018), A compass to prosperity: the next steps of Euro Area economic integration, Speech, Deutsches Institut für Wirtschaftsforschung, Berlin, 26 March.
- Lee, J. (2013), Business Cycle Synchronization in Europe: Evidence from a Dynamic Factor Model, *International Economic Journal*, 27 (3), 347–364.
- Levy, M.D. (2018), The Fed’s balance sheet strategy: What now?, Conference paper, *Currencies, Capital, And Central Bank Balance Sheets: A Policy Conference*, Stanford, 4 May.
- Lockwood, B. (1999), Inter-regional insurance, *Journal of Public Economics*, 72 (1), 1–37.
- McKinnon, R.I. (1993), The rules of the game: international money in historical perspective, *Journal of Economic Literature*, 31 (1), 1–44.
- McKinnon, R.I. (1963), Optimum Currency Areas, *American Economic Review*, 53 (4), 717–725.
- Mersch, Y. (2014), Die Euro-Banknote – ein anerkanntes weltweites Zahlungsmittel, Speech, 2. Bargeld Symposium der Deutschen Bundesbank, Frankfurt am Main, 19 May.
- Michaelis, H. et al. (2015), Keine Notwendigkeit einer Reform des Gesetzes zur Förderung der Stabilität und des Wachstums der Wirtschaft, Working paper, 02/2015, Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, Wiesbaden.
- Michaelis, H. and V. Wieland (2018), Taylor-Rules for the Euro-Area and its largest member countries, in press.
- Milano, V. and P. Reichlin (2017a), Risk sharing across the US and Eurozone: The role of public institutions, <https://voxeu.org/article/risk-sharing-across-us-and-eurozone>, retrieved 23 January 2017.
- Milano, V. and P. Reichlin (2017b), Risk Sharing in the Euro Zone: the Role of European Institutions, *CeLEG Working Paper Series*, 01/17, Dipartimento di Economia e Finanza, LUISS Guido Carli, Rome.
- Mishra, P., R. Rajan and others (2018), Rules of the monetary game, Reserve Bank of India Working Paper Series.
- Mundell, R.A. (1973), Uncommon Arguments for Common Currencies/A Plan for a European Currency, in: Johnson, H. G. and A. K. Swoboda (Eds.), *The economics of common currencies: proceedings of the Madrid conference on optimum currency areas*, Allen & Unwin, London.
- Mundell, R.A. (1961), A theory of optimum currency areas, *The American Economic Review*, 51 (4), 657–665.
- Nakamoto, S. (2008), Bitcoin: A peer-to-peer electronic cash system, <https://bitcoin.org/bitcoin.pdf>, retrieved 24 September 2018.
- Nelson, B. (2018), Get up off the floor, Conference paper, *Currencies, Capital, And Central Bank Balance Sheets: A Policy Conference*, Hoover Institution, Stanford University, 4 May.
- Orphanides, A. and V. Wieland (2013), Complexity and monetary policy, *International Journal of Central Banking*, 9 (1), 167–204.
- Orphanides, A. and V. Wieland (2000), Efficient monetary policy design near price stability, *Journal of the Japanese and International Economies*, 14 (4), 327–365.

- [Pâris, P. and C. Wyplosz \(2014\)](#), PADRE: Politically acceptable debt restructuring in the Eurozone, Geneva Reports on the World Economy Special Report 3, International Center for Monetary and Banking Studies und Centre for Economic Policy Research, Genf und London.
- [Perotti, R. \(2001\)](#), Is a uniform social policy better? Fiscal federalism and factor mobility, *American Economic Review*, 91 (3), 596–610.
- [Perron, P. \(1989\)](#), The great crash, the oil price shock, and the unit root hypothesis, *Econometrica*, 57 (6), 1361–1401.
- [Persson, T. and G. Tabellini \(1996a\)](#), Federal fiscal constitutions: risk sharing and moral hazard, *Econometrica*, 64 (3), 623–646.
- [Persson, T. and G. Tabellini \(1996b\)](#), Federal fiscal constitutions: risk sharing and redistribution, *Journal of Political Economy*, 104 (5), 979–1009.
- [Plosser, C.I. \(2018\)](#), The risks of a Fed Balance Sheet unconstrained by monetary policy, in: Bordo, M. D., J. H. Cochrane and A. Seru (Eds.), *The Structural Foundations of Monetary Policy*, Hoover Institution Press, Stanford, 1–16.
- [Poncela, P., F. Pericoli, A.R. Manca and M. Nardo \(2016\)](#), Risk sharing in Europe, European Commission JRC Science for Policy Report, 104621, Brussels.
- [Powell, J.H. \(2018\)](#), Semiannual monetary policy report to the Congress, Speech, Committee on Banking, Housing, and Urban Affairs, U.S. Senate, Washington, DC, 17 July.
- [Quarles, R.K. \(2018\)](#), Liquidity regulation and the size of the Fed's balance sheet, Speech, Hoover Institution Monetary Policy Conference, Stanford, 18 July.
- [Reis, R. \(2013\)](#), The mystique surrounding the central bank's balance sheet, applied to the European crisis, *American Economic Review*, 103 (3), 135–140.
- [Restrepo, J.E., L. Salomé and R. Valdés \(2008\)](#), Macroeconomics, Monetary Policy and the Central Bank's Net Worth, Working Papers Central Bank of Chile, 497, Santiago.
- [Reuters \(2015\)](#), Greece seeks negotiations on ECB bond repayment, Reuters, 28 February.
- [Roeger, W. and L. Vogel \(2017\)](#), Horizontal transfers and consumption smoothing in a monetary union, *Journal of Economics and Statistics (Jahrbuecher fuer Nationaloekonomie und Statistik)*, 237 (3), 275–294.
- [Sargent, T.J. \(1982\)](#), The Ends of Four Big Inflations, in: Hall, R. E. (Eds.), *Inflation: Causes and Effects*, National Bureau of Economic Research, University of Chicago Press, Chicago, 41–98.
- [Sargent, T.J. and N. Wallace \(1981\)](#), Some unpleasant monetarist arithmetic, *Federal Reserve Bank of Minneapolis Quarterly Review*, 5 (3), 1–17.
- [Schilling, L. and H. Uhlig \(2018\)](#), Some simple bitcoin economics, Working Paper, No. 2018-21, Becker Friedman Institute for Research in Economics, Chicago.
- [Schmitt-Grohé, S. and M. Uribe \(2016\)](#), Downward nominal wage rigidity, currency pegs, and involuntary unemployment, *Journal of Political Economy*, 124 (5), 1466–1514.
- [Sims, C.A. \(2016\)](#), Fiscal policy, monetary policy and central bank independence, Department of Economics, Princeton University, Princeton.
- [Stella, P. \(2008\)](#), Central bank financial strength, policy constraints and inflation, IMF Working Paper, 08/49, International Monetary Fund, Washington, DC.
- [Sveriges Riksbank \(2017\)](#), The Riksbank's e-krona project, Riksbank Studies, Report 1, Sveriges Riksbank, Stockholm.
- [Taylor, J.B. \(2018\)](#), Alternatives for reserve balances and the Fed's balance sheet in the future, Economics Working Paper, 18103, Hoover Institution, Stanford University, Stanford.
- [Taylor, J.B. \(1993\)](#), Discretion versus policy rules in practice, *Carnegie-Rochester Conference Series on Public Policy*, 39 (Supplement C), 195–214.
- [Tornell, A. \(2018\)](#), Eurozone architecture and Target2: Risk-sharing and the common-pool problem, mimeo.
- [UniCredit Research \(2017\)](#), PSPP reinvestment will pick up next year, partly offsetting tapering, Strategy Research – Rates Perspectives, 34, Unicredit, Rom und Mailand.

[Weiske, S.](#) and [V. Wieland](#) (2018), Macroeconomic stabilization in the euro area: a model-based analysis, Working paper, 09/2018, Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, Wiesbaden, in press.

[Wieland, V.](#) (2016), Die Rolle von Bargeld in der Geldtheorie und Geldpolitik, Speech, 3. Bargeld Symposium der Deutschen Bundesbank, Frankfurt am Main, 13 June.

[Wieland, V.](#) (1996), Monetary policy targets and the stabilization objective: a source of tension in the EMS, *Journal of International Money and Finance*, 15 (1), 95–116.

[Woodford, M.](#) (2000), Monetary policy in a world without money, *International Finance*, 3 (2), 229–260.