Pushing the limits: the European Central Bank's role in restoring sustainable growth

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Working Paper 2020.01

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Brussels, 2020

Print: ETUI Printshop, Brussels

D/2020/10.574/11
ISSN: 1994-4446 (print version)
ISSN: 1994-4454 (electronic version)

The ETUI is financially supported by the European Union. The European Union is not responsible for any use made of the information contained in this publication.

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Executive summary

For centuries, central banks have fulfilled vital public policy functions. Historically, in addition to issuing national currencies and taking care of payment systems, central banks have acted in support of government bond markets. Over time, central banks have learned to apply their monetary powers to restore market calm when panic strikes in banking and financial markets. Over the past forty years, central banks have gained much prominence as monetary policymakers, steering economies aiming at stable and low inflation and sustainable growth in incomes and employment.

The European Central Bank (ECB) is a special, even unique central bank. It is a central bank without a treasury by its side or a state behind it, just as the euro, Europe's common currency that the ECB is tasked with guarding, is a 'denationalised' currency. The euro area is a rare exception to the global 'one state, one currency' rule. But the ECB is not the only central bank in the euro area. Rather, the ECB is designed as the headquarters (or perhaps 'cockpit') of the Eurosystem, the system of European central banks that also includes the national central banks (NCBs) of European Union (EU) member countries that have adopted the euro as their common currency.

The euro has failed to deliver on its promises. While the euro area's performance during the euro's first decade was mediocre, things turned truly dismal when the global financial crisis of 2007–2009 struck. In contrast to the rest of the world, which started to recover from the crisis in 2010, the euro area suffered a 'double-dip' recession. Only since 2013 has the euro currency union experienced a fragile, uneven and incomplete revival.

This study evaluates the ECB's unconventional monetary policies and its role as euro crisis manager under Mario Draghi's presidency, exploring the options available for adding further monetary policy stimulus going forward.

As the euro's central bank guardian, the ECB has been a central force throughout the crisis and its aftermath. Many observers would argue that among the euro area authorities the ECB stands out as the most constructive. ECB president Mario Draghi's famous 'whatever it takes' declaration in July 2012 stopped the escalating crisis and marked a critical turning point. As the euro area's uneven growth slowed markedly in 2018–2019 and the recovery increasingly appeared at risk of unravelling, all eyes once again turned to the ECB to come up with another 'whatever it takes' attack-plan to restore

the positive momentum and keep the recovery alive. The ECB duly delivered a fresh monetary stimulus programme in autumn 2019, prompting new controversies, especially in Germany.

But how much ammunition does the ECB really have left? Will it be enough to restore sustainable growth and save the euro for good?

This study finds that the ECB does have some remaining scope for monetary stimulus, but, as in the case of other central banks that have employed 'unconventional' monetary policies, the effectiveness of these policies declines as interest rates are pushed ever lower, while associated risks are rising. Additional unique constraints on ECB action arise from its own specific nature as a stateless central bank, namely the fact that the euro currency union still lacks a 'common safe asset'. This deficiency forces the ECB to focus its unconventional monetary policy measures on national government bonds. This runs into peculiar challenges because Germany's 'black zero' permanent fiscal austerity policy (similarly in the case of the Netherlands) is shrinking what is available in the market for the ECB to purchase.

This odd situation represents a case of 'fiscal dominance', a notion that describes a scenario in which a set fiscal stance constrains monetary policy's leeway and effectiveness in fulfilling its mandate. In the heyday of monetarism, when the idea gained traction, fiscal dominance described the case in which the central bank is powerless to control inflation because of a need to accommodate the fiscal authorities running excessive budget deficits. It is easy to see how this monetarist thinking (redolent of the ghost of Weimar hyperinflation) inspired the design of the euro regime. The great irony today is the fact that it is German (and Dutch) budget *surpluses* that are constraining the ECB in fighting *deflationary* threats, which is the very opposite of what the monetarists and the designers of the Maastricht Treaty had in mind.

Today, at least the ECB has finally escaped from the shadows of the past. The ECB was shaped in the mould of the Bundesbank, for which *asymmetric* monetary policy was an important characteristic: the Bundesbank was always ready to counter any perceived inflationary threat, but generally oblivious to the opposite threat of deflation and stagnation. Departing from its former practice shaped in this tradition, the ECB is today highlighting the fact that its price-stability mandate is *symmetric*. This new-found confidence completes its liberation from the past, which started in November 2011 when Mario Draghi arrived at the ECB as its third president. Under its new, fourth president, Christine Lagarde, the ECB has recently embarked on a new 'strategy reform' that will hopefully 'engrave' symmetry into its central bank DNA.

None of this will change the fact that the ECB is today running up against the limits of monetary policy, limits it has been testing and pushing out in recent years. This study finds that the ECB's latest easing initiative is not a substitute for constructive fiscal expansion, but a helpful complement that prepares the ground and buys the authorities a little more time to act. The ECB itself admits

as much. The ball is now in the court of the euro area's political authorities. It is undeniable that the ECB's desperate measures also entail risks to financial stability. The point is that expecting the ECB to remain inactive involves even bigger risks.

Prior to the euro the Bundesbank set monetary policy for Europe. When the euro was launched Germany's partners hoped that the euro would end German monetary hegemony in Europe. Their hopes have been disappointed. The emergence of Germany's huge and persistent current account surplus has imposed a drag on euro-area development since well before the crisis. In the aftermath of the crisis Germany's 'black zero' policy has further worsened the domestic demand malaise, while also constraining – indeed, dominating! – the ECB's room for effective action. Today the ECB is fighting a battle for the euro it cannot win unless the euro area's dominant economy changes course and the euro-area political authorities finally embark on fiscal expansion and constructive euro-regime reform.

Further delaying fiscal expansion and euro regime reform is hazardous, especially in the current global environment. The future of the euro remains highly uncertain.

1. Introduction

For centuries, central banks have fulfilled vital public policy functions. Historically, in addition to issuing national currencies and taking care of payment systems, central banks have acted in support of government bond markets. Over time, central banks have learned to apply their monetary powers to restore market calm when panic strikes in banking and financial markets. Over the past forty years, central banks have gained much prominence as monetary policymakers, steering economies and aiming at stable and low inflation and sustainable growth in incomes and employment (Goodhart 1988; Capie *et al.* 1994).

The European Central Bank (ECB) is a special, even unique central bank. It is a central bank without a treasury by its side or a state behind it, just as the euro, Europe's common currency that the ECB is tasked with guarding, is a 'denationalised' currency. The euro area is a rare exception to the global 'one state, one currency' rule. But the ECB is not the only central bank in the euro area. Rather, the ECB is designed as the headquarters (or perhaps 'cockpit') of the Eurosystem, the system of European central banks that also includes the national central banks (NCBs) of European Union (EU) member countries that have adopted the euro as their common currency.

While the euro area's performance during the euro's first decade was mediocre (Bibow 2006; Bibow and Terzi 2007; Wolf 2007; Darvas *et al.* 2013), things turned truly dismal when the global financial crisis of 2007–2009 struck. In contrast to the rest of the world, which started to recover from the crisis in 2010, the euro area suffered a 'double-dip' recession. Only since 2013 has the euro currency union experienced a fragile, uneven and incomplete recovery (IMF 2019).

As the euro's central-bank guardian, the European Central Bank (ECB) has been a central force throughout. Many observers would argue that the ECB stands out as the most constructive player among the euro-area authorities. ECB president Mario Draghi's famous 'whatever it takes' declaration in July 2012 stopped the escalating crisis and marked a critical turning point. As the euro area's uneven growth slowed markedly in 2018–2019 and the recovery increasingly appeared at risk of unravelling, all eyes once again turned to the ECB to come up with another 'whatever it takes' attack-plan to restore the positive momentum and keep the recovery alive. The ECB duly delivered a fresh monetary stimulus programme in autumn 2019.

But how much ammunition does the ECB really have left? Will it be enough to restore sustainable growth and save the euro for good?

This study evaluates the ECB's unconventional monetary policies and its role as euro crisis manager during Mario Draghi's presidency, exploring the options available for adding further monetary policy stimulus going forward.

The analysis will proceed as follows. Section 2 revisits the events unfolding in the summer of 2012 that prompted Mario Draghi's 'whatever it takes' rescue call, which led to a gradual de-escalation of the crisis. A flimsy recovery developed in 2013, but euro-area inflation continued to decline to well below 2 per cent – in defiance of the ECB's declared goal to keep inflation 'below, but close to, 2 per cent'. The ECB therefore undertook a decisive monetary policy turn towards activism in the summer of 2014, which is the subject of Section 3. Section 4 explores the remaining scope for further monetary easing available to the ECB and the relevant policy constraints involved. Section 5 develops four scenarios of action (or inaction) in support of euro-area recovery. It turns out that fiscal expansion would be by far the best course of action, with the recent restart of QE on the ECB's part as an important supportive move. Section 6 discusses and offers an early assessment of the ECB's latest policy measures adopted in autumn 2019.

2. 'Whatever it takes': Mario Draghi changes the ECB's course and rides to the euro's rescue

This section opens the analysis by revisiting the events unfolding in the summer of 2012, which marked the climax and turning point in the euro crisis. The ECB began changing course immediately with the arrival of Mario Draghi as its third president in November 2011. But the effectiveness of ECB crisis measures put in place until the summer of 2012 proved only limited and temporary. More lasting calm returned to financial markets only in the aftermath of Mario Draghi's famous 'whatever it takes' declaration of July 2012.

Reversing financial market stresses was one challenge; restoring sustainable growth across the euro area another. The latter challenge remains unfinished business. The analysis in this section provides the background for assessing the ECB's role as crisis manager and its transition from conventional to unconventional monetary policies, including the ECB's latest round of monetary stimulus measures in autumn 2019. The analysis also highlights that monetary policy can only be part of the solution: fiscal policy must also play a role. For one thing, banking problems can be fiscally very taxing (as vividly encountered in the euro crisis), which calls for a common fiscal backstop. For another, fiscal policy must advance from its lost path of permanent austerity and play a more constructive role in achieving sustainable growth, which calls for reforming the euro area's flawed fiscal regime. As 'the only game in town', the ECB has been pushing the limits of monetary policy. Under current circumstances, stuck with the current euro regime, a return to normal times and conventional monetary policy seems far distant, if likely at all.

Conventional monetary policy consists of setting short-term interest rates in money markets (see Box 1). These are financial markets for lending and borrowing money at maturities of up to one year. Banks routinely borrow and lend in money markets in the process of managing the liquid deposits available to them and in securing short-term funding for their commercial lending and investment activities. As standard practice in operating in money markets, the ECB sets a target for the overnight interest rate, that is, the interest rate for loans of one day. By setting its short-term policy interest rate(s), the ECB provides a key price – the (overnight) price for borrowing central bank deposits – that serves as an anchor and benchmark for interest rates and asset prices in general.

Given this important benchmark set by the central bank, financial market actors determine the interest rates of longer-term loans *relative* to shorter-term

Box 1 Conventional monetary policy

At the core of conventional monetary policy stands a central bank that sets the price – that is, the interest rate – at which it is ready to make loans to banks, by way of which central bank deposits are created. The loans are secured by collateral of certain quality standards (as also set by the central bank; see ECB 2013a; Wolff 2014). Provided that a bank has qualified collateral at hand, it can obtain any needed amount of central bank deposits at the interest rate set by the central bank. From the banks' perspective, central bank deposits constitute perfect liquidity: they have a certain nominal value and can be used for payment at any time without risk of default.

In addition, the ECB's operating procedures also feature 'minimum reserve requirements' and two standing central bank facilities that establish a 'corridor' for short-term interest rates. Defined as a fraction of the respective banks' customers' deposits, minimum reserve requirements prescribe a certain minimum level of central bank deposits that a bank must hold. The ECB establishes a floor for money market rates by offering to pay a 'deposit (facility) rate' on any deposits held by banks in excess of minimum reserves, while establishing a ceiling for money market rates by offering to meet any spontaneous short-term borrowing needs of banks at the 'marginal lending (facility) rate'.

Before the crisis the ECB mainly used its weekly 'main refinancing operations' (MROs) to provide liquidity to the system and steer the euro overnight interest rate to the desired target rate. Taking their cue from this benchmark, banks usually undertake a lot of lending and borrowing between themselves in money markets to achieve their desired levels of central bank deposits. Banks are critical in the 'transmission' of monetary policy to the real economy. As lenders and key actors in financial markets, banks connect short-term interest rates, as anchored by the central bank, with longer-term interest rates and asset prices in general. Financial conditions thus determined in the financial system condition economic activity, employment and inflation. When banking problems occur, bank lending may stall, and financial conditions tighten sharply, choking the economy. Under such conditions the transmission of monetary policy to the economy might fail and monetary policy become ineffective.

loans (with the difference between them featuring 'term spreads') and the interest rates of riskier loans *relative* to safer loans (with the difference between them featuring 'credit spreads'). Thus, the ECB's policy rate(s) anchor the 'financial conditions' to which the economy must adjust at any time, namely interest rates, asset prices and credit availability from banks, even without itself operating in financial markets beyond its routine secured short-term lending transactions with banks in money markets.

Starting in August 2007, euro area money markets showed symptoms of stress as financial market players became increasingly alert to hidden risks in the system. In the aftermath of the bankruptcy of the US investment bank Lehman Brothers in 2008, financial markets in the euro area became dysfunctional. Banks were reluctant to lend to each other and to the real economy. Interest rates on riskier financial instruments soared and asset prices plunged (Bibow 2009a). Starting with Ireland and Greece in 2009, financial markets also became concerned about the solvency of some euro-area governments.

Like other central banks, the ECB responded by cutting its policy interest rates and engaging in various emergency measures to revive financial markets and bank lending (ECB 2009a, 2009b, 2010; Trichet 2009, 2010; Bibow 2015).

Supported by fiscal policy stimulus measures, especially in China and the United States, but initially also in some euro-area countries, such as Germany, the world and the euro-area economies appeared to bounce back in 2010. In the context of the worldwide rise in commodity prices, headline inflation in the euro area temporarily increased to just over 2 per cent in 2011. The rise in inflation was driven mainly by rising energy costs and hikes in indirect taxes and administered prices that were part of fiscal austerity measures, choking domestic demand in more and more euro area countries by that time (Bibow 2013a). The ECB responded to these developments by (prematurely) hiking its policy interest rates in summer 2011. Because growth in the euro area economy was faltering at the time and stress in financial markets was surging once again, these were poor decisions.

Policy blunders under the ECB's second president Jean-Claude Trichet set the scene for the arrival of the ECB's new president Mario Draghi in November 2011.

Under its new president, the ECB's premature interest rate hikes of the summer were promptly reversed in November and December. As market turmoil was again escalating at the time, the ECB also restarted and expanded its crisis management weaponry in the form of a second 'Covered Bond Purchase Programme' (CBPP 2),[1] established for a targeted volume of purchases of 40 billion euros by October 2012, while restarting the Securities Markets Programme (SMP), which had stopped making purchases in March 2011. Both measures were designed to provide targeted central bank support for key securities markets.

Covered bonds are an important tool used by banks to fund their lending, an alternative to attracting 'wholesale' deposits (large deposits from financial institutions or non-financial corporations rather than small 'retail' deposits from households). Central bank purchases of covered bonds support covered bond markets by increasing the demand for covered bonds, which tends to raise their prices and, because prices of fixed-income securities and their yields (interest rates) are inversely related, lower interest rates on covered bonds. Indirectly, the central bank purchases therefore make it easier for banks to issue covered bonds on more favourable financing terms – which, in turn, should bolster bank lending to the real economy. This ECB crisis-tool, designed to provide indirect support to banks and bank lending, was uncontroversial.

By contrast, the SMP has proved highly controversial right from its launch in May 2010 in the context of the Greek 'sovereign debt crisis'. At the heart of the

1. Earlier, in May 2009, the ECB had established its first programme for the purchase of covered bonds (CBPP). The ECB purchased 60 billion euros in covered bonds by the end of June 2010 with the aim of reviving that market.

controversy about the SMP was the fact that the ECB purchased government bonds – moreover, initially mainly Greek government bonds. As in the case of the covered bond purchases, central bank purchases of government bonds tend to raise their prices and hence lower their interest rates. Central bank purchases therefore make it easier for governments to issue their bonds and raise money on more favourable financing terms. In the case of government bonds, however, central bank support is suspected of undermining fiscal discipline. It was also alleged that the ECB's measures conflicted with EU Treaty stipulations that prohibit 'monetary financing' (see Box 2).

Box 2 The Securities Markets Programme

The SMP was launched in May 2010 in the context of the first Greek 'bail-out'. Bouts of market panic and frantic political negotiations had preceded the ECB's announcement of the SMP on 10 May 2010. Following months of bickering, the Eurogroup had finally agreed a 110 billion euro 'bail-out' package for Greece on 2 May 2010 (two-thirds of which were to be provided through coordinated bilateral loans and one-third through IMF assistance). On 9 May, the creation of the European Financial Stability Facility (EFSF) was announced as a temporary mutual assistance mechanism backed by the euro-area member states. (The EFSF was initially established as a private-sector organisation in Luxembourg. It was later replaced by the European Stability Mechanism (ESM), which is a treaty-based international organisation.) With this fiscal package in place as a 'backstop' that would bolster Greece's solvency and hence free Greek government bonds from default risk, the ECB was in a position to suspend the application of the minimum credit rating threshold in the collateral eligibility requirements for bonds issued or guaranteed by the Greek government (the so-called Greek 'waiver') and purchased Greek government bonds.

Later in 2010 the ECB also purchased Irish and Portuguese government bonds under the SMP, the two countries that were the next euro members to receive 'bail-outs' (co-financed by the EFSF and IMF) in November 2010 and May 2011, respectively. By year-end 2010 the SMP had attained a volume of 74 billion euros. In 2011, the focus of ECB bond purchases under the SMP then shifted towards Italian and Spanish public debts to a total amount of 144.6 billion euros. By the end of 2011, the SMP had reached a total settlement amount of over 210 billion euros, just short of the peak level of 220 billion euros of February 2012, when purchases ended.

The notion of 'monetary financing' refers to direct lending by the central bank to the government, either as a loan or by purchasing government bonds at the time of issuance. Making a loan to the government or buying a debt security directly from the government issuer (in the 'primary market') means that the central bank hands over money to the government in return for a debt claim against it. Because the central bank can create money in unlimited amounts the fear is that easy access to central bank money would encourage excessive government borrowing and spending, resulting in runaway inflation.

The SMP's design was intended to pre-empt monetary financing accusations. First, the ECB purchased government bonds only in the open ('secondary') market from third parties and therefore did not hand over any money to any government itself. (This contrasted with its procedures in buying private debts under the CBPP, which included

Box 2 (cont)

primary market purchases.) Purchasing financial instruments, including government bonds, in secondary markets is a standard monetary policy instrument fully covered by the ECB statutes. The US Federal Reserve conventionally implements its monetary policy by purchasing nothing else but US Treasury securities. Even the Bundesbank had at times purchased government bonds in the open market in its pre-euro past.

Second, the ECB fully absorbed the liquidity created by its SMP purchases through weekly collection of fixed-term deposits from the banks. The offsetting ('sterilizing') central bank operations work as follows. Whenever a central bank buys a security in the open market, as in the SMP's case, or makes a loan, it pays with its own central bank money created in that very instance. As the central bank pays the newly created central bank money into the banks' accounts at the central bank, the banks' reserves increase accordingly. This is where new fears arise, namely fears that the banks would then greatly expand their lending in response to seeing their reserves rise, resulting in runaway inflation. Regardless of whether such fears had any justification, the ECB chose to offset its SMP-driven liquidity creation by liquidity-absorbing measures, namely by selling other (noncurrent account) instruments to the bank. As the banks use their (current account) central bank deposits to buy these alternative instruments from the central bank, these measures 'destroy' the central bank money that the SMP purchases had created.

Finally, and most importantly, the ECB only acted after a joint EU and IMF 'bail-out' programme for Greece had been finalised a week earlier. The ECB merely supplemented the agreed joint fiscal rescue package, applying a standard monetary policy instrument, while even fully offsetting the liquidity impact through complementary measures.

Despite all these precautions the ECB faced legal challenges to its SMP initiative, both in Germany's Federal Constitutional Court (FCC) and in the European Court of Justice (ECJ). The two German ECB Governing Council members – Executive Board member Jürgen Stark and Bundesbank president Axel Weber – both strongly opposed the SMP, and both later resigned (Batastin 2015). The courts rejected the legal challenges to the SMP, but these challenges probably still discouraged the ECB from adopting a more pro-active approach to crisis fighting.

The point is that government bonds play a critical role in financial markets (Cœuré 2016). For one thing, such bonds serve as prime collateral (that is, guarantees) in lending transactions, both with the central bank and among banks and other financial institutions. For another, interest rates on government bonds serve as a crucial benchmark in financial markets, like a lighthouse that guides the pricing of financial instruments in general (ECB 2014b). For instance, priced against (supposedly) default risk-free government bonds, other debt instruments (for example, bonds issued by companies or banks) offer higher yields, featuring 'credit spreads' to compensate their holders for higher default risk (the risk that a borrower might fail to repay on time and in full). Hence, when interest rates on government bonds rise, private borrowers, too, may face sharply rising financing costs (BIS 2011; Pianeselli and Zaghini 2014; Augustin *et al*. 2016).

In the years before the crisis, interest rates on euro area government bonds were closely aligned. Greek government bonds offered very little yield advantage over German government bonds: so-called 'sovereign (default risk) spreads' (that is, the difference in interest rates between the bonds of a member state and German government bonds, which are considered safe and free of default risk) were negligible. Arguably, this was in line with an important presupposition of Europe's Single Market, namely that it establishes a level playing field for firms across Europe, no matter what their nationality. As firms' debts tend to be priced on the basis of their respective national government bonds, Europe's firms only benefit from a level playing-field in the financing of their operations if interest rates on government bonds are closely aligned. Accordingly, the ECB treated the government bonds of member states as risk free and identical in their role as collateral in lending operations.

As the crisis unfolded, however, financial markets started to differentiate strongly between sovereign debts, again (as in pre-euro times when currency risk premiums meant that governments across Europe generally paid higher interest rates than the German government on its bonds). The yield spreads of, for instance, Greek government bonds over supposedly safe German government bonds soared. The Greek government was now facing much higher financing costs than the German government, for instance. As a result of surging 'sovereign spreads', private borrowers in the Greek financial markets, too, were facing correspondingly higher financing costs. This outcome is not only in stark conflict with the common-market vision of a level playing-field; it also undermines the ECB's supposedly 'single' monetary policy.

This is because, with surging sovereign spreads, the ECB's common monetary policy can no longer be uniform throughout the currency union. For instance, as the ECB cuts its interest rates to ease its policy stance, financing costs for German firms might fall, as intended, while the financing costs of Greek firms might even increase. At the extreme, when parts of the area's financial system become dysfunctional (a partial freeze of financing availability along national lines), the economy of a member state under financial-market attack might get choked. In short, the ECB would lose control over monetary policy and could no longer fulfil its mandate. As the ECB explained in its Annual Report 2010, the SMP was designed to 'address the malfunctioning of certain euro area debt securities market segments and to ensure an appropriate monetary policy transmission mechanism' (ECB 2011: 100). Ultimately, these challenges can be evaded only if financial conditions across the euro currency union were priced against a common benchmark provided by a 'common safe asset' – an ongoing debate (see Box 3).

Given the euro regime's defects and the political and legal controversies surrounding the SMP (which severely constrained the volume of central bank purchases of government bonds), the ECB under its new president Mario Draghi had to find other ways to help contain the escalating euro crisis. Financial market panic and the dysfunctional financial system were aggravating the damage inflicted on the euro-zone economy by area-wide fiscal austerity and intense wage repression.

Box 3 Ongoing euro reform discussions about a 'common safe asset'

Escalating in the context of the euro crisis in 2010–12, the problems described here arise from the fact that private debt instruments across the euro zone continue to be priced relative to national benchmarks provided by national government bonds. This is especially critical for banks, which also tend to focus their holdings of (supposedly) safe assets on purchases of bonds issued by their respective national governments. The concentration of national safe assets in banks' portfolios makes banks vulnerable to the fate of their national government, which also act as a fiscal lifeline if banks face solvency problems. Bank failures potentially represent a huge fiscal burden (Grussenmeyer and Maurer 2015; Laeven and Valencia 2018; Igan *et al*. 2019). Governments, in turn, however, are also dependent on banks' willingness to purchase their bonds.

In short, national governments and national banks are dependent on each other. Their fate is deeply intertwined. When one party to this partnership gets into trouble, the two will likely go down together – a phenomenon that became known as the 'bank-sovereign doom loop' (Mody 2009' Merler and Pisani-Ferry 2012) during the euro crisis when problems that were at first concentrated in particular countries proved contagious and caused havoc across the currency union.

Europe's 'Banking Union' initiative was launched in June 2012 to dissolve this threat. In truth, however, only a common safe asset can solve the matter, providing a common benchmark for the pricing of financial instruments across the area. Only with a common structure of risk-free interest rates can the ECB hope to transmit its monetary policy in a uniform way across the area – which is, at the same time, also a precondition for a level playing-field across Europe's Common Market. The nonexistence of a common safe asset remains a crucial defect of Europe's currency union (see Giudice *et al*. 2019). Ever since the outbreak of the crisis, the ECB's crisis tools have provided only an imperfect fix for this peculiar euro design defect. They did not eliminate the source of sharply diverging financing conditions across the currency union, but merely contained the blow-out in sovereign spreads (and impact on private financing conditions) to some extent.

The ECB set out to marshal the support of the banks in reinforcing government bond markets. Instead of the ECB itself buying government bonds at a greater scale, the ECB enticed the banks to do so, by boosting its emergency liquidity support for banks via expanded central bank refinancing operations.

Before the crisis the ECB's main refinancing operations with banks typically had a duration of only one week. Since the start of the crisis the ECB had not only increased the volume of its refinancing operations, but also extended their duration, to up to one year ('Long-Term Refinancing Operations', LTROs). Towards the end of 2011, the ECB launched the first of its two 'Very Long-Term Refinancing Operations' (VLTROs), which had an unprecedented three-year duration.

Offering three-year loans greatly eased the banks' planning in difficult times. The banks could now secure cheap funding from the central bank for a period of three years. In fact, banks could now essentially obtain as much three-year funding as they wanted, provided they had adequate collateral to offer (as li-

quidity allocation was offered under the so-called 'fixed rate, full allotment' (FRFA) tender procedures that had been in place for ECB's refinancing operations since October 2008). The VLTROs even featured the option of early repayment after one year, that is, starting in January 2013, which meant the banks were not stuck with three-year loans from the ECB in case their liquidity needs and/or funding costs declined in due course.

In short, the VLTROs were very attractive to banks. And the banks' take-up was huge. In the first operation in December banks borrowed nearly 490 billion euros from the ECB, followed by another nearly 530 billion euros in the second operation in February 2012. While the liquidity obtained in the VLTROs was partly used for repayment or in lieu of shorter-term refinancing operations, the result was a net liquidity boost of around 500 billion euros (more than twice the volume of total SMP purchases in 2010–12). Lending to banks makes the ECB's balance sheet grow. The VLTROs expanded the ECB's balance sheet to slightly beyond 3 trillion euros – without the ECB directly buying any more government bonds in the open market (apart from its SMP holdings). Offered cheap three-year refinancing, the banks complied and purchased government bonds in its stead (Acharya and Steffen 2013).

For a while the ECB's measures succeeded in containing market stress and sovereign spreads. But only temporarily. Soon sovereign spreads and extreme market stress began to re-escalate.

Market scares were driven partly by the deteriorating situation in Greece, which eventually led to the second Greek bail-out of 136 billion euros in February 2012. Operating under extreme austerity since 2010, the Greek economy was in free fall (Blustein 2015; IMF 2015). Following her ordoliberal advisors, Chancellor Merkel had insisted on 'adequate participation of private creditors' at the Franco-German summit in Deauville in October 2010 (Pisani-Ferry 2014). This meant that private creditors would not be spared from losses. 'Private sector involvement' (PSI) was first tested with the second Greek bail-out. Market fears were rising that any new bail-out would be accompanied by debt restructuring. Bouts of panic and self-fulfilling bets against government bonds spread across the euro currency union.

Acting as so-called 'lender of last resort' (LOLR) (see Box 4),[2] the ECB had focused its liquidity support on banks rather than on sovereigns. Facing severe political and legal constraints, it relied on the banks to support their governments. But banks and their national sovereign are closely intertwined in terms of their liquidity and solvency status (see Box 3). Banks typically hold bonds issued by their sovereign as liquid and safe investments. And the VLTROs had encouraged the banks to expand their holdings of (typically national) government bonds. A sovereign debt downgrade can therefore have a profound impact on banks, directly triggering write-downs on sovereign bonds held on

2. On central banks' function as lender of last resort, see, for example, Bagehot [1873] 1999; Freixas *et al*. 1999; Goodhart 1999, 2000; Goodhart and Illing 2002; Goodhart and Schoenmaker 2006; Schinasi and Teixeira 2006; and Schoenmaker 1997.

Box 4 Lending of last resort and emergency liquidity assistance

Lending of last resort (LOLR) means stepping in when no one else in the markets is willing to lend. One central banking function is to stem financial panic. As lender of last resort the central bank aims to counteract the freezing of market liquidity and the failure of financial institutions.

When bank lending seized up in the euro area, the banks especially cut back on their cross-border lending and withdrew behind national borders. This created an aggregate liquidity shortage that was regionally concentrated in certain countries. The ECB acted as lender of last resort by liberally expanding its liquidity-providing monetary policy operations to keep banking systems (rather than specific banks) afloat. Indirectly, the ECB's lending of last resort operations in support of banks, especially the VLTROs, also supported government debt markets. The ECB is severely constrained in directly acting as lender of last resort to governments (see Box 2 on the controversies surrounding the SMP).

While the ECB's lending of last resort to banks was designed to prevent a meltdown of the euro-area banking and financial systems, which were in the process of 'defragmenting' along national lines, the ECB leaves rescuing specific troubled banks to national authorities. Bank rescues are inherently risky. If the rescued bank turns out to be irreparably insolvent, the rescuer would incur losses – as its emergency loans would not get repaid. Central bank profits are fiscal revenues, central bank losses fiscal losses. To spare the EC emergency liquidity assistance B – the euro area's common central bank guarding the common currency – from incurring fiscal losses, bank rescues are left to the national central banks to take care of through emergency liquidity assistance (ELA).

Emergency liquidity assistance provision by national central banks generally reflects locally concentrated liquidity needs, together with local shortages of collateral that would fulfil the ECB's minimum requirements. While the risks associated with lending of last resort through emergency liquidity assistance are not mutualised, the liquidity impact concerns the whole system just the same. The governing council of the ECB therefore has ultimate authority to stop or curtail national recourse to emergency liquidity assistance (see ECB 2013b).

banks' balance sheets on the assets side. The impact can also arise indirectly when declines in collateral values trigger 'margin calls' on posted collateral. For instance, when securities prices fall, the ECB will demand that the banks post additional collateral for the funding obtained from the ECB. Banks that cannot post additional collateral will be forced to sell assets and stop lending. By 'marking to market' collateral held at the ECB (which means continuous repricing of assets held as collateral in line with market prices), the ECB amplifies the impact of market price movements on the banks' positions.

The limits to the ECB's strategy to focus liquidity support on the banks became apparent in the summer of 2012, when panic at the prospect of an impending euro breakup overcame financial markets – and ECB president Mario Draghi pulled off a remarkable trick that, in all likelihood, saved the euro from collapse.

Since the spring of 2012, Italy and Spain had been coming to the forefront of escalating market fears. Compared with Greece, Ireland and Portugal, which each accounted for around 1–2 per cent of euro-area GDP, these two countries and their government debts were an altogether different order of magnitude. Discussions among the euro-area political authorities regarding the setting up of the ESM as a permanent rescue fund, replacing the temporary European Financial Stability Facility (EFSF), were ongoing. But even the ESM's ultimately agreed 500 billion euros lending capacity would not be enough in the case of a full-blown crisis in these two larger member states.

Developments forced the ECB's hand. First, in July 2012, the ECB cut its key policy rate by 25 basis points to 0.75 per cent and on that occasion also cut its deposit facility rate to zero. Short-term interest rates were now hovering close to zero. But even zero short-term interest rates were insufficient to calm financial markets, as sovereign spreads continued surging, together with spreading fears of an impending euro breakup.

It then almost seemed like a miracle when ECB president Mario Draghi managed to turn things around in a speech given in London on 26 July 2012, merely by declaring that the ECB would stand ready to do 'whatever it takes to preserve the euro', adding 'and believe me, it will be enough' (Draghi 2012).

The trick was to break the vicious cycle of fire sales and short selling. Short selling is a speculative strategy that is profitable in declining markets. The speculator borrows a financial asset and sells it, buying it back later at depressed prices. Like fire sales, short selling adds momentum to declining prices and soaring interest rates. As rates surge the fiscal position of the attacked country becomes less and less sustainable, with the interest rates of its sovereign bonds rising to unaffordable levels. The more vulnerable the attacked country becomes, the more attractive it is to bet on a euro breakup, with more short selling depressing prices further (and raising interest rates). Mario Draghi's promise amounted to a threat that the ECB would keep prices from falling and boost them instead. This turned short sales into a risky bet against the central bank. Market speculators now had to fear that the ECB would step in and bolster prices, turning their short sales into loss-making bets.

The threat proved credible under the circumstances. Markets chose not the test the ECB's commitment (De Santis 2015). Market players quickly realised that, starting from very elevated yield levels, moving in line with the ECB's wishes also provided a very profitable strategy. Perceived in this way, the Draghi threat turned into an invitation to buy government bonds. Market momentum then operated in the opposite direction, as bond prices recovered, and interest rates declined again.

The ECB followed through by launching a new programme in support of government debt markets – as a successor to the earlier SMP – called 'outright monetary transactions' (OMTs). To date, the ECB has never actually purchased any government bonds under the outright monetary transactions programme (see Box 5).

Box 5 Outright monetary transactions

The ECB specified that OMT purchases would focus on government bonds with a maturity of between one and three years. As in the SMP's case, the liquidity created through such purchases would be fully offset by complementary central bank operations. The member state would need to be in an 'adjustment programme' negotiated with the political authorities, securing the member state's solvency, in order to qualify for OMT liquidity support by the ECB. The ECB did not set any ex ante quantitative limit for OMTs – which is the source of the programme's power.

Bundesbank president Jens Weidmann strongly criticised the OMT and even supported its legal challenge at Germany's Federal Constitutional Court (FCC), but Chancellor Angela Merkel ultimately endorsed outright monetary transactions and both the European Court of Justice (ECJ) and the German court later cleared them as being within the ECB's powers and responsibilities. Mario Draghi (2014) also emphasised that EU leaders' earlier declaration on a 'Banking Union' on 29 June 2012, which itself had little immediate impact, provided an important background to the ECB's outright monetary transactions euro-rescue initiative.

In any case, as already mentioned, Mario Draghi's promise marked the turning point in that stage of the euro crisis. Market calm gradually began to return in late summer of 2012. Just as the escalation of market fears had stoked banks' demand for central bank refinancing and willingness to accumulate central bank deposits – which boosted the ECB's balance sheet expansion – the ECB's balance sheet started shrinking again with the gradual return of calmer financial markets and the banks' declining liquidity demand. Two factors were at work. First, banks made use of their option of early repayment of loans obtained under the VLTROs (by about 440 billion euros). Second, there was a reduction in recourse to emergency liquidity assistance (see Box 4) provided by national central banks. The banks' excess reserves (held at the ECB either on current account or the deposit facility) declined correspondingly.

In the spring of 2013, domestic demand in the euro area, following a two-year decline, began finally to turn around and gradually recover. The ECB implemented three further supportive measures. First, it cut its key (MRO) policy rate by a further 25 basis points to 0.5 per cent in May 2013. Second, in July 2013, the ECB announced that it expected policy rates to remain at present or lower levels for an 'extended period of time'.

This kind of policy communication is known as 'forward guidance' and is supposed to guide market expectations. Forward guidance may be either date- or state-dependent, or both. The ECB may either give a specific date or set out the conditions that it is looking for to justify raising its policy rates at some point in the future. Under normal conditions, central banks refrain from making explicit commitments that tie their hands, or risk market disruptions in case they change course later on. The intended effect of this guidance is to lower longer-term interest rates. Telling markets that short-term interest rates will remain low for a long time tends to bring down long-term rates. Finally, in November 2013, another 25-basis point cut in its key policy rate and marginal lending facility rate followed.

Meanwhile, the European Commission was beginning to implement the Stability and Growth Pact less stringently, so that, following severe austerity over the past three years, the fiscal stance turned gradually more neutral.

Nevertheless, recovery in the euro area remained weak, fragile and uneven. Unemployment was extremely high in some countries. European banks were generally in poor shape, with nonperforming loans at very high levels in some cases. Banks were 'deleveraging', buying government bonds again but not extending credit to the private sector. A banking system that is reluctant to lend to the economy is an obstacle to recovery.

For the ECB these gloomy developments finally become a matter of urgency in the spring of 2014 when inflation and inflationary expectations were drifting lower and lower. Declining inflation and the prospect of a continued decline provided the backdrop for the ECB to reassess its monetary policy stewardship of the euro currency union more fundamentally in the summer of 2014.

3. Belated monetary easing since 2014: measures and outcomes

3.1 Measures

In the first instance, the 'global financial crisis' was a severe banking crisis concentrated in the United States and Europe. European banks suffered huge losses on both their US and European exposures. Up to the summer of 2014, the ECB's crisis management consisted of flexibly accommodating the banks' elevated demand for central bank liquidity as their usual funding sources dried up (Claeys 2014; Bibow 2015). The euro-area banking and financial system(s) re-fragmented along national lines. The common market and common currency depend on a common integrated financial system. But with banks and investors withdrawing behind national borders, national separation of banking and finance re-emerged. In the previous decade huge current account imbalances had arisen. Countries with current account deficits had accumulated enormous external debts, leaving them vulnerable. Then banks and investors in creditor countries stopped lending to banks and sovereigns in debtor countries. And the euro currency union saw the emergence of a sharp division between creditor and debtor nations. Intra-area imbalances that were a legacy of pre-crisis current account positions were driving this division as imbalances unravelled in a de facto balance of payments crisis inside the currency union. Exchange rate realignment could no longer provide a resolution. Financial stress crystallised in bank funding and government bond markets instead (Bibow 2013a; Bologna and Caccavaio 2014; Leandro 2016).

As monetary policymaker, the ECB responded to the crisis and recession by gradually cutting interest rates to zero. The ECB's failure to provide more aggressive monetary stimulus (more in line with the actions of the US Federal Reserve and the Bank of England, for instance) certainly did not help the euro area's dismal performance. As a global outlier, the euro area suffered a double-dip recession.

The damage was self-inflicted. By enforcing the rules of the Stability and Growth Pact, as some creditor countries were relentlessly and recklessly demanding, the euro-area political authorities had prematurely embarked on continent-wide austerity, together with asymmetric internal rebalancing, imposing deflation (euphemistically known as 'internal devaluation') on Germany's euro partners (which now had to make up for Germany's own earlier internal devaluation after 1996). All this happened as the official crisis narrative of a 'sovereign debt crisis' directed attention away from the real problems,

that is, a severe banking crisis, severely unbalanced competitiveness positions inside the currency union, and the lack of a common fiscal capacity, so that euro regime reform was also set on the wrong track (further tightening national fiscal constraints rather than creating a common fiscal capacity).

In the summer of 2014, the ECB confronted the reality of a weak, fragile and uneven recovery that saw trends in inflation and inflationary expectations drifting ever lower (Claeys *et al.* 2014; Ubide 2014). The arrival of Mario Draghi in November 2011 had brought an immediate change of course and in the summer of 2014, a new stage commenced, overhauling the ECB as a monetary policymaker. In the course of the next few years the ECB was going to transform itself into a more 'symmetric' central bank, one that is equally attentive to dis-/deflationary developments and risks as to inflationary ones. The disinflationary forces and downside risks prevailing in the euro zone called urgently for a forceful response. Fully embracing unconventional monetary policies, the ECB set out to provide stronger monetary stimulus by the following means:

(i) it cut its key policy rates from zero into negative territory, shifting gear from 'zero interest rate policy' (ZIRP) to 'negative interest rate policy' (NIRP);
(ii) it refined 'forward guidance' and used it more consistently in its communications to guide market expectations in support of its policy;
(iii) it set up a 'targeted' refinancing instrument designed to encourage and guide bank lending to the real economy, especially small and medium enterprises (SMEs) and households, named targeted long-term refinancing operations (TLTROs);
(iv) it set up an asset purchase programme (APP) designed to support specific securities markets and drive down interest yields and spreads in general, actively creating liquidity and expanding its balance sheet in the process – also known as 'quantitative easing' (QE). In addition to covered bonds, the APP included asset-backed securities, corporate bonds, and, more importantly and most controversially, government bonds.

The ECB delivered its new monetary stimulus initiative, featuring unconventional measures, in four instalments. The starting shot in the new approach was fired at the June 2014 meeting. The ECB cut its key policy rates further so that the deposit facility rate, which was by now the main anchor of money market rates, stood at a *negative* 0.10 per cent. Following the examples of Danmarks Nationalbank, the Swiss National Bank, Sveriges Riksbank and the Bank of Japan, the ECB was now engaging in a 'negative interest rate policy'. As the negative rate on the deposit facility also applies to any excess reserves held on current account at the ECB, the banks would from now on 'earn negative interest', that is, pay interest on any precautionary balances held at the central bank.

In June the ECB also announced its new TLTROs initiative, a series of operations the first of which was to commence in September 2014, with additional

ones following until June 2016 (all of which were set to mature in September 2018). The main objective 'targeted' by the TLTROs was to encourage bank lending to the real economy. But the TLTROs were also seen as a replacement for the two VLTROs of late 2011 and early 2012, which were scheduled to expire by February 2015. The banks were making continued use of their early-repayment option, reducing liquidity in the system and shrinking the ECB's balance sheet accordingly.

When the VLTROs were launched almost three years earlier, the banks saw the programme as an opportunity for cheap funding of their government bond purchases. In the summer of 2014 government bond markets were calm and sovereign risk spreads contained. The ECB's foremost concern, finally, was that bank lending to the non-financial private sector was still shrinking and the real economy extraordinarily fragile. The ECB hoped to alleviate funding squeezes felt by bank-dependent SMEs.[3]

Furthermore, at the June 2014 meeting, the ECB announced that it was undergoing preparatory work for outright purchases of asset-backed securities. This announcement inspired market anticipation that a proper quantitative easing (QE) programme featuring government bond purchases might finally be on its way.[4] The ECB's suspension of its routine measures to offset ('sterilise') the liquidity impact of purchases under the SMP provided a tentative step in the same direction, as it meant that the ECB was now officially 'monetizing' the government bonds it had purchased under the SMP (see Box 2).

The next instalment once again featured a public appearance by Mario Draghi. This step was certainly unconventional but not strictly speaking monetary policy. Rather, Mario Draghi appealed to the political authorities that it was time to use fiscal policy more constructively than hitherto. In a remarkable speech delivered at the Federal Reserve's annual Jackson Hole conference in August 2014, Draghi clearly departed from the usual official 'eurosclerosis' script and the ECB's standard 'expansionary fiscal consolidation' doctrine when he declared that:

3. TLTROs exclude loans to households for house purchases but otherwise resemble the Bank of England's 'funding-for-lending' programme of 2012 and 2013, for instance. See Öztürk and Mrkaic 2014. Rather than 'market neutral', TLTROs are 'credit policy', that is, a policy designed to guide lending in a particular direction. Credit policies were common in the early decades following the Second World War. During the neoliberal era they fell out of fashion in Western central banking.

4. Market speculation about the possible arrival of QE in the euro area had been building up for some time. In March 2014 Bundesbank president Jens Weidmann stated in an interview that QE was not 'generally out of the question', which was widely seen as a decisive U-turn that paved the way for the ECB to eventually embark on the QE path (see Jones 2014; Randow 2014). However, Weidmann was later to stick to his view that conditions in the euro area would not really warrant QE. The ECB governing council's press statement of 3 April 2014 reads: 'The Governing Council is unanimous in its commitment to using also unconventional instruments within its mandate in order to cope effectively with risks of a too prolonged period of low inflation'. In the Q&A at the press conference following the meeting Mr Draghi confirmed that this statement included QE, which was part of the council's 'very rich and ample discussion'.

'Demand side policies are not only justified by the significant cyclical component in unemployment. They are also relevant because, given prevailing uncertainty, they help insure against the risk that a weak economy is contributing to hysteresis effects. Indeed, while in normal conditions uncertainty would imply a higher degree of caution for fear of over-shooting, at present the situation is different. The risks of 'doing too little' – in other words, that cyclical unemployment becomes structural – outweigh those of 'doing too much' – that is, excessive upward wage and price pressures.' (Draghi 2014)

Draghi even argued that there was a case for fiscal stimulus. He lent his support to the 'Juncker plan' and called on countries with fiscal space to use it constructively. He also remarked that other countries had fared better since the global crisis because they had a more anti-cyclical macro policy stance.

The political authorities were not amused. Nothing happened. But the ECB president had acknowledged in public that the euro area's problems did not stem from labour market 'rigidities' and fiscal profligacy alone, that the powers of monetary policy were limited and that fiscal policy should play a more constructive part in fostering a proper recovery in the euro area.

The third instalment promptly followed in September 2014, when the ECB made its next move. It cut its policy rates by another 10 basis points each, bringing the key rate on MROs to 0.05 per cent, the marginal lending facility rate to 0.30 per cent and the deposit facility rate to negative 0.20 per cent. The ECB also announced that it would start purchasing non-financial private sector assets in October, when it would launch a new purchase programme for asset backed securities (ABSPP), in addition to another covered bonds purchase programme (CBPP3), both of which would run for at least two years.

Both the CBPP3 and the ABSPP were intended to foster the ongoing healing process of euro-area banks. The ABSPP in particular was also seen as contributing towards developing the 'Capital Market Union' (CMU), an initiative launched in 2014 with the aim of turning Europe's bank-based financial system into a more mixed affair, with asset-backed securities providing a bridge between traditional bank intermediation and market finance. The CMU complements the earlier Banking Union project (Constâncio 2013).

Other important developments regarding Europe's Banking Union occurred in 2014. Following a comprehensive Asset Quality Review, the Single Supervisory Mechanism (SSM) became operational in November 2014, establishing the ECB as principal supervisor of all banks in the euro area. The ECB also plays a part in the Single Resolution Mechanism (SRM), which implements the Bank Restructuring and Resolution Directive (BRRD), featuring the 'bail-in principle'.[5] The ECB is also closely associated with the 'European Systemic

5. A 'bailout' is the rescue of a bank on the brink of failure by another bank(s) or the government (the taxpayer). A bailout prevents or limits creditors' losses. By contrast, a bail-in requires creditors and (large) depositors (not covered by deposit insurance) to take losses, cancelling their claims against the failing bank (or converting 'bail-in-able' debt into ownership claims).

Risk Board' (ESRB), whose task it is to detect vulnerabilities and to recommend actions to reduce systemic risk in the EU financial sector. In short, the ECB has (at least partly) assumed the traditional central bank role of 'bankers' bank', including macroprudential responsibilities.

And yet, contrary to the declared goal 'to break the vicious circle between banks and sovereigns' (Euro Area leaders' declaration of 29 June 2012), Europe's Banking Union is still missing vital elements. No common deposit insurance scheme has been put in place and deposit insurance remains a national affair. Furthermore, relying on the workability of the bail-in principle, an adequate common fiscal backstop (to bail banks out) is missing as well. Both crucial deficiencies are related to the fact that the euro currency union is not a fiscal union: it lacks a common fiscal capacity. The divorce between the fiscal and the monetary authorities remains the euro's ultimate source of vulnerability (Goodhart 1998; Bibow 2013b, 2019).

Many symptoms of this underlying regime flaw and correspondingly non-uniform ECB monetary policy transmission – banking and financial market fragmentation and heterogeneous financing conditions prevailing across the euro currency union – continued to plague euro-area developments even after the critical 'whatever it takes' turning point in 2012, and the Harmonized Index of Consumer Prices (HICP) headline inflation was turning negative in 2014, so that early in 2015 the ECB declared that it would finally engage in QE by expanding its Asset Purchase Programme to include government bonds. This represented the fourth and final instalment in the ECB's easing initiative that had started in the summer of 2014.

The Public Sector Purchase Programme (PSPP) was announced following the GC meeting on 22 January 2015, a week after a crucial ruling by the European Court of Justice (ECJ) on OMT (see below), and it commenced in March 2015. The Eurosystem was to undertake monthly purchases of 60 billion euros until September 2016, so for a total volume of 1,040 billion euros (roughly 80 per cent of which would be public debt securities).

The ECB's rationale for the PSPP focused squarely on its price stability mandate, as headline HICP inflation had turned negative by year-end 2014. Using flexible language to keep its hands free regarding duration, the statement reads that purchases are 'intended to be carried out until end-September 2016 and will in any case be conducted until we see a sustained adjustment in the path of inflation which is consistent with our aim of achieving inflation rates below, but close to, 2 per cent over the medium term' (ECB 2015a).

The PSPP as a monetary policy measure is very different from the earlier SMP (and also, potentially, the OMT). Purchases under the SMP were (and purchases under the OMT would be) concentrated on certain euro-area member countries concurrently experiencing disruptions in the monetary transmission mechanism. They were conditional on and complementary to fiscal adjustment programmes in the supported countries. By contrast, purchases under the PSPP are system-wide monetary policy measures spread across all

members. Furthermore, maturities for purchases under the PSPP are not concentrated at the short end only, as in the OMT's case, but span from two to 30 years. Of course, any purchases under the PSPP, as in the case of the SMP, are restricted to securities trading in secondary markets, in view of the monetary financing prohibition. Purchases of public sector securities under the PSPP far exceeded purchases made under the earlier SMP in 2010–11. And, in contrast to the SMP, the liquidity created by government bond purchases was not sterilised, because flooding the banking system with liquidity was an essential part of QE as a monetary policy instrument.

The ECB indicated that it would limit its purchases to government bonds with negative yields of no more than the rate banks pay for using the ECB's deposit facility, thereby avoiding income losses.[6] The ECB also stated some additional constraints. These self-imposed constraints were designed to meet Maastricht Treaty stipulations and rulings by the ECJ and Germany's Federal Constitutional Court in previous ECB-related cases.

First, an *issuer limit* of 33 per cent applies to the whole universe of eligible assets and the combined holdings of bonds under all purchase programmes.[7] The 'issuer' here is a particular national government. The limit refers to all its government bonds issued in the market. This constraint was meant to 'safeguard market functioning and price formation, as well as to mitigate the risk of the ECB becoming a dominant creditor of euro area governments' (ECB 2015b, Q&A on the PPSP, 5 March). The overall stock of government bonds issued by a particular government issuer consists of various different series (or 'issues') that each have certain shared characteristics, such as maturity and interest coupons.

Second, the ECB initially announced that a lower *issue (share) limit* of 25 per cent applies, the purpose of which is to avoid that the ECB obtains a blocking minority in the event of debt restructuring involving collective action clauses.[8] However, the issue limit can be increased up to the 33 per cent issuer limit when the Governing Council judges that the risk of debt restructuring is low (ECB 2015c, press release 9 Nov 2015).

6. If the ECB purchased a security at an interest rate of, say, –0.4 per cent, while the rate on the deposit facility stands at, say, –0.2 per cent, this would imply a loss for the ECB, because the negative interest paid by the ECB on the asset exceeds the negative interest earned on the deposits created by the purchase.

7. Including previous purchases made under the SMP. In the case of Greece, ECB holdings initially and until mid-2015 exceeded the 33 per cent issuer limit. In early February 2015, Greece's 'waiver' (of minimum credit rating requirements for acceptance of Greek sovereign and sovereign-guaranteed debt as collateral) was lifted, which also precluded Greece from participation in the PSPP. See Draghi's comments at the ECB press conference on 5 March (ECB 2015b).

8. The ECB does not reserve priority status ahead of other creditors but accepts 'pari passu status' with respect to securities purchased by the Eurosystem. The issue is that if the ECB were to accept a debt restructuring, this would likely be seen as in conflict with the monetary financing prohibition.

Third, the national central banks' asset purchases followed the ECB's *capital key* and concentrated on their respective national government debts only.[9]

The overarching guiding principle behind these self-imposed constraints is to ensure the 'market neutrality' of implementation of the PSPP. Purchases are not meant to favour any country and market forces are to be left intact. The aim is to push liquidity into the system while safeguarding market functioning and price formation, leaving it to market players to shape the ultimate policy impact on asset prices and risk premia. Arguably, focusing liquidity injections on public debt provides the most 'market-neutral' entry point as public debt is conventionally considered the closest thing to a risk-free instrument (which is not strictly the case in the euro-area context because of the issuers' lack of monetary sovereignty).[10]

The capital-key constraint plays an additional role. It is meant to satisfy the principle that there be no shared financial liability (the 'no bail-out' clause). Only the ECB's own 10 per cent share in the additional asset purchases, as well as the national central banks' purchases of securities of European institutions (10 per cent of the PSPP) are subject to the usual regime of risk sharing in monetary policy implementation. The capital-key constraint is designed to avoid the mutualisation of default risk for the bulk (80 per cent) of the programme's volume (which makes the PSPP more similar to emergency liquidity assistance than monetary policy, although conditions are broadly uniform area-wide and set by the ECB).

As the ECB's four-instalment stimulus package launched in 2014–2015 failed to boost recovery and inflation decisively in 2015, the ECB subsequently made several changes to the plan initially announced.

In December 2015 another 10 basis points were shaved off the deposit facility rate, bringing it to negative 0.30 per cent. The ECB also announced that asset purchases would likely be extended by another six months, that the ECB would then replace any maturing securities in its portfolio by new purchases even when net purchases have ended under the programme (thereby preventing its balance sheet from shrinking), and that Fixed-Rate-Full-Allotment tender procedures would continue at least until the end of 2017.

In addition, the ECB started to explore ways to augment the pool of securities eligible for purchase under its APP. From the beginning the pool eligible for purchase by the NCBs included debts issued by EU and international organisations and multilateral development banks, apart from sovereign debts

9. The capital of the ECB comes from the national central banks of EU member states. The national central banks' shares in the ECB's capital are calculated using a 'key' that reflects the respective country's share in the EU's total population and GDP, with population and GDP receiving equal weighting. The ECB's capital key is periodically adjusted.

10. The aspired-to market neutrality by design contrasts with the other active 'credit easing', which target risk premia in particular private market instruments or segments. With the PSPP in place, the CBPP3 and ABSPP are more appropriately seen as supplementary measures designed to support the bank healing process and to foster markets.

issued by the respective national central government. Newly included were now also debt securities issued by the respective state and local governments.

Later on, in March 2016, the ECB took another step in cutting its key policy rates by another 10 basis points each, while raising the volume of its monthly purchases. The deposit facility rate now stood at negative 0.40 per cent, the rate on its MROs at zero per cent and the marginal lending facility rate at 0.25 per cent. Starting in April 2016 the ECB purchased securities of a monthly volume of 80 billion euros, which now also included corporate bonds issued by non-financial corporations under the Corporate Bonds Purchase Programme (CBPP), a measure benefiting large corporations. In addition, and against the background of continued low inflation and weak recovery, the ECB announced that in June it would start a fresh series of four TLTROs with four-year maturities, a measure that is supportive of (typically bank-dependent) SMEs.

The new series of TLTROs featured an important innovation. In principle, the banks' refinancing costs for the use of the TLRTOs II were linked to the interest rate on the MROs, which was cut to zero in March 2016. However, banks meeting specific targets set for lending to the real economy could effectively 'pay' negative, that is, *earn* 0.40 per cent interest on their TLTROs. Overall, from the banks' perspective, this new potential subsidy of up to 40 basis points from the ECB would tend to offset, at least for banks actively lending to the real economy, any interest paid on their central bank deposits (namely the negative interest 'earned', that is, *paid* at the deposit facility rate of negative 0.40 per cent).

The point is that the ECB's NIRP squeezes banks' profit margins to the extent that banks are unable to pass on negative interest rates to their own lenders, which is specifically the case for retail depositors, given households' alternative option to cash their deposits and hold (zero interest) banknotes instead.[11]

Euro-area developments temporarily lightened up in 2017–2018 when the euro currency union was fortunate enough to participate in the global growth acceleration and domestic demand picked up as well. In response, the monthly volume of APP purchases was cut back to 60 billion euros in April 2017. The ECB then started tapering its QE in January 2018, with reduced monthly purchases of 30 billion euros, subsequently reduced further to only 15 billion euros for the last three months of the year. To augment the pool of sovereign debt securities eligible for purchase the ECB had lifted the issue limit to 33 per cent for low-risk sovereigns. The ECB also applied flexibility regarding

11. From the ECB's perspective, the TLTROs' (II) subsidy feature meant passing back to the banks what has become an important source of central bank profits (seigniorage) for the Eurosystem: the negative interest earned on the banks' deposits. Central banking is profitable because central banks earn interest on their assets but pay no (or lower) interest on their liabilities, chiefly bank notes and central bank deposits. Central bank profits generally surged in the aftermath of the global financial crisis as central banks expanded their interest-earning assets through QE. In the context of NIRP, however, the strange situation arises that central banks get paid on their liabilities, but no longer earn much interest income on their assets. See Bibow 2018.

the purchase of bonds at negative yields. Net purchases under the APP were stopped – as planned – at the end of 2018, which marked the beginning of the 'reinvestment phase' of the APP. Reinvestment means that the Eurosystem replaces the redemption of any maturing debt security (which destroys liquidity) by purchasing replacement securities in open markets (which creates liquidity).

The APP had climbed to an overall volume of 2.6 trillion euros when the reinvestment phase started by year-end 2018. After starting slowly in the fall of 2014, at first with purchases under the ABSPP and the CBPP3 only, net purchases under APP gathered speed in March 2015, when the PSPP kicked in. The PSPP constituted the bulk (about 80 per cent) of the APP. The CBPP3 and CBPP attained a volume of 262 billion and 177 billion euros, respectively. At only 26 billion euros the ABSPP is by far the smallest programme, reflecting the fact that the market for asset-backed securities remains underdeveloped (see Hammermann *et al.* 2019).

3.2 Outcomes

The ECB's monetary easing initiative since 2014 was successful in easing financial conditions. The ECB's measures were complementary by design and their overall effectiveness in easing financial conditions is not in doubt. In particular, interest rate levels and spreads have declined significantly across the euro currency union. Bank lending to households and corporations, which had declined in the early years after of the 2010s, started growing again in 2014, albeit moderately. Asset valuations, including equities and properties, have increased significantly. Furthermore, the euro depreciated markedly which, as ECB communications made clear, was a rather welcome side effect. Another welcome side effect was the marked decline in the interest burden on the public debt, which created or restored much-needed fiscal space and thereby helped to contain additional austerity measures.

Assessing the impact of easing monetary and financial conditions, including these just mentioned side-effects, on economic performance, growth, employment and inflation, is more complex but, again, there can be little doubt that the ECB's initiative contributed positively to the higher rate of GDP growth and job creation observed in 2016–2018, even as inflation has remained stubbornly low, too low since 2013.[12]

12. There is an extensive body of empirical research on QE. Generally, the evidence suggests that QE is effective in easing financial conditions and stimulating the economy, albeit with 'diminishing returns', meaning that the effectiveness declines the longer and the farther measures are pushed, while risks may be rising. See, for example: Gagnon *et al.* 2011; Krishnamurthy and Vissing-Jorgensen 2011; Bowdler and Radia 2012; Goodhart and Ashworth 2012; Joice *et al.* 2012; Rogers *et al.* 2014; Weale and Wieladek 2014; Borio and Zabei 2016; Demertzis and Wolff 2016; Del Negro *et al.* 2017; ECB 2018; Dell'Ariccia *et al.* 2018; De Fiore and Tristani 2019; Ryan and Whelan 2019; and Sims and Wu 2019.

While the ECB's monetary easing initiative has helped in important respects, it is undeniable that overall the euro area's recovery has remained fragile, uneven and incomplete. Additionally, an assessment also needs to consider potential negative side effects of the ECB's initiative and ask whether negative side effects might outweigh any potential gains from further monetary easing going forward.

We will ignore here the argument that supportive monetary policies might discourage governments from undertaking structural reforms to overhaul their economies and make them more flexible. The myth that structural reform and fiscal austerity are drivers of growth has been compellingly debunked by eurozone experiences. Structural reform is no substitute for appropriate macro policies. In the short run, both structural reform and austerity are more likely to be growth-negative than -positive. And they are certainly outside the scope of the ECB's responsibility for monetary policy anyway. At the time of launching QE, ECB president Mario Draghi emphasised that the ECB had a price stability mandate and was not in the business of disciplining governments. Instead, the following considerations seem particularly pertinent.

(i) Euro exchange rate

Since the 2007–2009 global crisis the euro area has built up the by far largest current account surplus in the world. Germany's notoriously huge external imbalance is of course a big part of the problem, with the Netherlands as the other persistent contributor. But today France is almost the only euro member country that does not have an external surplus position. This outcome not only contributes to global instability and runs counter to the IMF's long-running efforts to contain and reverse global imbalances. Given the Trump administration's initiatives (which enjoy some bipartisan backing in US Congress) to restore US competitiveness and rebalance America's external position, there is a high risk that any policies that further depress the euro exchange rate and help to maintain or even boost the euro area's external imbalance might provoke US retaliation and global conflicts. Recall that from an exchange rate level vis-à-vis the US dollar of close to 1.40 USD the euro declined to a low of 1.05 USD when the PSPP was launched in early 2015. The euro has since then mainly traded around 1.10 USD vis-à-vis the US dollar.

(ii) Fiscal space

Monetary policy inevitably impacts fiscal space, which is affected by the interest rate/growth rate differential and the state of the economy. If the level of interest rates paid on the public debt exceeds (or falls below) the economy's growth rate, the so-called snowball effect curtails (or enlarges) the government's room for primary (that is, non-interest) expenditures. Depressing interest rate levels and spreads across the euro currency union has helped to lower government interest outlays, while supporting GDP growth and therefore net primary revenues as well. To the extent that the enlarged fiscal space

has contained counterproductive austerity measures that would otherwise have continued to choke growth, this side effect was growth friendly, conditions that generally prevailed across the euro area outside of Germany. To the extent that the enlarged fiscal space just meant additional budgetary savings, no such gains were involved. This latter case best describes the German (and Dutch) situation. In other words, it is vital that governments actually use their enlarged fiscal space and spend more to support economic growth.

(iii) Inequality

Wealth distribution in euro area countries is highly unequal in terms of both level and composition. The wealthy tend to own enterprises and corporate equity apart from property. Middle-income earners may own property and some (predominantly non-equity) financial wealth. The ECB's unconventional monetary policies have been criticised for boosting inequality, specifically by boosting shares and property prices while depriving small depositors of interest income. Rising asset valuations inevitably favour asset owners over non-owners, just as falling interest rates inevitably favour borrowers over lenders and depositors. By affecting interest rates and asset prices monetary policy *inevitably* has such distributional effects. Normally silence is maintained about these issues in discussions of (conventional) monetary policies. Unsurprisingly, with more extreme (unconventional) monetary policies, the distributional side effects will be more extreme, too.

The point is that this critique is not a valid argument against applying extreme monetary policies – unless alternative economic policies are applied instead that deliver the same benefits, such as higher GDP growth and lower unemployment, without the undesirable side effects. Of course, it would be preferable to apply adequate fiscal policies instead. But if these policies are not forthcoming, the euro area is better off if the ECB goes to extremes rather than allowing the euro area to stagnate, or worse. It is important to bear in mind here that many of the gravest income inequalities and related social problems are associated with unemployment. In short, the ECB's extreme monetary policies may boost wealth inequalities, while containing income inequalities and related social problems at the same time.[13]

(iv) Financial instability risks

Expansionary monetary policy works by encouraging borrowing, lending and spending. Easing financial conditions generally involves greater risk-taking,

13. Lenza and Slacalek 2018 find that the employment (boosting) effect of unconventional monetary policies dominates the impact on income on wealth inequality in the euro area. Colciago *et al.* 2019 survey empirical research on the issue and report that the evidence is inconclusive. Evidence provided by Grabka, Goebel and Liebig 2019 suggest that rising income inequality in Germany, despite the country's favourable labour market performance, stems from labour market and social policy reforms rather than any monetary policy effect on asset prices. See also Ampudia *et al.* 2018 and Guerello 2018.

rising asset prices, shrinking risk premia – developments that are not necessarily 'excessive' or that necessarily prepare the ground for a later crisis. Critical issues include whether the stimulus actually reaches (underutilised) real economic activity or mainly boosts financial sector activities, and whether price bubbles inflate and/or make balance sheets more fragile, as imbalances and risk concentrations build up along the way. The authorities in charge of financial stability policy and banking supervision must certainly be watchful (Claeys and Darvas 2015). Again, the real issue is whether avoiding potential financial instability risks would mean that the central bank remains inactive, standing by as the economy stagnates, or worse.

The more relevant concern is that financial instability risks are more likely to emerge the longer extreme monetary policies are applied. Not only are fragile balance sheets, imbalances and risk concentrations, and price bubbles more likely to arise with time, but the business models of financial institutions too may be undermined along the way and the eventual 'exit' and policy 'normalisation' become more challenging and accident-prone. For instance, banks' net interest margins may be squeezed if they cannot pass negative rates on to depositors. The business models of pension funds and insurance companies, too, may be undercut if interest rates remain very low or even negative for very long.

With these considerations in mind, the next section will investigate the ECB's remaining leeway for action and the constraints it faces.

4. Options and constraints going forward (autumn 2019 and today): pushing the limits

The ECB's monetary easing initiatives undertaken since the summer of 2014 worked in the sense that they delivered a significant easing of financial conditions. They thereby also supported the moderate and far-from-complete recovery experienced in the euro area in the past few years.

However, growth started decelerating again in early 2018 and fortunes turned negative more decisively around mid-2018, when the ECB was in the process of tapering its QE policy, hoping that the groundwork had been laid for a continued recovery and eventual normalisation of monetary policy. Since early 2019 it has become increasingly clear that growth has been slowing quite sharply both in the euro area and around the world. In March 2019 the ECB signalled that another series of TLTROs was in preparation for launch in the autumn. Otherwise, the ECB has remained in hiding.

It was only in June 2019, in his speech given at the ECB's annual conference in Sintra, that Mario Draghi (2019) made it clear that the ECB was preparing a fresh, more comprehensive easing initiative to be launched before his departure from the ECB. This intention was confirmed at the press conference following the July 2019 Governing Council meeting (ECB 2019a), when Mario Draghi emphasised that the ECB's inflation target was symmetric and that the ECB would therefore also tolerate some target overshoot. He also repeated his call for fiscal policy support, first made at the Jackson Hole conference in 2014. In preparing its latest easing initiative the ECB had the following options.

4.1 Lowering policy rates deeper into negative territory

Before the crisis it was held that zero was the 'zero lower bound' for nominal interest rates. Negative interest rates are uncharted territory for central banks. There are concerns that the intended stimulus might become ineffective or even counterproductive at some point, a limiting point that was dubbed the 'reversal rate' (Brunnermeier and Koby 2018). Starting in March 2016, the deposit facility rate, which has become the anchor for euro overnight money market rates, was pegged at negative 0.4 per cent. It is unknown just how low the deposit facility rate may be cut without causing major disruptions in banking and finance. These might arise either because depositors cash their deposits on a massive scale, or banks' net interest margins and profitability become

squeezed to a degree that provokes disintermediation and a credit crunch. Eventually, banks might respond to profitability pressures from shrinking net interest margins by raising their lending rates, which would counteract the ECB's easing measures. There are also limits to banks' ability to make up for lost net interest income by raising fees and commissions and pass-through measures that squeeze their customers' incomes.[14]

Net interest margins and fees are not the only factor affecting banks' profitability. On the positive side, banks benefit from capital gains driven by QE, which boosts the prices of assets held by banks. They also see their profits rise due to reduced loan-loss provisions as the economy improves on the back of QE. Again, if the alternative course of action means doing nothing and standing by as recession unfolds, the banks would probably suffer far more.

The ECB has had the opportunity to learn from the experience of other central banks that have combined their negative interest rate policy with a 'tiered' reserve system (for instance, the Bank of Japan, the Swiss National Bank, and Danmarks Nationalbank). 'Tiering' essentially means that the negative interest rate applies only to a fraction of banks' deposits at the central bank, which is no hindrance to the effectiveness of policy control over interest rates. For instance, in the Bank of Japan's framework, only 5 per cent of reserves are subject to negative interest. The central bank effectively pays back part of its interest income earned from negative rates on its deposits to the banks.

In the euro area negative interest rates have become a major source of seigniorage, as central banks receive income on their liabilities. In the case of the Bundesbank, which has made large-scale purchases of German government bonds yielding nothing or even negative rates, the interest income earned on banks' central bank deposits is now the key source of seigniorage. If the Bundesbank were to 'pay back' (in other words, not earn) its income from negative rates on banks' reserves, it would transfer correspondingly less profit to the federal Finance Ministry.

Alternatively, the German finance minister could just use profits received from its central bank to compensate the banks for their 'tax' (negative interest) paid on central bank deposits. And if the banks were then, in turn, to compensate their depositors, then German savers would have one reason less to complain about being expropriated by the ECB's policies. Seigniorage is the central banking link between monetary and fiscal policies (Bibow 2018b). The specific design of the tiering system determines the impact on euro members. For instance, if a system similar to the Japanese one were adopted, which effectively exempts the majority of excess reserves from negative interest

14. See Altavilla *et al.* 2017; Altavilla *et al.* 2019; Deutsche Bundesbank 2019; Brei *et al.* 2019; Demiralp *et al* 2019; and Eggertsson *et al.* 2019. Argawal and Kimball (2019) survey the literature on ideas and proposals of how to ensure pass-through of negative policy rates and enable 'deep negative rates to fight recessions'. Proposals for 'negative paper currency interest rates' and related measures are unlikely to provide practical support for the euro area's challenges in the short term, while technology (digital money) will shape the longer-term monetary system environment.

rates, German banks would benefit the most (although at the expense of the Bundesbank). This is because German banks' central bank deposits are especially large. Total excess reserves in the Eurosystem stand at 1.5 trillion euros, implying annual interest payments of 7.5 billion euros. Germany's share of this total is almost one-third.

4.2 Pushing 'lift-off' by means of forward guidance

Since 2013 forward guidance has become a routine complementary policy (communication) tool to anchor and lower longer-term interest rates by managing market expectations. The ECB has used both date- and state-dependent commitments by stating some specific date or explaining the conditions that it is looking for before adjusting its stance at some point in the future. For instance, prior to the latest easing initiative the ECB communicated that the 'Governing Council expects the key ECB interest rates to remain at their present or lower levels at least through the first half of 2020, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to its aim over the medium term' (ECB 2019; July Governing Council). The ECB can adapt its forward guidance as appropriate, supporting its policy stance as expressed in its key policy rates. In general, however, words are more effective if reinforced by deeds, that is, monetary policy operations directly lowering longer-term interest rates.

4.3 Restarting large-scale asset purchases (QE)

Arguably, when the ECB's APP was halted 'as planned' by the end of 2018, one unspoken reason was that the ECB was approaching the limits of what is possible under the programme's self-imposed parameters, particularly the capital key and the issue/r limits set for the PSPP, the key module of the APP. Germany and the Netherlands are the problem. The Eurosystem's holdings of these countries' government bonds are above 25 per cent already. Both countries are running budget surpluses, which means they are reducing the outstanding stock of their national government bonds and hence the very material available for purchase by the ECB. Moreover, their respective shares in the ECB's capital were raised at the start of 2019 (see ECB press release of 3 December 2018) in the context of the latest routine adjustment based on member states' population and GDP shares (at the expense of the euro countries that have suffered most in the crisis). This adjustment implies that sticking to the capital key requires purchases to focus even more on what is becoming scarcer on the market.

Ironically, the situation represents a case of 'fiscal dominance'. It is said that fears of the dominance of fiscal policy over monetary policy are keeping independent central bankers awake at night. Sargent and Wallace (1981) presented a case of fiscal dominance – an idea that gained traction in the heyday of monetarism – in which the central bank is powerless to control inflation because of a need to accommodate the fiscal authorities in running excessive

budget deficits. It is easy to see how this independent-central-banker nightmare scenario inspired the design of the euro regime. More generally, fiscal dominance describes a situation in which a set fiscal stance constrains the leeway and effectiveness of monetary policy in fulfilling its mandate. The great irony is the fact that it is German budget surpluses that constrain the ECB in fighting *deflation* threats – the very opposite of what Sargent and Wallace (1981) and the designers of the Maastricht Treaty had in mind.

Therefore, something will have to give. Unless German (and Dutch) public debt increases again, on the basis of budget deficits rather than surpluses – which seems highly unlikely outside a recession – the ECB will be forced to modify its PSPP parameters at some point, either the capital key and/or the issue/r limits. At first glance, that may seem easy, given that they are 'self-imposed'. The trouble is that the parameters were chosen by the ECB precisely to meet or pre-empt legal challenges and, once chosen, they have become part of the legal framework and political and public discourse, so that departing from them today would be bound to trigger fresh controversies and legal challenges.

The most relevant legal rules and rulings in this connection include the following:

(i) *Maastricht Treaty*: It begins with the Maastricht Treaty, which features the legal fiction of monetary policy as being wholly separate from economic policy (including fiscal policy). In EU legal terms, monetary policy is an exclusive competence of the Union, at least 'for the Member States whose currency is the euro' (TEU Article 3). Economic policy, on the other hand, remains primarily a national responsibility (TFEU Article 2). The Treaty refers to 'the definition of common objectives', specifically the 'broad guidelines', and requires the member states to regard their economic policies as a 'matter of common concern' and to coordinate them closely (TFEU Articles 3, 5, 119–21). This legal fiction is of course in line with the historical oddity of establishing monetary union without fiscal union. The ECJ's rulings on the European Stability Mechanism and Outright Monetary Transactions concerned the legal fiction contained in the Maastricht Treaty and the history of ECJ rulings remains relevant in the context of the ECB's 'unconventional monetary policies'.

(ii) *European Stability Mechanism*: The ECJ's landmark (*Pringle*) ruling of 2012 on the European Stability Mechanism (ESM), established in September 2012 as a permanent risk-sharing facility that can provide ('bail-out') loans to member states that have lost access to market funding, confirmed the legality of the ESM. It determined that the ESM constitutes economic policy, but not monetary policy, and that the ESM does not violate the so-called 'no-bail-out' clause (Article 125 TFEU). At issue was the question of whether the ESM might conflict with the union's exclusive competence in monetary policy assigned to the ECB. In its ruling the ECJ determined that the objective of the ESM does not concern price stability but rather securing the financing needs of the

members' public sectors, which, in the ECJ's eyes, makes it the subject of economic policy, while any indirect effects on price stability would not matter as the ESM does not constitute a direct measure to maintain price stability (see ECJ 2012; FCC 2014b; Bibow 2015).

(iii) *Outright Monetary Transactions*: The OMT case was the exact opposite of the earlier ESM: Germany's Federal Constitutional Court was asked to assess whether the ECB was acting beyond its legal authority, whether OMTs constitute monetary policy proper rather than economic policy. Germany's Federal Constitutional Court referred the case to the ECJ for a ruling. The ECJ's General Advocate Cruz Villalón issued an opinion on 14 January 2015 (one week before the ECB announced its PSPP!) in which he first of all clarifies the legal fiction featuring in the Maastricht Treaty, arguing that 'in economic terms it may be stated that any monetary policy measure is ultimately encompassed by the broader category of general economic policy', and then goes on to provide a broad set of requirements for any ECB measure to qualify as monetary policy, namely: 'in order for a measure of the ECB actually to form part of monetary policy, it must specifically serve the primary objective of maintaining price stability and it must also take the form of one of the monetary policy instruments expressly provided for in the Treaties and not be contrary to the requirement for fiscal discipline and the principle that there is no shared financial liability. If there are isolated economic-policy aspects to the measure at issue, the latter will be compatible with the ECB's mandate only as long as it serves to "support" economic policy measures and is subordinate to the ECB's overriding objective' (ECJ 2015, paragraph 132). Any actual implementation of OMTs remains conditional on an ESM programme being in place, providing fiscal backing for the ECB's monetary support. The ECJ explicitly denied the ECB any leeway at all regarding the 'monetary financing prohibition' (Article 123; see ECJ 2015, paragraph 220). In June 2016 Germany's Federal Constitutional Court went along with the ECJ's OMT ruling, specifying some detailed technicalities of implementation to assure conformity with the principle of 'market neutrality' and abidance by the monetary financing prohibition (see FCC 2014a, 2016).

(iv) *Public Sector Purchase Programme*: Of course, the PSPP, too, was challenged at Germany's Federal Constitutional Court and the German court once again referred the case to the ECJ in August 2017. In December 2018 the ECJ found that the PSPP as currently designed 'does not exceed the ECB's mandate and does not contravene the prohibition of monetary financing' (ECJ 2018). The ECJ explicitly refers to the 'self-imposed' PSPP parameters as important 'safeguards'. Some leeway is indicated in the court's language, however. In particular, the ECJ states regarding the issue/r limits that they mean 'that *only a minority* of the bonds issued by a Member State can be purchased by the ESCB under the PSPP' (my emphasis), which implies some potential 'headroom' (scope for further purchases) beyond the current 33 per cent limit.[15]

15. The ECJ's Advocate General had earlier explicitly mentioned the 33 per cent threshold, stating that 'the ESCB is prohibited from holding more than 33 per cent of the outstanding bonds of a single issuer for the entire duration of the PSPP' (ECJ 2018, #58).

> The Court also stated that the purchase of bonds at a negative yield to maturity does not conflict with the prohibition of monetary financing – which is laxer than the ECB's original self-restraint. In fact, the ECB has already adopted a more lenient approach by undertaking purchases at yields below the deposit facility rate, though only 'to the extent necessary'. Again, the safe-haven status of German bunds, pushing German interest rates below everyone else's, is the problem limiting what can be purchased on the market without a loss. The higher Germany's (and the Netherlands') budget surpluses become (reducing government bonds available for purchase in the open market) and the more of those bonds the ECB purchases, the greater the risk of losses. Perversely, market stress further worsens the ECB's predicament.

Although the ECJ has spoken, the German Federal Constitutional Court has not, holding fresh hearings on the PSPP in late July 2019, with a decision planned before the end of 2019. This was recently postponed. Therefore, the ECB's planning process remains shrouded in legal uncertainties. It is possible and conceivable for the German Federal Constitutional Court to rule on the PSPP – including any modifications (to be) decided by the ECB in the fall (or in future) – in ways that could constrain the Bundesbank's participation in the PSPP and/or force the German government and parliament into counterproductive action.

What kind of modifications would create more 'headroom' for the ECB? To begin with, the ECJ's wording ('minority') may suggest that there is headroom for the issue/r limits to be raised to 50 per cent. The ECB has already raised the issue/r limits for supranational bonds from 33 to 50 per cent, simply stating on its website that 'increasing the issuer and issue share limit for EU supranational bonds provides additional flexibility in the implementation of the PSPP'.

In an interview with the *Financial Times* published on 17 June 2019 EB member Benoît Cœuré responded to a question regarding the issue/r limits by stating that:

'The European Court of Justice has stressed the relevance and usefulness of limits. The limits are there to guard against monetary financing and to protect the price discovery process. On the other hand, the ECJ has also affirmed the principle that we should have broad discretion in designing our instruments. *The limits are ours*. We already have some degree of freedom across securities. For instance, we already buy up to 50 per cent of supranational bonds, while for individual sovereigns the limit is lower. I'm not saying that's the way to go, but a more detailed discussion is possible *if warranted by our price stability objective*. We've been very serious about these requirements since we started QE and if we were to restart it, we would have the discussion again in a serious and responsible way.' (Cœuré 2019a, emphasis added)

Raising the issue/r limits to 50 per cent would make an additional 250 billion euros 'bunds' (German government bonds) eligible for purchase, which would

buy the ECB more than two years of monthly purchases of 50 billion euros under the PSPP (for a total new PSPP purchase volume in the 1.2 trillion euro ballpark).

Alternatively, departing from the capital key – for instance, reduced purchases of bunds by the Bundesbank paired with increased purchases of Italian public debt by the Banca d'Italia – represents another avenue for creating headroom for aggregate purchases. In many ways this would be the better approach because it would tend to reduce spreads that are, to a large extent, symptoms of an ill-designed and dysfunctional currency union. The ECB's justification would need to shift away from the exclusive focus on its price stability mandate (inflation undershoots) and embrace healing of the monetary transmission mechanism as well. However, this approach would probably be riskier with regard to renewed legal challenges concerning the market neutrality principle and the monetary financing prohibition. As the ECB currently holds about 27 per cent of eligible government bonds, relaxing the capital key while sticking to the 33 per cent issue/r limits would open up new purchase space under the PSPP in the 500 billion euro ballpark.

From a legal perspective it would be easier for the ECB to expand any of the other modules of its APP, or add new ones. From an economic perspective, volumes of purchasable assets are the issue. For instance, under the CBPP the Eurosystem set an issue limit of 70 per cent, with considerable purchases executed in the primary markets owing to the illiquidity of secondary markets. Current holdings of 177 billion euros constitute about 20 per cent of the eligible universe of higher quality corporate bonds. In principle, the ECB could therefore expand its purchases of non-financial corporate bonds by some 450 billion euros, and even more so if it were willing also to purchase higher-risk bonds. By contrast, possibilities for expanding purchases under the ABSPP are more limited, given the small size of the market. Current holdings under the CBPP (261 billion euros) constitute about 33 per cent of the higher-quality covered bond universe – additional purchase space would depend on what issue limit the ECB might set itself.

The ECB could also consider purchasing other asset categories beyond its current programmes.

For instance, corporate bonds issued by financial institutions (bank bonds other than covered bonds) would provide a substantial new pool for potential purchases. The problem here is that the ECB may run into conflicts of interest, given its role in banking supervision. Perceived violations of the separation of its roles as monetary policymaker and banking supervisor might provoke legal challenges.

In principle, the ECB could also consider purchasing equities, property and commodities, preferably as bundled financial instruments. For instance, the Bank of Japan has purchased large volumes of equity Exchange Trade Funds (ETFs) and Real Estate Investment Trusts (REITs). While these financial instruments would open up another large pool of purchasable assets, they would

also be accompanied by unusual financial risks. Purchases of equities would add another irony. Following neoliberal dogma Europe has engaged in the privatisation of state-owned assets, only to, in the end, see its independent central banks become significant shareholders and partially 'renationalise' private wealth.

4.4 TLTROs III

The ECB had pre-announced that a new series of TLRTOs will be launched in the autumn, following the design of previous rounds. An open issue was the pricing, that is, how much of a subsidy the ECB would offer for banks that meet the benchmark of extending loans to the real economy.

While the TLTROs (like other bank refinancing operations) are offered on equal terms throughout the currency union, take-up will be concentrated in those countries in which banks find the terms most attractive. These supposedly asymmetric effects have provoked some criticism, as the TLTROs appear mainly to subsidise the lending of Italian and Spanish banks, helping to prop up weak banks and their 'zombie' borrowers, as it were. This criticism is beside the point because no favouritism of certain nationalities is involved. Rather, the programme indirectly helps to make the transmission of monetary policy more uniform and harmonises financial conditions across the currency union.

Lonergan (2019a,b) argues that monetary policy could even go further and lower the lending rate even more, while perhaps raising the deposit facility rate. The effect of such a move would be to further raise the subsidy element designed to encourage real economy lending and borrowing but with less 'punishment' or 'expropriation' of savers – a popular theme in the German media (Schnabel 2020). This is a valuable proposal, but in essence it amounts to applying the central banks' seigniorage income to loan subsidies. It would be equivalent to transferring seigniorage to the government budget and have the loan subsidies (and perhaps bonus payments to savers) come out of the budget. In a way, the proposal is another version of 'QE for the banks' with an added flavour of 'QE for the people' (see below).

4.5 Credit policies more generally

TLTROs, which are designed specifically to encourage real economy lending, are what in the pre-neoliberal era used to be called 'credit policies', when 'credit guidance' (or directives), administered through the central bank and/or the finance ministry, existed in considerable variety (Bezemer *et al.* 2018). The neoliberal mantra of 'market neutrality' has made credit policies unfashionable. The financial crisis seems to have caused some questioning and reconsideration of the old market faith.

Of course, credit policies could be aligned with other important EU objectives. For instance, subsidies might target 'green lending' as part of EU climate

change policies. Coordination with other EU institutions, such as the European Investment Bank (EIB), would be appropriate, given that the EIB 'has vowed to end its multibillion euro financing for fossil fuel projects by the end of next year in order to align its strategy with climate targets' (Ambrose 2019). The EIB is among multilateral institutions included in the ECB's PSPP. Without prejudice to its primary price stability goal, the ECB is supposed to support EU economic policies anyway (in addition to credit policies adapting the collateral framework and QE portfolios represent straightforward options). The aspired-to 'greening' of monetary policy under its new president Christine Lagarde, who succeeded Mario Draghi in November 2019, is a welcome development covered by the EU treaty (see Dikau and Volz 2019).

One has to bear in mind, however, that, while the availability and cost of finance is one important factor, it is more important to stop restraining and forgoing necessary public investment by austerity decree. Even lower interest rates and loan subsidies will fail to do any good as long as the austerity obsession rules in Europe's dysfunctional currency union.

4.6 'QE for the people'

I observed a moment ago that the subsidy element in the TLTROs was another form of 'QE' for the banks, supporting banks' profitability out of seigniorage income. Seigniorage may also be applied in other ways, for instance, in ways that more directly support household income, a 'monetary' policy that has been dubbed 'QE for the people' (Muellbauer 2014; Bibow 2016; Borio 2016). The point is that direct transfer payments to households coming out of current (or future) central bank seigniorage income are purely fiscal decisions. Arguably, outright fiscal decisions would better be left to the political authorities. If made by the ECB, fresh legal challenges would be a certainty. (If payments to households were made as interest-free, non-repayable loans, these operations would result in central bank losses as soon as interest rates turn positive again, reducing future seigniorage income accordingly.

5. Four scenarios: doing nothing, tinkering, bazooka, and a sound macro policy mix and regime reform

It is common to divide central bankers into 'hawks' and 'doves': the former tends to favour policies that are more aggressive on (perceived) inflation risks and less supportive of growth and employment, while the latter favours a more balanced approach to monetary policy. It may be preferable to translate these broad types of central banker mindsets into a set of plans for action (or inaction) as they presented themselves to the ECB in the autumn of 2019, and similarly going forward, if the economy deteriorates further.

5.1 Doing nothing

In Germany in particular, but to some extent also in some other creditor countries, the ECB has been criticised all along for doing too much (Schnabel 2020). This critique suggests that the ECB should have patiently watched the euro-area economy stagnate and tolerate the risk that inflation might significantly undershoot the 2 per cent mark for a long time. Similarly, going forward, this critique suggests that the ECB should simply stay put and hold course, even if inflation starts declining further below 2 per cent, again. This conspicuously asymmetric approach to monetary policy would be in line with the 'stability-oriented' Bundesbank model that abhors policy activism in deflationary environments – the mindset that also inspired the ECB in the pre-Draghi era. The implicit strategy behind the old Bundesbank model is to rely on external growth to provide the stimulus for recovery. A focus on competitiveness, fiscal discipline, an undervalued exchange rate and wage moderation/repression, are part and parcel of this model. Myths about Germany's monetary history cast a long shadow (Bibow 2009b, 2010, 2017, 2020b; Mee 2019; Redeker *et al*. 2019).

The Bundesbank model is not workable for an economy the size of the euro area. In the aftermath of the global crisis the euro area relied on global recovery as its external lifeline. As a result, the euro area's external surplus peaked at over 3.5 per cent of GDP, the largest current account surplus in the global economy. More recently, the euro area's external imbalance has become an important source of vulnerability. In today's era of trade and currency warfare the old Bundesbank model is a hazardous strategy. Financial markets and many observers appear to have appreciated this vital point by now. Hence the risk of 'doing nothing' is that, sooner or later, financial markets might panic about a negligent central bank sitting on its hands.

Proponents of 'doing nothing' would need to explain their alternative policy for recovery (scenario 4).

5.2 Tinkering

Tinkering means that the ECB may try to do 'a little more of the same', but refrain from doing anything drastic that might either be interpreted as crossing (technical, legal or ideological) red lines and/or considered too high a risk with regard to producing undesirable social or economic side-effects. For instance, last September, the ECB could have cut the deposit facility rate by five basis points and expanded forward guidance by three months, but not do anything meaningful beyond that. The risk is that tinkering might be perceived as hardly different from doing nothing and market reactions produce overall adverse effects on financial conditions.

5.3 Bazooka

The notion of firing the monetary bazooka – in the sense of firing all canons available – is state-dependent. The constraints discussed above need to be recognised. Mario Draghi's 'whatever it takes' declaration in 2012 was a bazooka-like threat that worked without any actual firing.

Circumstances last September were very different. Arguably, words alone were unlikely to have any positive effect. Under the circumstances, the ECB had to further explore the limits of its potential deeds that I tried to identify in the previous section. How much more room for action does the ECB have? How much further can the ECB push the limits of monetary policy? And how about efficacy?

– My best estimate of a maximum possible further cut in the deposit facility rate is by a total of perhaps 40 basis points or so to negative 0.8 per cent. (This would be near the level established by the Swiss National Bank and Danmarks Nationalbank.)
– Assuming some flexibility of the PSPP parameters and more flexibility regarding other (non-government) bonds, I consider a two-year QE restart with monthly purchases under the APP of 50 billion euros to be practicable.
– New series of TLTROs provide a complementary tool. In contrast to active open market purchases of assets the effectiveness of TLTROs depends on banks' ability and willingness to lend, as well as the existence of willing borrowers.

Importantly, rolling out the monetary bazooka does not necessarily mean using it to the fullest extent possible. Instead of pushing measures to the absolute limit, whatever that may be, it is advisable to keep market fantasies alive, in the sense that there is room for hope that the central bank could still do more, if needed. Keeping the markets guessing can support the effectiveness

of monetary policy, as long as the central bank manages to convey its determination to take action.

Doing nothing, tinkering and the bazooka broadly described the menu of strategic options available to the ECB in September 2019. The menu also describes the strategic options available going forward, should circumstances deteriorate and call for more action (although the scope for bazooka-like action is smaller today than it was last autumn). There are limits to how far the ECB can push the limits.

Also, while I favoured the bazooka over tinkering last year, I reiterate the warnings regarding potential negative side effects. In view of the risk of 'currency wars' I am especially concerned about renewed reliance on the exchange rate channel. While the ECB will avoid buying foreign assets, cutting short-term rates and large-scale purchases of domestic assets will encourage net capital outflows and tend to depress the euro. And I see substantial scope for financial stability risks associated with 'lower yields for longer', too.

It is therefore important to emphasise that the ECB's bazooka is only second-best. Worst of all, it may have only a very limited impact on the real economy rather than the financial system. Mario Draghi himself made this concern all too clear in his calls for fiscal policy support that started in 2014.

5.4 Sound macro policy mix and regime reform

A far superior approach would be to end Germany's and Europe's extraordinarily harmful obsession with austerity and finally to normalise fiscal policy. Europe's austerity policy has been extremely costly. It has been guided by the neoliberal mantra to shrink the state because all wisdom lies with unfettered markets. In view of actual experiences Europe may want to seriously reconsider this somewhat messy dogma.

The EU's climate targets, if taken seriously, require a huge push in public infrastructure investment. Such a push would be perfectly aligned with what is required to sustain the unfinished recovery. It is clearly fallacious to assert that Europe 'cannot afford' to do what is required to secure its own future. The very opposite is true: Europe cannot afford not to do what is obviously the right thing.

The analysis of the ECB's crisis management presented here suggests that it is high time to resort to the first-best policy: fiscal expansion. But monetary policy remains a crucial supporting act. QE is a crucial tool for sustaining low interest rates. There is considerable scope for the ECB to purchase EIB bonds, for instance. I do not need to repeat here that proper regime reform and the establishment of a 'Euro treasury' would be the best way to turn Europe's currency union into a viable project that could foster shared prosperity and help the ECB fulfil its price stability mandate (Bibow 2013b, 2019).

6. By way of a conclusion: an early assessment and prospects of the ECB's latest initiative of autumn 2019

At the Governing Council meeting on 12 September 2019 the ECB launched a new offensive against the continued slowing down of growth and inflation in the euro area. The ECB (2019b) chose a package that follows the bazooka scenario but made sure to leave room for more. The new offensive consists of the following measures defining its new policy stance:

(i) the interest rate on the deposit facility was cut by 10 basis points to −0.50 per cent; while interest rates on the main refinancing operations and the marginal lending facility were left unchanged at 0.00 per cent and 0.25 per cent, respectively;
(ii) the ECB restarted its net purchases under the APP at a monthly rate of 20 billion euros (as from 1 November);[16]
(iii) the ECB altered the modalities of its previously announced new series of quarterly TLTROs by extending the maturity of the operations from two to three years (with optional repayment after two years) and raising the effective lending subsidy to banks whose eligible net lending exceeds a set benchmark to the full 50-basis point spread between the interest rate on MROs (currently 0 per cent) and the interest rate on the deposit facility prevailing over the life of the operation, which currently stands at −0.5 per cent. (This improved on the ECB's previous announcement that a 10-basis point spread above the average interest rate of the Eurosystem's MROs would apply to the TLTROs III, which was probably intended as a signal that the ECB was planning to gradually wean the banks off this subsidy.)

The ECB also reinforced its forward guidance regarding its policy stance.

Regarding its key interest rates the ECB declared that it 'now expects the key ECB interest rates to remain at their present or lower levels until it has seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2 per cent within its projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics'. Regarding its relaunched net purchases under the APP, it was crucial that the ECB did not announce a specific duration for its net purchases. Instead, the ECB tied its new QE ini-

16. The ECB also extended the possibility of buying assets with yields below the deposit facility rate, which was previously restricted to the PSPP only (decision of January 2017; see fn. x), to all private sector purchase programmes under the APP.

tiative to its key policy rates, whose path is, in turn, tied to achieving its price stability mandate, announcing that it expects net purchases to 'run for as long as necessary to reinforce the accommodative impact of its policy rates, and to end shortly before it starts raising the key ECB interest rates'. The ECB also reaffirmed that reinvestments of the principal payments from maturing securities purchased under the APP 'will continue, in full, for an extended period of time past the date when the Governing Council starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation'.

In addition, the ECB launched a new 'two-tier system for reserve remuneration' that exempts part of the banks' holdings of excess liquidity held in current accounts with the Eurosystem (but not holdings at the ECB's deposit facility) from the negative deposit facility rate. The new tiering system has been applied since the reserve maintenance period starting on 30 October 2019 with an (adjustable) 'multiplier', currently set at six. This means that banks pay negative interest only on reserves that exceed their minimum required reserves plus the exempt tier of six times their required reserves.[17]

Financial market reception of the ECB's latest easing initiative has been very positive. In his final act as ECB president Mario Draghi was successful on two fronts: easing financial conditions and lifting part of the gloom that had befallen the euro area's outlook – at least for now.[18]

At first glance, shaving off 10 basis points from the deposit facility rate and restarting the APP with monthly purchases at a volume of 20 billion euros may seem unimpressive, more like tinkering. What makes the ECB's latest easing initiative a true 'bazooka' is the fact that APP purchases are not taking place for a pre-announced period or at a pre-announced volume but are open-ended and explicitly tied – via forward guidance – to fulfilling the ECB's price stability mandate. And with a new emphasis on the symmetry of the 2-per cent mark!

This new-found confidence in highlighting the symmetry of its price stability target completes the ECB's liberation from the past that started in November 2011 when Mario Draghi arrived at the ECB as its third president. Under its fourth new president, Christine Lagarde, the ECB recently embarked on a new

17. Given the uneven distribution of excess reserves across the euro area the tiering system had the (probably intended) effect of inducing new interbank lending between banks with reserves well above their exempt tier (for instance, in Germany) to banks with reserve holdings below their exempt tier (for instance, in Italy). See Arnold 2019. Another (probably intended) side-effect is that this renewed cross-border interbank lending that has occurred primarily through (secured) repo lending (Cœuré 2019b) tends to shrink TARGET2 imbalances.

18. Stark divisions inside the Governing Council emerged in public in the aftermath of the meeting on 12 September. Especially in Germany, helped by Bundesbank president Jens Weidmann's public statements, public outrage about the ECB's policy measures has escalated. In late September 2019 Sabine Lauterschläger announced her resignation from the ECB's Executive Board – the third top-rank German central bank official to step down over policy disagreements (following Axel Weber and Jürgen Stark in 2011).

'strategy reform' that hopefully will inscribe symmetry into its central bank DNA. In short, the ECB has tied itself to the mast of the euro ship and underscored its determination to pursue its mandate by all the legitimate tools at its disposal.

The euro area's economy – as shaped by its economic policy – will determine the outcome.

In my view, the ECB's initiative will help to sustain easy financial conditions and keep financial markets happy, but will itself have only limited impact in supporting the economy. Luck may strike and grant the euro area another export-driven recovery. If the economy continues to sag and fall into recession, which would probably prompt an increase in the volume of APP purchases, such purchases might even reach the limits of what is possible under current parameter settings by the end of 2020 or next year at the latest (when the current issuer limit of 33 per cent for the PSPP would probably be hit for Germany). Forcing the ECB to adjust these parameters through continued political/fiscal inaction risks fresh legal challenges and public uproar in the media. The ECB, the euro area political authorities and financial markets would be set for a fresh showdown when that moment approaches.

A deep German recession, sharply increasing the availability of German government bonds for purchase in the open market, provides one way out.

It would be far preferable to embark on a constructive fiscal expansion at this time. The ECB's latest easing initiative is not a substitute for a constructive fiscal expansion but a helpful complement that prepares the ground and buys the authorities a little more time to act. The ECB itself admits as much. The ball is in the court of the political authorities of the euro area. It is undeniable that the ECB's desperate measures come along with risks to financial stability. The point is that expecting the ECB to remain inactive implies even bigger risks.

It is not without irony that the design of the euro regime was inspired by fears of 'fiscal dominance' and memories of the Weimar hyperinflation, even though the actual outcome in the euro area today is the exact opposite: the deflationary variety of fiscal dominance. Germany's fiscal surplus shrinks the pool of public debt securities the ECB can buy in the open market and thereby constrains the power and effectiveness of monetary policy in maintaining price stability.

Prior to the euro the Bundesbank set monetary policy for Europe. When the euro was launched it was the hope of Germany's partners that the euro would end German monetary hegemony in Europe. Their hopes were disappointed. The emergence of Germany's huge and persistent current account surplus has been a drag on euro-area development since well before the crisis. In the aftermath of the crisis Germany's 'black zero' policy has further worsened the domestic demand malaise while also constraining – dominating! – the ECB's room for effective action. Today the ECB is fighting a battle for the euro it

cannot win unless the euro area's dominant economy changes course and the euro area's political authorities finally embark on fiscal expansion and constructive euro regime reform.

Further delaying fiscal expansion and euro reform is hazardous, especially in the current global environment. The future of the euro remains highly uncertain.

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All links were checked on 04.03.2020.

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D/2020/10.574/11
ISSN 1994-4446

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