

ADEMU WORKING PAPER SERIES

Monetary Policy Stretched to the Limit: How Could Governments Support the European Central Bank?

Ad van Riet [†]

October 2017

WP 2017/075

www.ademu-project.eu/publications/working-papers

Abstract

New-style central banking in many advanced economies, involving the use of unconventional monetary policy instruments and forward guidance at the effective lower bound for interest rates, has raised questions about the appropriate role of fiscal policy – also in the euro area, where a fiscal counterpart to the European Central Bank (ECB) and the Eurosystem is missing. This paper considers three areas where euro area governments could act as the ‘joint sovereign’ behind the euro and support the ECB in its task of maintaining price stability, staying within the boundaries of the Maastricht Treaty. First, member countries could coordinate a growth-friendly aggregate economic policy mix that is supportive of the single monetary policy, with the help of a central fiscal capacity subject to common decision-making. Second, they could introduce a safe sovereign asset for the eurozone without assuming common liability in order to anchor financial integration and facilitate monetary policy implementation. Third, the significant benefits for the Eurosystem from a lower burden on monetary policy and a reduced exposure to sovereign risk could make it acceptable for euro area governments to indemnify it against potential large losses on its much expanded balance sheet. The fundamental solution, however, lies in advancing with fiscal integration to address the ‘institutional loneliness’ of the Eurosystem with full respect for its independent status.

JEL codes: E5, E63, H63

Keywords: Maastricht Treaty, new-style central banking, supportive fiscal policies, capital loss insurance, safe sovereign asset

[†] Senior Adviser, Directorate-General Monetary Policy of the European Central Bank. The views expressed in this paper are those of the author and should not be reported as representing the views of the ECB.

Acknowledgments

An earlier version of this paper was presented at the Conference on 'The Political Role of the European Central Bank in European Union Governance', University of Duisburg-Essen, Germany, 5-6 April 2017; at the 2017 Biennial Conference of the European Union Studies Association, Miami, United States, 4-6 May 2017; and at the ADEMU Workshop on 'The New ECB in Comparative Perspectives', European University Institute, Florence, Italy, 19-20 September 2017. Comments from Birgit Erdelmeier, Katherine Russell and Leo von Thadden are gratefully acknowledged. This project is related to the research agenda of the ADEMU project, "A Dynamic Economic and Monetary Union". ADEMU is funded by the European Union's Horizon 2020 Program under grant agreement N° 649396 (ADEMU).

The ADEMU Working Paper Series is being supported by the European Commission Horizon 2020 European Union funding for Research & Innovation, grant agreement No 649396.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License Creative Commons Attribution 4.0 International, which permits unrestricted use, distribution and reproduction in any medium provided that the original work is properly attributed.



Since the strength of a currency – and the public’s confidence in it – is closely related to the political structure that supports it, ... the Eurosystem’s “institutional loneliness” will need to be addressed. Tommaso Padoa-Schioppa (2000).

1. Introduction

The Maastricht Treaty established the foundations of the Economic and Monetary Union (EMU) of Europe and laid down the legal framework for the introduction and functioning of the euro. The EMU architecture was designed to prevent political dominance over the single monetary policy which – as national experience had shown – could cause high inflation and destabilise the currency. Accordingly, the European Central Bank (ECB) was given an independent monetary policy mandate with maintaining price stability for the euro area as a whole as its primary objective.¹ In addition, national fiscal policies were subjected to market discipline and common surveillance to ensure sound and sustainable public finances with the room for manoeuvre to address domestic shocks. Taken together, this was expected to secure the stability of the euro.

At the 25th anniversary of the Maastricht Treaty, which was signed in February 1992, the relationship between the 19 euro area governments and the ECB seems to have shifted. Since the global financial crisis of 2008 a ‘new era of central banking’ has emerged, marked by a new style of monetary policy making (Santor and Suchanek, 2016). The central banks of many advanced economies – including the ECB – employed forward guidance and unconventional instruments to provide a sufficient amount of monetary accommodation at a time when the equilibrium real interest rate was estimated to be very low and the conventional monetary policy rate hit the effective lower bound. This international trend in central banking affects the role of fiscal policy in at least three areas.

First, the monetary authorities often took resort to unconventional operations to respond to secular stagnation and deflationary pressures and called for a fiscal stimulus to more effectively restore macroeconomic equilibrium and alleviate the burden on the central bank (Summers, 2014). A monetary policy of maintaining low-for-longer interest rates also carried the risk of unintended negative side-effects for the functioning of financial markets and institutions. The ample availability of cheap money, if prolonged, could undermine

¹ The responsibility for the single monetary policy of the eurozone lies with the Eurosystem and the Governing Council of the ECB. The Eurosystem is made up of the ECB and the national central banks (NCBs) of the euro area countries. This paper generally refers to the ECB unless an explicit reference to the Eurosystem is warranted.

bank profitability, hurt the solvency of institutional investors and push excessive risk-taking in search for higher yields. A fiscal expansion could in these circumstances also speed up the normalisation of monetary policy, which would ease the task of prudential supervisors to promote financial sector resilience and preserve financial stability.

Second, many central banks undertook quantitative easing and bought public and private sector securities on a large scale until inflation showed a sustainable upward adjustment. They also applied a mix of implicit subsidies and taxes in credit operations with the banking sector. As a result, central banks ventured ever-more deeply in fields that are considered to be the prerogative of fiscal policy, such as public debt operations, credit allocation and income and wealth distribution, going well beyond conventional monetary policy or a temporary role as lender of last resort (Blinder et al., 2017). This fiscalisation of monetary policy raised political concerns over central bank independence (de Haan et al., 2017). The need for democratic legitimacy and accountability made it advisable for governments to assume final responsibility for the fiscal and quasi-fiscal aspects of monetary policy (Buiter, 2014).

Third, the large-scale asset purchases with the aim to inject a substantial amount of risk-free overnight liquidity into the economy have led to large-for-longer central bank balance sheets. When short-term interest rates move up again central banks will have to pay a higher remuneration on their expanded liabilities vis-à-vis the banking sector. Depending on accounting rules, there could also be valuation losses on the acquired assets, notably if these were sold again instead of being held in the monetary policy portfolio. Moreover, the risk of default on the securities bought cannot be excluded. The likelihood that central banks may have to report big losses and call on their government to recapitalise them increased in parallel with the size of their balance sheets (Hall and Reis, 2015). This meant that treasuries should provide their central bank with an indemnification for the heightened risk of losses associated with a much expanded balance sheet (Buiter, 2014).

Given the emphasis in the Maastricht Treaty on separating the domains of national fiscal policies and the single monetary policy, the three aforementioned fiscal aspects of new-style central banking are of particular significance to the ECB. During the euro area crises of 2008-13 and the sustained low inflation episode of 2014-17 the ECB had to undertake a range of non-standard monetary interventions to return to price stability on a durable basis. The exceptional monetary easing that pushed interest rates into ultra-low regions drew criticism for its potential adverse side-effects (van Riet, 2017c). The ECB also waded far

into capital and credit markets, which triggered the political question whether it should also take national fiscal conditions, social considerations and environmental concerns into account when buying securities for monetary policy purposes. The accumulation of a large amount of public and private sector assets on the Eurosystem's balance sheet further necessitated a tightening of risk management procedures as well as a renationalisation of sovereign risk exposures in order to limit from the outset the fiscal transfers implied by sharing net monetary income as well as potential losses. Some observers therefore stated that the single monetary policy was stretched to the limit of its capabilities (Micossi, 2015).

Yet, a euro area treasury to provide active fiscal support to the single monetary policy in reviving the euro area economy, assume final responsibility for the non-standard monetary policy operations and provide a fiscal backstop against large financial losses, is missing, reflecting the Eurosystem's "institutional loneliness" at the EMU level (Padoa-Schioppa, 2000, p.37). This Maastricht Treaty set-up contrasts with the framework of other monetary unions where the central bank is embedded in a political union and has a clearly defined fiscal counterpart (Draghi, 2014; De Grauwe, 2016). Their central government has access to a central budget voted for by the union's parliament to implement economic policy, it is able to issue its own low-risk sovereign bonds, it has the ultimate capacity to backstop the financial risks assumed on the central bank's sheet – and all these supranational fiscal commitments are backed by the taxpayers of the whole union.

This paper reviews how the 19 euro area governments could act as the 'joint sovereign' behind the euro (Hoeksma and Schoenmaker, 2011; van Riet, 2016a) and establish more similar framework conditions for monetary policy as exist in other currency areas – even without a euro area treasury. First, member countries could coordinate a growth-friendly aggregate economic policy mix that is supportive of the single monetary policy with the help of a central fiscal capacity. Second, they could introduce a safe sovereign asset for the eurozone without assuming common liability so as to anchor euro area financial integration and facilitate monetary policy implementation. Third, the significant benefits for the Eurosystem from a lower burden on monetary policy and a reduced exposure to sovereign risk could make it feasible for national governments to share *ex ante* the financial risks associated with its non-standard balance sheet operations. The fundamental solution, however, lies in securing sound and sustainable fiscal positions in each and every member country and advancing with political integration to establish a euro area fiscal counterpart to the Eurosystem with full respect for its independent status.

The rest of this paper is organised as follows. Section 2 reviews the new era of central banking in the wake of the global financial crisis and how it has changed the position of fiscal policy vis-à-vis monetary policy. Section 3 presents three ways for euro area governments to assist the ECB in fulfilling its mandate while preserving its independence. Section 4 concludes that these fiscal support mechanisms for the single monetary policy are feasible within the framework of the Maastricht Treaty.

2. The new era of central banking and the support of fiscal policy

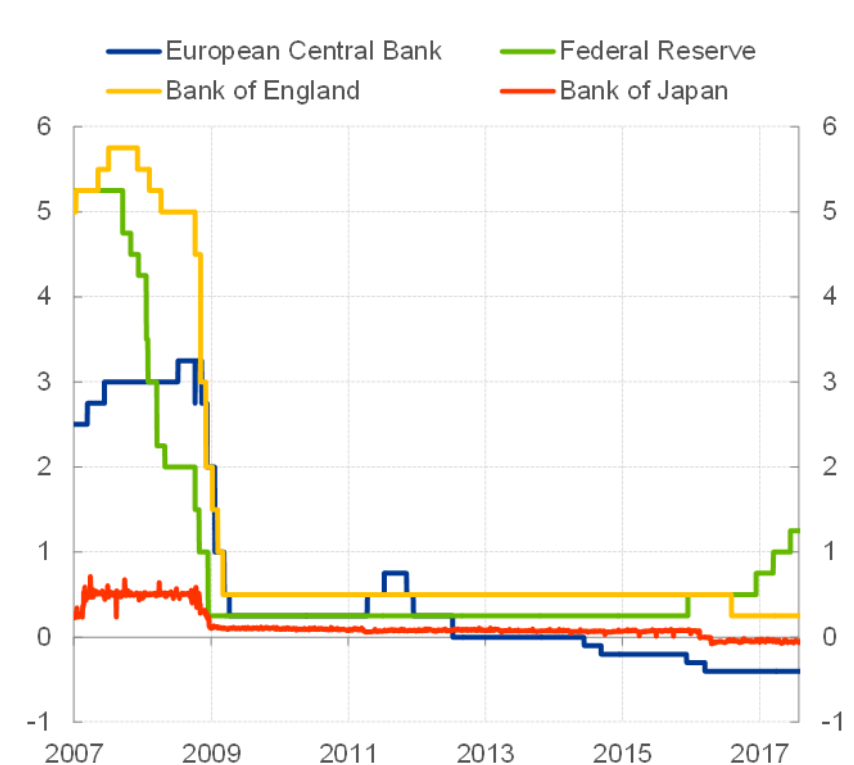
2.1 The separation between monetary and fiscal policies

As observed by Goodfriend (2007), by the late 1990s, the world had achieved a broad consensus on the core principles of monetary policy. One of the hallmarks of this consensus was that central banks required an independent mandate for achieving and maintaining price stability, a strategy which also supported macroeconomic and financial stability. The conduct of monetary policy consisted of shadowing the equilibrium real interest rate (which some observers refer to as the natural or neutral rate), defined as the short-term interest rate consistent with macroeconomic equilibrium over the policy-relevant horizon. Central banks would typically undertake money market interventions in order to bring their operational or target interest rate in line with this benchmark and to influence market expectations that affected longer-term bond yields and thereby credit conditions and aggregate demand.

This monetary policy focus left governments with the task of pursuing sound fiscal policies, given that public debt issuance was subject to the scrutiny of ‘bond market vigilantes’. According to the consensus view, active fiscal measures to fine-tune the business cycle were hard to implement in a timely, targeted and temporary manner (the TTT criteria). The countercyclical role of government budgets was therefore restricted to that of providing automatic stabilisation (Taylor, 2000). Public revenues would fall naturally as economic growth slowed and public spending would rise in line with the higher rate of unemployment (and vice versa in an upturn), leaving the cyclically-adjusted budget balance broadly constant. This negative attitude towards discretionary fiscal policies also reflected doubts about their effectiveness when private agents started to save the budgetary stimulus in anticipation of the higher taxes that would be necessary to service the higher debt. Governments should instead focus on improving the supply side of the economy by maintaining low tax rates, undertaking productive public investments, removing regulatory impediments and initiating other structural reforms.

The widely accepted principle of giving monetary and fiscal policies their own field of responsibility was also enshrined in the Maastricht Treaty, which furthermore restricted their geographical domain to the euro area and national level, respectively. The separation principle became untenable in the wake of the global financial crisis of 2008 and the credit crunch that triggered the Great Recession of 2009. The advanced economies, including the European Union (EU), orchestrated a fiscal stimulus to put a floor to the drop in aggregate demand, but given the high budgetary costs of bank rescue operations most of them soon turned on a course of austerity, generally leaving their central bank alone with the task of finishing the job. After major central banks in the autumn of 2008 had rapidly cut their policy rates (close) to zero (Figure 1), passively accommodated the banking sector's immediate demand for liquidity and directly intervened in financial markets to repair monetary transmission channels, the main question they faced was: how to further stimulate credit growth in a low-growth and deflationary environment?

Figure 1 – Monetary policy rates of major central banks
(percent per annum)

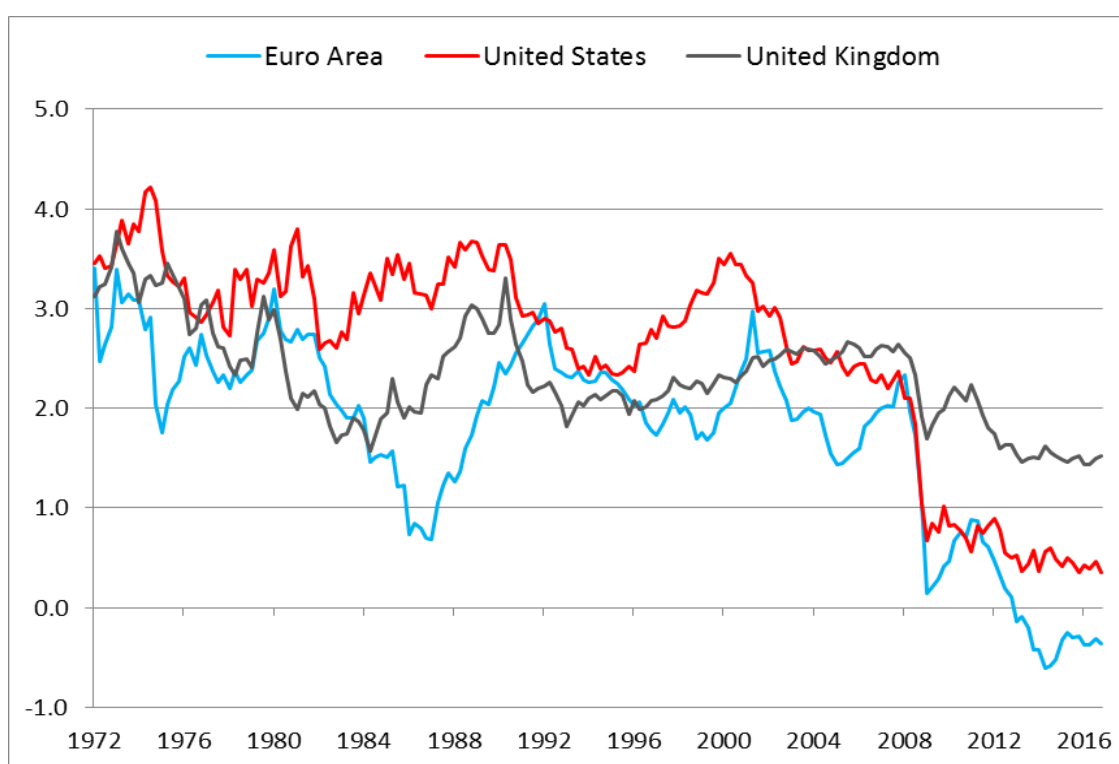


Source: ECB and the respective central banks. Latest observation: 28 July 2017.

Note: European Central Bank = Deposit Facility Rate; Federal Reserve = Target Rate; Bank of England = Official Bank Rate; Bank of Japan = Uncollateralised Overnight Call Rate.

Empirical estimates suggested that the neutral real interest rate that functioned as a benchmark for monetary policy rates had fallen to a level close to zero, and even to a negative level in the euro area (see Figure 2 based on Holston et al., 2017). To kick-start the economy in this situation, conventional monetary policy would have to cut the nominal policy rate well below zero such that corrected for below-target inflation it would stand sufficiently below the neutral real interest rate. But central banks feared that negative interest rates could trigger a massive flight into cash and raise unsurmountable difficulties for the financial system. As a consequence of this ‘monetary paralysis’ (Rogoff, 2017), the shortfall in aggregate demand had to be addressed with other tools.

Figure 2 – Estimates of the equilibrium real interest rate in Euro Area, US and UK
(percent per annum)



Source: Holston et al. (2017), updated to 2016Q4.

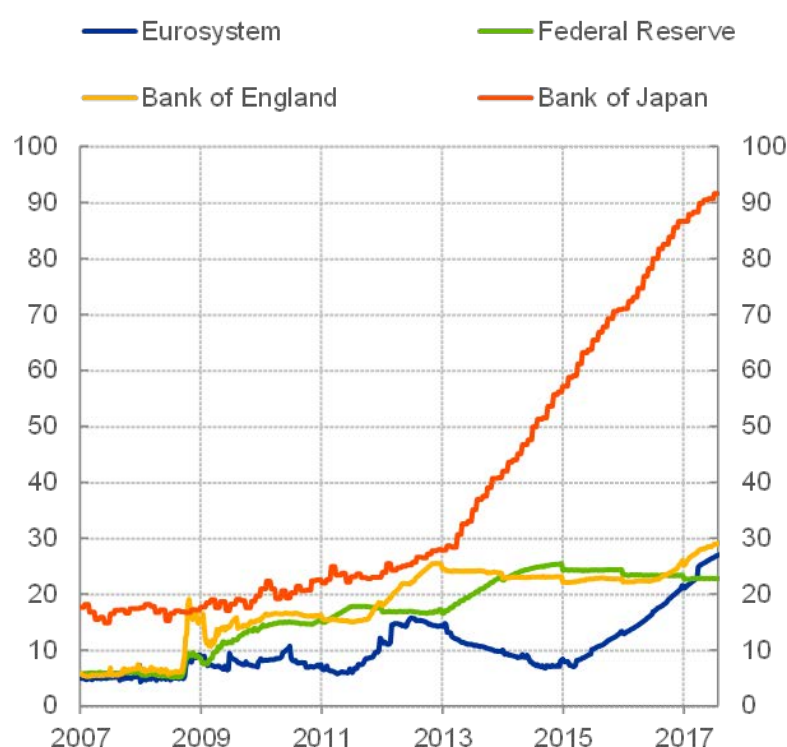
To escape from the ‘secular stagnation trap’, central banks entered on a path taken earlier by the Bank of Japan. They actively expanded their balance sheet through credit and quantitative easing (Figure 3), materially changed its composition and gave forward guidance to markets on their intention to maintain a very accommodative monetary stance over the medium run. This new-style monetary policy activism went beyond the traditional short-term interest rate and focused on other instruments that were capable of relaxing

financing conditions as usual. Control over the central bank balance sheet became the new operational target of monetary policy (see also Bindseil, 2016).² The deep dive in the monetary policy toolbox, employing a variety of conventional and unconventional monetary instruments, marked a ‘new era of central banking’ (Santor and Suchanek, 2016).

The ECB on its part undertook a range of standard and non-standard measures – involving a mildly negative deposit facility rate, an unlimited supply of bank refinancing on unusual terms, a wider range of eligible collateral, a lower minimum reserve requirement, as well as contingent, selected and large-scale purchases of public and private sector securities – supported by forward guidance on the monetary stance. After dealing with the fallout from the euro area crises, the aim of reducing long-term interest rates, supporting asset prices and easing private sector credit conditions was to prevent deflationary forces from taking hold and to return to price stability on a sustained basis (van Riet, 2017b,c).

Figure 3 – Balance sheet size of major central banks, 2007 – 2017

(monetary policy assets as a percentage of GDP)



Source: ECB and the respective central banks. Latest observation: 28 July 2017.

Note: The balance sheet of the Bank of England is approximated after 24 September 2014 since the Bank only discloses 90% of its consolidated balance sheet after this date.

² See Cour-Thimann and Winkler (2016) on the role of the central bank ‘balance sheet of last resort’ in absorbing financial risks and reducing risk exposures in the balance sheets of other economic sectors.

2.2 Monetary policies stretched to the limit

New-style central banking was successful in stabilising the economy in the wake of the financial crisis. At the same time, monetary policy at the effective lower bound for interest rates appeared to be stretched to the limit of its capabilities. Three fiscal policy issues arise when unconventional monetary policy leads to low-for-longer interest rates and bloated central bank balance sheets, with implications for central bank independence.

First, to reduce the burden on monetary policy at the effective lower bound many central banks called for a fiscal stimulus in support of aggregate demand. A fiscal expansion could under these circumstances benefit from exceptionally large multiplier effects because the increase in expected inflation at near-zero interest rates would reduce the real interest rate, ease financing conditions for liquidity-constrained households and firms, raise private spending and ‘fill the output gap’ (Woodford, 2011). An offsetting monetary contraction was not foreseen until inflation had moved back up to the target level on a sustained basis.

A monetary policy of ultra-low interest rates also raises concerns about the functioning of financial markets, the health of financial institutions and the incentives for excessive risk-taking (see van Riet, 2017c). The longer exceptionally low interest rates are maintained, the more critical the adverse consequences for financial intermediation, financial stability and market incentives could become. A valid question is whether the available micro and macro-prudential tools are effective in counteracting the financial vulnerabilities associated with monetary policy keeping interest rates low-for-longer. A fiscal policy relaxation could help in this respect to shorten the episode of ultra-low interest rates.

Accordingly, the old view that favoured fiscal policy restraint gave way to a new view, in which governments are temporarily expected to return to a more active role in macroeconomic management (Furman, 2016; Ubide, 2016). Still, there is also a question of time-consistency. After having helped the central bank to restore price stability, could governments be relied upon to comply again with their budget rules and debt ceilings? Politicians might instead prefer continued fiscal fine-tuning of the economy and/or force the central bank to give up its *monetary policy independence*, especially when the government faced a debt overhang and a return to higher real interest rates was unwelcome.

The coordination between 19 national fiscal policies on the subject of low euro area average inflation could be especially complicated in the institutional set-up of EMU. Moreover, the alternative of a fiscal union is no panacea, as the political constellation may

still pose constraints on fiscal action to support monetary policy. Bernanke (2015, p. 491) writes in his memoir of the financial crisis that other Washington policymakers than the US Federal Reserve should have taken more responsibility for promoting economic growth after the Great Recession. “The reality was that the Fed was the only game in town. It was up to us to do what we could, imperfect as our tools might be.” Bernanke was an active promotor of the fiscal stimulus package that was put together to fight the US economic slowdown and recession of 2007-09. After February 2009, however, Congress shifted into austerity mode. Since further fiscal support after the Great Recession was lacking, the Fed responded to the fragile economic outlook in November 2010 with a second round of quantitative easing. The US Congress was also regularly in a standoff with the Administration over extending or raising the federal government’s debt ceiling³ and only gave in when spending cuts and tax increases were enacted. This fiscal headwind offset much of the effect of the monetary stimulus and was one reason for the Fed to postpone the tapering of its purchases of Treasury bonds until December 2013. Bernanke (2015, p.539) felt frustrated with the government’s dysfunction, stating that “fiscal policymakers, far from helping the economy, appeared to be actively working to hinder it”. Yet, “[m]onetary policy ... cannot carry the entire burden”.

Second, as commented by White (2016), the effectiveness of the unconventional monetary experiments is subject to decreasing returns to scale whereas the negative reform incentives become more prominent over time. As regards fiscal discipline, the credit and quantitative easing measures coupled with forward guidance to place downward pressure on long-term interest rates created considerable budgetary advantages for high-debt governments as they eased the intertemporal budget constraint. Politicians were in fact encouraged to postpone fiscal retrenchment as long as budget deficits could be financed at low cost.

Orphanides (2016) raises the point that public trust in monetary policy might become more tentative when central banks wade far into fiscal and quasi-fiscal terrain seeking to steer both the price and allocation of credit. Since they directly affect the distribution of income and wealth well beyond the ordinary impact of conventional monetary policy or temporary interventions as lender of last resort, their prolonged large-scale balance sheet operations raise questions of democratic legitimacy and accountability. Moreover, in the particular

³ The federal debt ceiling authorises the US government to borrow funds to cover its existing legal obligations. Over the past decades, the US Congress has frequently acted to permanently raise, temporarily extend, or revise the definition of the statutory debt limit. Otherwise the US Treasury would have to defer payment obligations which have already been approved in the budget or default on its debt service obligations.

structure of EMU, quantitative easing also leads to a significant redistribution of resources between stronger and weaker member countries (Reis, 2017). Growing dissatisfaction with the greater reach of central banks and the larger distributional implications could undermine public support for their *statutory independence* (de Haan et al., 2017). These concerns make it necessary to clarify the borderline between monetary and fiscal policies, notably by assigning ultimate responsibility for the fiscal and quasi-fiscal implications of using unconventional monetary tools to the state (Buiter, 2014).

A third and related fiscal issue arises from the risks that the central bank assumes on its much expanded balance sheet, on behalf of the taxpayer. Hall and Reis (2015) stress the implications of new-style central banking for the financial strength of central banks and, hence, their *financial independence*. The crisis-related practice of issuing large amounts of risk-free interest-paying monetary reserves against a wider range of eligible collateral or in order to purchase long-duration private and/or public sector assets exposes the central bank to exchange-rate, interest-rate and default risks. A large central bank balance sheet means that net monetary income could turn out to be negative more often than under old-style central banking, affecting the financial relationship with the government (Blinder et al., 2017). The adverse consequences for the central bank's profits and ultimately its financial reserves and its capital base raise the question whether the treasury will be willing to backstop major losses.

Given the monopoly power to issue any amount of domestic currency legal tender and the willingness of private agents to hold this currency, the central bank of an advanced economy can in theory always redeem its obligations and is technically able to run its monetary policy operations even with negative equity (De Grauwe and Ji, 2013). A government commitment to recapitalise the central bank therefore appears superfluous. This assessment changes when the central bank engineers a large monetary expansion outside crisis conditions that poses a clear and present danger for price stability. This could lead money holders to question the continued stability of the currency and the value of the central bank's monetary liabilities. When the central bank has engineered a large-for-longer balance sheet with risky assets it could run into financial difficulties and this situation might impair its credibility as a successful inflation fighter. The value of *ex ante* fiscal support is that it caters for such contingencies and permanently protects the financial soundness of the central bank (Del Negro and Sims, 2015). Appropriate institutional arrangements should ensure that the central bank is always able to recover its financial

strength over time and can continue to fund its monetary policy operations without political interference or having to ask prior approval from the treasury (see Amtenbrink, 2005).

Only in a few countries the treasury in recent years explicitly promised to indemnify their central bank against potential capital losses on their growing portfolio of risk-prone securities. For example, the Bank of England received an indemnity from the UK government to cover any losses arising from the use of its Special Liquidity Scheme and Asset Purchase Facility for monetary policy purposes (Buiter, 2014). Elsewhere, central banks mainly tightened their risk management procedures and/or reduced their dividend payments to the state so as to build up extra financial buffers against the cost of higher future net interest payments, valuation changes and the risk of default on security holdings. Avoiding negative equity and an *ex post* recapitalisation was important for them to preserve their financial independence, operational autonomy and the public perception of a strong monetary capacity. Again, in the context of EMU, distributional aspects must also be considered. With a few exceptions, the profits and losses on monetary policy operations are generally shared within the Eurosystem. An automatic fiscal backup for the ECB or the euro area NCBs has never been formalised.

3. How could euro area governments support the ECB?

3.1 The specific economic and legal setting of the eurozone

Historically, before the start of EMU, national sovereign bonds performed the role of safe benchmark instrument for their domestic economy. With the start of EMU, however, the position of euro area governments has changed fundamentally. Participating Member States relinquished their monetary sovereignty and were thus no longer able to issue bonds in a currency under their own monetary control. This restriction of their sovereign powers made their new position comparable to that of ‘subsidiary governments’ like the American States that can only issue semi-safe debt and depend on federal fiscal stabilisers to absorb large shocks – supranational elements which in the EMU context are missing (see van Riet, 2017a). The semi-safe status of national government bonds makes euro area countries vulnerable to market upheavals and forces them to concentrate their fiscal policies on reducing sovereign credit risk and their structural policies on increasing the resilience of their economies. The Maastricht Treaty, the Stability and Growth Pact (SGP) and the Macroeconomic Imbalance Procedure (MIP) in fact support the adoption of sound and sustainable national economic policies.

The specific economic and legal setting of EMU with its focus on national risk reduction relies on the single market, the single currency and the single monetary policy to function as supranational risk-sharing mechanisms (Schelkle 2017). This constellation makes the ECB by definition the ‘only game in town’ to counteract area-wide deflation in a widespread balance sheet recession (Praet, 2017). An important policy question is therefore: how can euro area governments nevertheless support the ECB in its task of maintaining price stability for the eurozone, especially in an environment of sustained low interest rates? The argument advanced below is that, in the absence of a fiscal union, they will need to act together as the ‘joint sovereign’ behind the euro (see Hoeksma and Schoenmaker, 2011; van Riet, 2016a) and establish complementary risk-sharing institutions in the field of economic and financial policies, while staying within the confines of the Maastricht Treaty.

3.2 A more balanced euro area economic and monetary policy mix

After the outbreak of the sovereign debt crisis in early 2010, many euro area countries embarked on a path of fiscal consolidation in order to maintain or restore public debt sustainability and some also initiated structural reforms to revive economic dynamism. This policy response was vital for them to strengthen market confidence and preserve their status as a trustworthy debtor. The crisis-hit countries also had to comply with their EU/IMF adjustment programmes and the others needed to observe the EU economic governance rules. However, in the aggregate these national macroeconomic policies were pro-cyclical and contributed to the broad-based weakness of the euro area economy in a period when the private sector was also engaged in a protracted debt deleveraging (van Riet, 2018).

As there is no euro area treasury with its own budget, the ECB missed a sovereign counterpart to assist with macroeconomic stabilisation at the EMU level, which could have facilitated monetary policy management, shortened the period of record-low interest rates and mitigated the unintended negative side-effects. The European Commission, the IMF and the OECD therefore all issued recommendations to the euro area governments to organise an aggregate fiscal expansion consistent with the orientation of the single monetary policy, so as to more effectively remove the persistent slack in the euro area economy.

However, in the euro area context, only those countries that have achieved their medium-term budgetary objective and face low risks to fiscal sustainability could in principle add a

discretionary fiscal impulse to the central bank's monetary stimulus. These voluntary contributions should moreover not lead to a destabilisation of their own economies. By contrast, the euro area nations without such fiscal space should first reduce their structural budget deficits to restore sustainable public finances in line with SGP requirements. At most, they could enhance the role of automatic stabilisers in the budget. The organisation of an appropriate euro area fiscal stance is therefore handicapped by the need for member countries to find an appropriate balance between their budgetary contribution to union-wide macroeconomic stabilisation and domestic requirements for achieving and maintaining fiscal sustainability (see Bańkowski and Ferdinandusse, 2017).

This constraint on coordinated fiscal action could be overcome with a central fiscal capacity that serves as a complementary source of national fiscal space subject to common decision-making (van Riet, 2018). The European Commission (2017) has advanced three options that fiscal policymakers could further explore in order to enhance euro area macroeconomic stabilisation in a severe economic downturn: they could set up a European investment protection scheme that allows all member countries to proceed with public investment projects, provide for a European unemployment reinsurance scheme that reduces the impact on national budgets from rising unemployment rates, or build up a rainy day fund from national contributions which makes disbursements in case of a large adverse shock. A euro area budget for cyclical stabilisation purposes was regarded as a goal for the longer term.

All member countries could on their own also implement unconventional fiscal policies, i.e. undertake a quasi-monetary easing through budget-neutral tax and subsidy measures that relaxed domestic financing conditions for households and corporations (Correia, 2016). Each country could furthermore improve the quality of public finances and undertake structural reforms with the aim to raise potential growth, focusing on productive public investments, lower marginal tax rates and labour and product market deregulation. In addition, they could speed up balance sheet repair in the private sector so that overcapacity in the banking sector is reduced, viable banks can expand access to their credit, firms use the opportunity of more attractive credit supply conditions to expand their production capacity and workers regain confidence to translate their higher disposable income into extra spending. An acceleration of productivity growth would moreover raise the equilibrium real interest rate over time, which in turn would increase the future scope for lowering the monetary policy rate before it reached the effective lower bound.

Altogether, appropriately targeted national contributions to the euro area economic policy mix facilitated by a central fiscal capacity could support the ECB in meeting its price stability objective and reduce the need for advancing non-standard monetary policy into unfamiliar territory. Although the architecture of EMU does not foresee explicit monetary-fiscal-structural policy coordination, national governments have a shared responsibility to support the ECB's fight against low inflation and mitigate any adverse side-effects of ultra-low interest rates in the common interest of the euro area (van Riet, 2017c).

3.3 A formal fiscal backup for the Eurosystem

The specific EMU setting also has implications for the financial relationship between the Eurosystem and the 19 euro area governments. The net monetary income accruing to each of the euro area NCBs in the performance of the monetary policy function is in principle shared at the Eurosystem level before being allocated to them in proportion to their paid-up shares in the capital key of the ECB. They subsequently remit these profits to their own governments and any private shareholders in accordance with national arrangements. As shareholders, the euro area NCBs will also receive their share of the ECB's profits after it has made the necessary risk provisions and replenished its financial buffers.

Henning (2016) suggests that the principle of sharing the net financial results from the single monetary policy has made the ECB reluctant to act as a crisis fighter and to initiate quantitative easing operations in sovereign bond markets. The ECB feared that the attendant mutualisation of sovereign risk might fuel moral hazard and take individual governments 'off the hook' for fiscal and financial reforms. At the same time, so he argues, euro area countries attempted to exploit the crisis for extracting monetary accommodation from the ECB. This two-way strategic interaction prevented a quick resolution of the crisis and delayed forceful monetary policy interventions. Henning (2016) states that in principle the euro area governments could also have struck an *ex ante* bargain with the ECB to indemnify the Eurosystem against the potential losses on public sector bond purchases undertaken to stabilise EMU.

Corsetti et al. (2016a) make a similar point, stressing the risk of large capital losses for the Eurosystem and the potential need for a recapitalisation by the euro area governments. They argue that the prevailing *ex ante* uncertainty about the availability of fiscal support to its balance sheet might make the Eurosystem overly cautious with regard to unconventional monetary policy measures, notably when it wishes to activate large-scale balance sheet

operations, commit to ‘last resort’ lending, and relax the collateral eligibility criteria. Corsetti et al. (2016a) fear that such a bias towards a too tight monetary policy, especially at the effective lower bound for short-term interest rates, would lead to an under-reaction to a financial crisis, more sluggish economic growth and too low inflation.

For the Eurosystem, profit and loss considerations as such do not play a role in defining monetary policy measures. This is also facilitated by the financial independence of the ECB and the NCBs. However, as discussed below, the fiscal transfers implied by sharing both the monetary income and the sovereign risks related to public sector bond purchases must be strictly limited from the outset.⁴

The sovereign debt crisis and the market access difficulties for affected countries caused a fragmentation of euro area financial markets along national lines, which seriously impaired an even monetary transmission. The ECB responded with the Securities Markets Programme (SMP) and purchased about EUR 220 bn. of long-term sovereign bonds from May 2010 to March 2012. These interventions managed to stabilise the markets somewhat during periods of severe tensions. Although the SMP was not subject to explicit conditionality, the ECB took note of the commitments taken by the countries concerned to accelerate fiscal consolidation and ensure the sustainability of their public finances. In addition, it was accompanied by direct communications between the ECB and the national authorities to contain the sovereign credit risk associated with the SMP.

Following the ECB president’s pledge on 26 July 2012 to do “whatever it takes” to preserve the euro, within the limits of the ECB’s mandate, the SMP was replaced in September 2012 by a commitment to undertake unlimited Outright Monetary Transactions (OMTs) in disrupted national government bond markets if this was justified by monetary policy concerns. First, the purpose of the OMT as a ‘contingent balance sheet policy’ (ECB, 2015; Cour-Thimann and Winkler, 2016) is to counteract currency redenomination risk and safeguard the transmission of monetary policy. Since a monetary easing is not intended, the liquidity injected as a result of the OMT will be fully sterilised. Second, any activation of this monetary backstop is freely decided by the Governing Council of the ECB and is conditional on the affected country’s strict and effective compliance with a full adjustment programme associated with a loan from the EFSF/ESM or with the enhanced

⁴ Another exception is the acceptance of domestic credit claims owned by banks as eligible collateral. The NCBs carry themselves the risk of losses in this particular case, as they also do for emergency liquidity assistance given to troubled domestic credit institutions outside their monetary policy function.

policy conditions of a precautionary credit line from the EFSF/ESM. For the design and monitoring of the country-specific conditionality the involvement of the IMF will be sought. The national policy reforms to be undertaken in this context reduce the likelihood of a sovereign default. Moreover, the exclusive focus on eliminating tail risk in volatile government bond markets should leave ample room for market-based fiscal discipline.

The ECB's quantitative easing in terms of government bonds was designed with a view to both limiting credit risk exposure and reducing monetary financing concerns (see also Bletzinger and von Thadden, 2017). The public sector purchase programme (PSPP) that is being implemented since March 2015 covers marketable investment-grade debt instruments issued by euro area central, regional and local governments, recognised public sector agencies, and European supranational institutions located in the euro area.⁵ The allocation of the monthly purchases between euro area countries is guided by the ECB's capital key (with some flexibility) and hence not by the proportion of their outstanding debt. Yields at the time of purchase had to stand above the ECB's deposit facility rate against which the injected central bank reserves are remunerated. As from December 2016, if necessary, it was made possible to buy public sector bonds yielding below the deposit facility rate, which on net implies small costs. The total amount of public sector bond purchases is capped at 25% of a given issue (which was raised to 33% as from November 2015)⁶ and an aggregate holding limit of 33% per issuer.⁷ These ceilings serve to preserve market discipline and safeguard *pari passu* (i.e. equal) treatment with respect to private creditors.

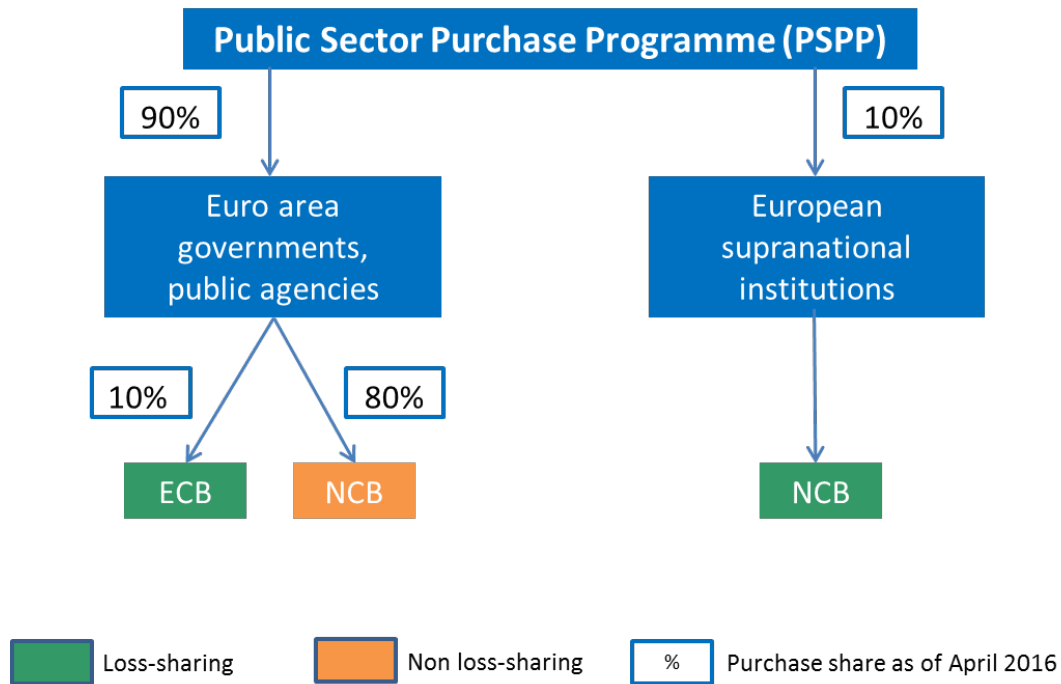
The PSPP is furthermore subject to a special regime for sharing (possible but unforeseen) losses (see Figure 4). Only 20% of any losses on the whole portfolio of public sector securities will be fully shared within the Eurosystem; any losses on the remaining 80% of the portfolio are for the sole account of the NCBs, relating specifically to their purchases of bonds issued by central, regional and local governments and public sector agencies of their own country. At the same time, the (negative) interest costs paid to the euro area banking sector on the corresponding central bank reserves are pooled.

⁵ Government bonds of euro area countries receiving EU/IMF financial assistance, which do not meet the minimum credit quality threshold, could benefit from a waiver, provided that their adjustment programme could be assessed as being on track. After mid-2015, the Eurosystem was thus able to add government bonds issued by Cyprus to the PSPP.

⁶ The issue limit refers to the maximum share of a single PSPP-eligible security that the Eurosystem is prepared to hold so as to avoid having a blocking minority in case collective action clauses in a government bond contract would be activated in an orderly debt restructuring.

⁷ The issuer limit refers to the maximum share of a single issuer's outstanding securities that the Eurosystem is prepared to hold so as to safeguard market functioning and price formation as well as to mitigate the risk of the Eurosystem becoming a dominant creditor of euro area governments.

Figure 4 – Loss-sharing regime applied to the Public Sector Purchase Programme (PSPP)



Source: ECB.

This specific loss-sharing regime was felt to be appropriate for two reasons (Praet, 2015). The first objective is to preserve monetary dominance vis-à-vis the 19 euro area governments. Given the Maastricht Treaty provisions, the single monetary policy needed to remain separated from the national fiscal policies. The Eurosystem balance sheet should not serve as the vehicle for monetising the inherent credit and liquidity risks of euro area sovereigns. To prevent that the ECB could ever be forced to deviate from its monetary policy course if the national sovereign risks associated with the PSPP materialised, it was decided that the NCBs would carry most of the direct financial consequences, for better and for worse.

A second motivation for this specific loss-sharing regime is to counteract moral hazard. At the start of the PSPP, the government debt-to-GDP ratios were still (very) high. With full risk sharing, countries would be able to impose a substantial part of the costs of a potential debt restructuring on all euro area taxpayers rather than their own. The ECB had to avoid introducing a large-scale mutualisation of national sovereign risks and the emergence of a fiscal transfer union by the back door of a risk-sharing arrangement. Full risk sharing could only be considered when all member countries had sustainable public finances and were expected to maintain their fiscal soundness over time.

As regards their financial strength, a harmonised Eurosystem accounting framework ensures that the ECB and each NCB apply prudent principles for the recognition of income. Moreover, all euro-denominated securities acquired for monetary policy purposes are valued at amortised cost subject to impairment. This common accounting rule avoids valuation losses on the monetary policy portfolio due to rising future interest rates as long as these securities are held and no adverse scenario materialises.

The rules for retaining earnings and distributing profits follow ECB and national conventions, respectively (Bunea et al., 2016). Some NCBs are obliged to distribute a high share of their profits as dividend. Several other NCBs are using the interest receipts on their portfolio of national public sector bonds and other sources of income to build extra financial buffers and, hence, limit the remittances to their government in the short run. This provisioning might be motivated by the political complications of having to ask the treasury *ex post* for a recapitalisation. As an exception, the Nederlandsche Bank received an *ex ante* guarantee from the Dutch government in 2012 to cover the crisis-related risk exposures until these had returned to normal. This insurance could be activated in the years 2013-17 up to a maximum of EUR 5.7 bn. and avoided having to create special risk provisions that would have reduced its dividend payments.

An NCB that faces major credit impairments, for example related to a potential own sovereign default, may carry the losses forward for the part that cannot be covered by its risk provisions and capital base. This could temporarily lead to a situation in which the NCB records a very low or even negative equity position,⁸ until retained future profits enable it to restore the original level of statutory capital. This accounting solution has major political advantages (see also Durré, 2016). The country concerned may face serious funding constraints in replenishing the capital base quickly in a situation of fiscal stress. The possibility to carry the losses forward avoids that it has to make a politically contentious transfer of scarce financial resources to the NCB, or even has to draw on conditional EU/IMF support facilities for a recapitalisation.

As stated by the ECB (2016b, p.25), “financial independence ... implies that an NCB should always be sufficiently capitalised”. A long-lasting situation of net equity being less than an NCB’s statutory capital or even negative, including cases where losses beyond the

⁸ No negative equity would have to be reported when the loss is recorded as a claim against the national government, but this could be perceived as a form of monetary financing.

level of capital and reserves are carried over into the future, could be perceived as having a negative impact on the NCB's ability to perform both its ESCB/Eurosystem and national tasks. The respective Member State ought in that case to recapitalise its NCB within a reasonable period of time.⁹

The ECB on its part is independent in the management of its finances and has considerable financial buffers in place. Even during the euro area crisis years, the ECB always reported an annual profit (see ECB, 2016a). The Governing Council decided to increase the ECB's subscribed capital from EUR 5.7 bn. to EUR 10.7 bn. in 2010, a possibility that the EU Council had approved already in the year 2000 following an ECB recommendation.¹⁰ The euro area NCBs paid their additional capital contributions in three instalments between 2010 and 2012. A further recapitalisation of the ECB by the euro area NCBs, if ever necessary, is complicated to agree *ex post* in a setting whereby the EU Council must consult with the European Parliament and the European Commission and 19 euro area governments all have to give their blessing. Should its financial buffers ever be exhausted, it might ask the NCBs to cover a remaining loss with a contribution from their net monetary income in proportion to their paid-up shares in the ECB's capital key. Otherwise, the ECB could record the negative difference on its balance sheet and rebuild its financial buffers with the seigniorage revenues and other income that it accrues over time before resuming dividend payments (Bunea et al., 2016). Still, a prolonged financial constraint that is not covered by euro area governments could undermine the credibility of the single monetary policy. Moreover, it could raise political and communication concerns.¹¹

Confidence in the Eurosystem could therefore benefit from an unconditional political commitment from all participating countries to respect not only the monetary authority's statutory independence but also to maintain its financial strength for the credible pursuit of its monetary policy mandate. The related EMU-specific coordination challenge can in principle be overcome with democratically legitimised national fiscal guarantees against large losses that respect national budget rights (Illing and König, 2014). The 19 member

⁹ Note that the NCBs of Slovakia and the Czech Republic have been able to perform their tasks even though they both have recorded negative equity for quite a long time.

¹⁰ Article 28(1) of the ESCB/ECB Statute provides that the ECB's capital may be increased by such amounts as may be decided by the Governing Council of the ECB, within the limits and under the conditions set by the EU Council.

¹¹ The US Federal Reserve has the possibility to record a negative liability in a deferred account and then balance it using retained earnings accruing in the future. Yet, the Fed would face "a political and public relations problem" if it had to suspend dividend payments to the US Treasury while it continued making interest payment to banks – many of them foreign-owned – for their reserve account holdings (Bernanke, 2015, p.542).

countries could each provide an explicit fiscal protection, committing when necessary to recapitalise their own NCB as well as (indirectly) the ECB. These *ex ante* fiscal guarantees would demonstrate that euro area governments carry ultimate responsibility for the balance sheet risks that the Eurosystem assumes on behalf of the taxpayers of all member countries.

Since their purpose is to underpin public trust in the single monetary policy and its capacity to preserve price stability for the euro area as a whole, the fiscal guarantees should ideally be joint and several commitments whereby each country, if necessary, also covers for the others. However, the potential fiscal transfers would go against the Maastricht Treaty provisions. Moreover, some countries are still in a precarious fiscal position which reduces the value of their guarantee, and the other members with sound public finances may for that reason refuse to pledge such a guarantee (Buiter, 2014).

This dilemma can only be solved once all member countries have achieved sustainable public finances, making risk sharing acceptable, or when a fiscal union has been established, since the fiscal guarantee could then be provided by the euro area treasury. In the absence of a joint and several fiscal backup, it could be expected that the ECB will allocate most of its exceptional balance sheet risks to the NCBs (notably those related to public sector bond purchases) rather than sharing them evenly as is the case for conventional monetary policy.

3.4 A safe sovereign asset for the eurozone

Even in the absence of further fiscal integration, one of the building blocks still necessary to strengthen the architecture of EMU is a single safe sovereign asset that functions as the cornerstone of a stable and truly single euro area financial system (for a discussion see van Riet, 2017a). The availability of a euro area sovereign bond would enhance financial stability in the euro area as a whole, because it would meet the financial sector's rising demand for high-quality and liquid assets needed to comply with the EU's prudential capital and liquidity requirements and it mitigates the risk of destabilising intra-area capital flows in and out of the debt instruments of member countries perceived as 'safe' or 'risky'. In addition, it is an effective tool to break the negative feedback loop between national governments being exposed to systemic banks in their jurisdiction and weak banks in turn being dependent on rescues by their own sovereign. As it promotes asset diversification and enhances financial integration it would also support an even transmission of the single monetary policy across the eurozone. A euro area sovereign instrument would furthermore

be an attractive form of collateral for secured interbank lending; and if it was also accepted as eligible collateral by the ECB, it could be pledged by banks drawing on the ECB's credit facilities. The ECB could also decide to use it for large-scale public sector bond purchases, when needed for monetary policy purposes.

European leaders have a shared responsibility for safeguarding the stability of EMU. Without moving to a fiscal union, they are well-advised to implement a politically acceptable alternative for the issuance of eurobonds that does not require common liability. One potential solution among others is to allow for the introduction of a new eurozone security that is backed by a weighted portfolio of sovereign bonds of all euro area countries and issued in the form of a senior and a junior tranche. The eurozone security should be structured such that the senior tranche has a very low probability of default and the junior tranche carries the credit risks on the underlying portfolio of national sovereign bonds. The Eurogroup could charge, for example, the ESM with this task, or else enable the private sector to take this initiative (see Brunnermeier et al., 2017; Corsetti et al., 2016b).

Depending on its ultimate market size, the eurozone security would have the potential to internalise a significant part of destabilising debt-based intra-area capital flows and generate a safer EMU financial system, especially when the banking industry would invest above all in the senior tranches that carry a safety premium. The systemic risk reduction would benefit, in particular, the more vulnerable countries and their financial sector, which in turn reduces the likelihood of the ESM having to serve as a fiscal backstop for distressed euro area countries and/or their banks. A safer banking sector could also make it acceptable to complete the European Banking Union with a temporary common fiscal backstop for the Single Resolution Fund and the proposed European Deposit Insurance Scheme.

Subject to evaluation and decision by the Governing Council of the ECB, the senior tranche could also serve as a suitable financial instrument for providing monetary accommodation through public sector bond purchases along the term structure, if it was available in various maturities. The by construction very low default risk on the senior tranche could in that case be shared evenly between NCBs according to the ECB's capital key, as is the case already under the PSPP for the bonds issued by European supranational institutions (see Figure 4). The enhanced stability of national sovereign bond markets would, on the margin, also ease the trade-off between fiscal space and fiscal sustainability and increase the ability for (several) euro area governments to support the ECB's monetary policy at the effective lower bound. Since the risk of a renewed financial fragmentation along national lines is

more contained, there would also be less need for any exceptional ECB interventions to stabilise disrupted government bond markets for monetary policy purposes. The consequent overall risk reduction could in turn make it acceptable to euro area governments to provide an *ex ante* fiscal guarantee to the Eurosystem.

A number of thorny questions will need to be answered in case it was decided to introduce a structured eurozone security.¹² For example, what arrangements are needed to ensure that the senior tranche receives a triple-A credit rating, the subordinated junior tranche enjoys sufficient investor demand, the proper functioning of national sovereign bond markets is preserved, and that any mutualisation of losses on the underlying bond portfolio is prevented? Furthermore, the need to build up and maintain a diversified portfolio should be expected to ease capital market access for the participating countries. To contain moral hazard, these purchases could in principle be made conditional on their compliance with the EU rules for fiscal and structural policies (while excluding EU/IMF programme countries) (cf. de Haan et al., 2016). Yet, the main purpose of the eurozone security is to foster and safeguard the common public good of EMU-wide stability.

Alternatively, the preferential treatment of government bonds in EU prudential legislation as zero-risk assets without exposure limit (see van Riet, 2016b) could be gradually reduced and carefully phased out for the euro area countries. After all, the senior and junior component of the eurozone security would in part take their place on bank and non-bank balance sheets. Another matter is whether such a regulatory privilege should be assigned to the senior tranche of the eurozone security in order to maintain a level playing field in international capital markets, where the issuing body would compete for funds with non-euro area governments (US, UK, etc.). Maintaining this preferential regulatory treatment for the senior tranche would recognise its characteristic as a low-risk asset that unifies and stabilises the euro area financial system.

Finally, to make it interesting for investors to include these eurozone instruments in their portfolios, the EU regulatory provision that demands extra capital charges for structured products would have to be amended so as to recognise that their claim on the underlying portfolio derives from semi-safe governments instead of risky private sector entities.

¹² The European Systemic Risk Board (ESRB) is currently studying the feasibility of creating sovereign bond-backed securities consisting of senior, mezzanine and junior claims on a diversified portfolio of central government bonds without mutualisation of sovereign risk. The ECB has taken note of this work and does not yet have an established position on the outcome.

6. Concluding remarks

At the effective lower bound for short-term interest rates, monetary policy in the advanced economies appeared to be stretched to the limit in addressing a secular stagnation marked by a very low equilibrium real interest rate. Considering the obstacles to a negative interest rate policy, central banks deployed unconventional instruments and forward guidance to provide the necessary further monetary accommodation. Although effective in easing credit conditions and reviving the economy, the unorthodox measures raised questions about the central bank being the only public institution responsible for restoring macroeconomic equilibrium in a prolonged slump. Concerns were also raised about the fiscal and quasi-fiscal nature of the allocation and distribution effects, the risk of undermining market functioning and fiscal discipline, the distortion of private incentives for risk-taking, and other unintended adverse side-effects of ultra-low interest rates. Moreover, central banks assumed ever-larger risks on their balance sheets on behalf of taxpayers. Hence, new-style central banking put the relationship with fiscal policy to the test.

Given the incomplete architecture of EMU, the ECB faced even more complex challenges in a set-up without a euro area fiscal counterpart and a legal setting that clearly separated the single monetary policy domain from that of the 19 national fiscal policies. While the strict separation between euro area governments and the ECB was appropriate when there were upside inflation risks, at the effective lower bound for interest rates it appeared to unduly constrain the central bank in applying non-standard monetary easing measures and in using its balance sheet as an operational tool. Acting as the ‘joint sovereign’ behind the euro, euro area governments could support the ECB in three ways to overcome these limitations, while staying within the boundaries of the Maastricht Treaty.

First, euro area governments could do more to align their national fiscal and structural policies in the Eurogroup and build a central fiscal capacity subject to common decision-making to play a more active role in counteracting a protracted EMU-wide economic stagnation. A growth-friendly euro area economic policy mix complementary to sound national policies would limit the need for the single monetary policy to arrange for an extended period of very low interest rates. Targeting a higher potential growth path could in this context help to raise the equilibrium real interest rate and create more room for standard interest rate manoeuvre before the ECB would hit the effective lower bound.

Second, the monetary policy task of the Eurosystem could be facilitated by the availability of a safe sovereign asset for the eurozone, as indispensable cornerstone of an integrated euro area financial system that makes EMU less prone to the risk of destabilising capital flows. The national authorities could provide the framework conditions for introducing a new eurozone security that is structured in a senior and junior component without introducing common liability. As a low-risk instrument, the senior tranche could enhance financial integration, increase financial stability, support an even monetary transmission and – if so decided by the ECB – play an important role in monetary policy operations.

Third, confidence in the Eurosystem could benefit from euro area governments explicitly taking collective responsibility for the financial risks that it assumes on its balance sheet, in particular when undertaking non-standard monetary policy interventions. National fiscal guarantees against potential central bank losses, democratically legitimated, could clarify that these financial risks are ultimately a fiscal responsibility. On the one hand, the specific EMU architecture poses limitations to the extent of risk sharing at the Eurosystem level, especially for purchases of semi-safe public sector bonds. On the other hand, a consistent euro area policy mix and a safe sovereign asset for the eurozone while preserving sound national policies lower the burden placed on the Eurosystem's monetary policy and reduce its exposure to sovereign risk. This overall risk reduction could clear the way for national governments to make an unconditional commitment to recapitalise their own NCB as well as (indirectly) the ECB if ever needed.

Each of these three fiscal support options has so far been relegated to the future, awaiting further fiscal integration. The consequence of this 'political paralysis' to relieve the burden on ECB monetary policy was a long-lasting period of record-low interest rates that was perceived as financial repression of savers and a transfer of resources in favour of borrowers, including sovereigns. These significant distributional implications may undermine public support for unconventional monetary policy measures and could ultimately lead politicians to amend the provisions of the Maastricht Treaty that so far have protected the statutory independence of the Eurosystem. The fundamental solution lies in making fiscal positions sound and sustainable in all member countries and advancing with political integration to establish a euro area fiscal counterpart to the Eurosystem that would address its 'institutional loneliness' with full respect for its independent status.

References

- Amttenbrink, F. (2005). Securing financial independence in the legal basis of a central bank. Bank of England, Centre for Central Banking Studies, September.
- Bańkowski, K. and M. Ferdinandusse (2017). Euro area fiscal stance. European Central Bank, Occasional Paper Series, No 182, January.
- Bernanke, B.S. (2015). *The Courage to Act: A Memoir of a Crisis and its Aftermath*. W.W. Norton & Company: New York, NY.
- Bindseil, U. (2016). Evaluating monetary policy operational frameworks. Paper for the Federal Reserve Bank of Kansas City Symposium on ‘Designing Resilient Monetary Policy Frameworks for the Future’, Jackson Hole, WY, 26 August.
- Bletzinger, T. and L. von Thadden (2017). Designing QE to overcome the lower bound constraint on interest rates in a fiscally sound monetary union. European Central Bank, draft manuscript, 18 May.
- Blinder, A., M. Ehrmann, J. de Haan and D.-J. Jansen (2017). Necessity as the mother of invention: monetary policy after the crisis. *Economic Policy*, Vol. 32, Issue 92, October, pp. 707-755.
- Brunnermeier, M.K., S. Langfield, M. Pagano, R. Reis, S. van Nieuwerburgh and D. Vayanos (2017). ESBies: safety in the tranches. *Economic Policy*, Vol. 32, Issue 90, April, pp. 175-219.
- Buiter, W. (2014). Central banks: Powerful, political and unaccountable? *Journal of the British Academy*, Vol. 2, pp. 269-303.
- Bunea, D., P. Karakitsos, N. Merriman and W. Studener (2016). Profit distribution and loss coverage rules for central banks. European Central Bank, Occasional Paper Series, No 169, April.
- Correia, I. (2016). From unconventional monetary to unconventional fiscal policies, Sveriges Riksbank, *Economic Review*, No 3, pp. 69-77.
- Corsetti, G., L. Dedola, M. Jarociński, B. Maćkowiak and S. Schmidt (2016a). Macroeconomic stabilization, monetary-fiscal interactions, and Europe’s monetary union. European Central Bank, Working Paper Series, No 1988, December.
- Corsetti, G., L.P. Feld, R. Koijen, L. Reichlin, R. Reis, H. Rey and B. Weder di Mauro (2016b). Reinforcing the Eurozone and Protecting an Open Society. *Monitoring the Eurozone*, No 2, CEPR Press: London.
- Cour-Thimann, P. and B. Winkler (2016). Central Banks as Balance Sheets of Last Resort: The ECB’s Monetary Policy in a Flow-of Funds Perspective. In: D. Cobham (ed.), *Monetary Analysis at Central Banks*. Palgrave Macmillan: London, pp. 53-92.
- De Grauwe, P. (2016). *Economics of Monetary Union*. Oxford University Press: Oxford, UK, 11th edition.
- De Grauwe, P. and Y. Ji (2013). Fiscal implications of the ECB’s bond-buying programme. *Column on Vox.EU*, 14 June.
- de Haan, J., J. Hessel and N. Gilbert (2016). Reforming the architecture of EMU: Ensuring stability in Europe. In: H. Badinger and V. Nitsch (eds), *The Routledge Handbook of the Economics of European Integration*. Routledge: Oxon, UK, pp. 408-432.
- de Haan, J., C. Bodea, R. Hicks and S.C.W. Eijffinger (2017). Central bank independence before and after the crisis. *Comparative Economics*, forthcoming.
- Del Negro, M. and C.A. Sims (2015). When does a central bank’s balance sheet require fiscal support? *Journal of Monetary Economics*, Vol. 73, July, pp. 1-19.
- Draghi, M. (2014). Unemployment in the Euro Area. Luncheon Address at the Federal Reserve Bank of Kansas City Symposium on ‘Re-Evaluating Labor Market Dynamics’, Jackson Hole, WY, 22 August.

- Durré, A. (2016). Central bank losses do matter, but the ECB's vulnerability is political, not financial. Goldman Sachs Economic Research, European Economics Analyst, 23 June.
- ECB (European Central Bank) (2015). The role of the central bank balance sheet in monetary policy. Economic Bulletin, Issue 4, June, pp. 61-77.
- ECB (European Central Bank) (2016a). ECB Annual Accounts 2016. Frankfurt am Main.
- ECB (European Central Bank) (2016b). ECB Convergence Report. Frankfurt am Main.
- European Commission (2017). Reflection paper on the deepening of the Economic and Monetary Union. Communication COM(2017) 291, 31 May, Brussels.
- Furman, J. (2016). The New View of Fiscal Policy and Its Application. Expanded version of remarks delivered at the Conference on 'Global Implications of Europe's Redesign', New York, NY, 5 October.
- Goodfriend, M. (2007). How the World Achieved Consensus on Monetary Policy. *Journal of Economic Perspectives*, Vol. 21, No 4, Fall, pp. 47-68.
- Hall, R.E. and R. Reis (2015). Maintaining central-bank financial stability under new-style central banking. National Bureau of Economic Research, Working Paper Series, No 21173, May.
- Henning, C.R. (2016). The ECB as a Strategic Actor: Central Banking in a Politically Fragmented Monetary Union. In: J.A. Caporaso and M. Rhodes (eds), *The Political and Economic Dynamics of the Eurozone Crisis*. Oxford University Press: Oxford, UK, pp. 167-199.
- Hoeksma, J. and D. Schoenmaker (2011). The Sovereign Behind the Euro. Duisenberg School of Finance, Policy Paper, No 15, September.
- Holston, K., T. Laubach and J.C. Williams (2017). Measuring the natural rate of interest: International trends and determinants. *Journal of International Economics*, Vol. 108, Supplement 1, May, pp. S59-S75.
- Illing, G. and P. König (2014). The European Central Bank as Lender of Last Resort. *DIW Economic Bulletin*, Vol. 4, No 9, November, pp.16-28.
- Micossi, S. (2015). The Monetary Policy of the European Central Bank (2002-2015). CEPS Special Report, No 109, May.
- Orphanides, A. (2016). Fiscal Implications of Central Bank Balance Sheet Policies. Goethe University, IMFS Working Paper, No 105, July.
- Padoa-Schioppa, T. (2000). An Institutional Glossary of the Eurosystem. Center for European Integration Studies (ZEI), Working Paper B-16, University of Bonn, pp. 23-37.
- Praet, P. (2015). Public sector security purchases and monetary dominance in a monetary union without a fiscal union. Speech at the Conference 'The ECB and Its Watchers XVI', Frankfurt am Main, 11 March.
- Praet, P. (2017). The ECB's monetary policy: past and present. Speech at the Febelfin Connect event, Brussels/Londerzeel, 16 March.
- Reis, R. (2017). QE in the Future: The Central Bank's Balance Sheet in a Fiscal Crisis. *IMF Economic Review*, Vol. 65, Issue 1, April, pp. 71-112.
- Rogoff, K. (2017). Dealing with Monetary Paralysis at the Zero Bound. *Journal of Economic Perspectives*, Vol. 31, No 3, Summer, pp. 47-66.
- Santor, E. and L. Suchanek (2016). A New Era of Central Banking: Unconventional Monetary Policies, *Bank of Canada Review*, Spring, pp. 29-42.
- Schelkle, W. (2017). *The Political Economy of Monetary Solidarity: Understanding the Euro Experiment*. Oxford University Press: Oxford, UK.
- Summers, L.H. (2014). U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound. *Business Economics*, Vol. 49, No 2, April, pp. 65-73.
- Taylor, J.B. (2000). Reassessing Discretionary Fiscal Policy. *Journal of Economic Perspectives*, Vol. 14, No 3, pp. 21-36.

- Ubide, A. (2016). The Case for an Active Fiscal Policy in the Developed World. *Business Economics*, Vol. 51, No 3, July, pp. 158-160.
- van Riet, A. (2016a). Safeguarding the euro as a currency beyond the state. *European Central Bank, Occasional Paper Series*, No 173, May.
- van Riet, A. (2016b). Government funding privileges in European financial law: making public debt everybody's favourite? *Tilburg University, CentER Discussion Paper*, No 45.
- van Riet, A. (2017a). Addressing the safety trilemma: A safe sovereign asset for the eurozone. *European Systemic Risk Board, Working Paper Series*, No 35, February.
- van Riet, A. (2017b). A New Era for Monetary Policy: Challenges for the European Central Bank. *The Singapore Economic Review*, Vol. 62, No 1, March, pp. 57-86.
- van Riet, A. (2017c). The ECB's Fight against Low Inflation: On the Effects of Ultra-Low Interest Rates. *International Journal of Financial Studies*, Vol. 5, No 2, Art. 12.
- van Riet, A. (2018). The European Central Bank as the Only Game in Town: How Could Fiscal Policy-Makers Play Along? *Kredit und Kapital / Credit and Capital Markets*, forthcoming.
- White, W.R. (2016). Ultra-Easy Money: Digging the Hole Deeper? *Business Economics*, Vol. 51, No 4, October, pp. 188-202.
- Woodford, M. (2011). Simple Analytics of the Government Expenditure Multiplier. *American Economic Journal: Macroeconomics*, Vol. 3, No 1, pp. 1-35.