

## WHAT SHOULD THE ECB “NEW NORMAL” LOOK LIKE?

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- The predictability of the exit from balance sheet policies is essential to ensure that financial markets can digest the extra supply of securities that they will face when the ECB will taper.
- The question about what the central banks' balance sheets should look like in the “new normal” come down to the objectives of central banking and whether monetary policy should aim to maintain economic and financial stability.
- The ECB should consider using balance sheet policies permanently if they prove to be effective even in normal times and if they are complementary to the standard policy which boils down to the change in the short-term policy rate.
- Balance sheet policies may provide the central banks with an additional instrument that would be useful to achieve macroeconomic stability.
- A large balance sheet would allow the ECB to provide markets with a safe, short-term asset, which could improve monetary policy transmission.
- Considering that financial markets are characterized by imperfections and inefficiencies, there is a role for using balance sheet policies in the future in order to take advantage of the effect of changing the size and the composition of the balance sheet to create (or correct) price distortions.
- Balance sheet policies may therefore be a useful complement to the standard interest rate policy in order to reinforce the effect of standard policy when the transmission of changes in the short-term interest rate is impaired or to mitigate the effect of standard policy on targeted financial markets for enhancing financial stability.
- There seems to be a large set of arguments in favour of adding to the central bank toolkit balance sheet policies that would support financial stability.

**W**ith the financial crisis, central banks have used new tools—balance sheet policies—to implement monetary policy when their action has become constrained by the zero lower bound (ZLB), *i.e.* a level of the policy rate under which no further cuts are expected. The implementation of those measures has led to a sharp increase in the size of central banks' balance sheet. In 2017Q2, it stands at 4 500 \$ bn (23.5% of US GDP) and 4 100 € bn (27.4 % of the euro area GDP) for the Federal Reserve and the ECB, respectively, while it was 900 \$ bn (6,3% of the US GDP) and 1160 € bn (12,4% of the euro area

GDP) ten years before. Concerning the ECB, the evolution of the balance sheet took place in two stages. From October 2008 to the end of 2012, the rise was mainly driven by liquidity operations conducted by the ECB to address the liquidity shortage of the banking system. The increase was demand-driven as it resulted from the needs of banks. The size of the balance sheet then receded once banks started to reimburse the loans granted by the ECB. A second step began with the implementation of a large-scale asset purchase programme (APP) in March 2015. Here, the dynamics resulted from decisions taken at the initiative of the ECB by setting a target for monthly asset purchases.<sup>1</sup> It was therefore supply-driven.

During the financial crisis, similar programmes have also been implemented by the Federal Reserve, the Bank of England and the Bank of Japan. They are often qualified as quantitative easing measures. However, Bernanke (2009) prefer the term “credit easing” to define the Federal Reserve’s approach. A pure quantitative easing involves changing the *size* of the balance sheet and targeting the quantity of reserves held by banks, without specific consideration to the *composition* of counterpart assets. The credit easing aims to increase the size of the balance sheet and meanwhile to change the composition of assets in order to create (or to dampen) distortions in the price of some targeted assets.

When balance sheet policies were initially implemented, these measures were assumed exceptional, unconventional, especially taken in the financial crisis and zero lower bound context. However, it is now discussed whether those non-standard measures might become a permanent toolkit at the disposal of central banks even in normal times.<sup>2</sup> Bernanke (2016) provides a summary of the arguments for retaining a large balance sheet. The bottom line about the question of the optimal long-run size of central banks’ balance sheet is that when a central bank owns large quantities of securities, it has more options *both* during normal and stress times. This debate will necessarily condition the future decisions of central banks and the extent to which they will end their programmes and eventually reduce the size of their balance sheet. For the moment, the Federal Reserve has announced a strategy to adjust downward its balance sheet, which starts in October 2017 while the ECB will slow down the assets purchases from January 2018 until September 2018 while it will continue to reinvest the maturing assets beyond this deadline.

Against the backdrop of different possibilities for future monetary policies—conventional policies only, a mix of conventional and unconventional policies—, many questions arise: will central banks’ balance sheet revert to their pre-crisis situation (in % of GDP) or to another “new normal” level? Will central banks continue to use balance sheet policies even after exiting the ZLB? We will show that the discussion on these issues will depend ultimately on the possible change of mandate of central banks and on the transmission channels of non-standard policies.<sup>3</sup>

## 1. Design and sequencing of exiting

The predictability of the exit from balance sheet policies is essential to ensure that financial markets can digest the extra supply of securities that they will face when the ECB will taper and that the banking system can manage the reduction in reserves it will be holding. To the greatest possible extent, policymakers are aiming not to surprise private agents in order to maintain economic and financial stability. To that end, central banks—the Federal Reserve and the ECB—have endeavoured to provide a clear communication on their future policy decisions regarding the phasing-out of unconventional measures.

1. The bulk of purchases concerns public sector securities (PSPP) but the ECB is also buying asset-backed securities (ABSPP), covered-bonds (CBPP) and corporate sector securities (CSPP).

2. See Friedman (2015) for example.

3. By non-standard policies, we mainly focus on quantitative easing. The use of forward guidance on a more permanent basis may also be debated as a means to enhance the communication strategy of central banks.

On October 26<sup>th</sup>, Mario Draghi has given indications on the follow-up of the asset purchase programmes implemented by the ECB since March 2015. The programme will extend until September 2018 at least. As for previous announcements, the ECB does not pre-commit to a final date for ending the quantitative easing (QE) and leaves open the possibility to purchase assets beyond September 2018. The second key message of the Governing council was that assets' purchases will be reduced to 30 bn € from January 2018. This announcement signals the start of the tapering of the ECB non-standard policies indicating that the size of the balance sheet will grow at a slower pace.<sup>4</sup> Besides, "the Eurosystem will reinvest the principal payments from maturing securities purchased under the APP for an extended period of time after the end of its net asset purchases, and in any case for as long as necessary". Concretely, the ECB will continue to implement unconventional measures until September 2018 and time for reducing the size of the balance sheet has not come yet.

With these decisions, the ECB strategy to phase out unconventional measures approximates the Federal Reserve's plan which consisted first in tapering (reducing the flows of monthly purchases), second stabilizing the size of the balance sheet and third ending the policy of reinvesting the principal payments from maturing securities. The reduction of the size coincides with the third stage. Regarding the increase of policy rates the ECB has announced that it would intervene "well past the horizon of our net asset purchases", concretely not before the end of 2018. Comparing with the experience of the Federal Reserve, tapering started in January 2014 when the central bank progressively reduced monthly purchases by 10 bn \$ each month from January to October. The first increase in the policy rate was decided in December 2015. The third stage has just been announced by the Federal Reserve and starts in October 2017. Here again, the FOMC (Federal open-market Committee) will proceed slowly. Considering the scheduled path that was described in June 2017 and assuming a 3.5% nominal GDP growth, the Federal Reserve's balance sheet would get back to its pre-crisis level—representing 6% of GDP—in 2023 (Figure 1).

Two key issues have not been addressed yet by the ECB regarding the complete scenario of exit from unconventional monetary policies. First, Mario Draghi has made clear that policy rate would increase well beyond the end of asset purchases but he has not provided indication on the end of the negative interest rate policy. As long as the main policy rate—the rate applied on main refinancing operations (MRO)—remains at the zero lower bound, the rate applied on deposit facilities will remain negative. But the ECB might choose to reduce the gap between the MRO rate and the rate on deposit facilities in order to end more rapidly the negative interest rate policy. Conversely, the rate on deposit facilities may also be kept constant even once the MRO rate will be increased in order to revert to the pre-crisis spread between the MRO rate and the rate on deposit facilities, which was 1 point.

Up to now, the ECB has not communicated on the path of its balance sheet beyond September 2018. It is yet possible to illustrate a scenario for the reduction in the size of the ECB balance sheet that would for example start in January 2020. In what follows, we assume that the ECB would proceed as the Federal Reserve and reduce the size of its balance sheet by 10 € bn during 3 months and then by 20 € bn during the next 3 months until reaching a 50 € bn ceiling. Given the reinvestment policy announcements by the ECB, we assume that the ECB would not start its operations of reducing the size of the balance sheet right after the end of assets purchases but later, for example in January 2020. This scenario would imply that the normalisation process would end in mid-2025. These hypotheses are arbitrary and only illustrate one among other scenario for the reduction on the size of the ECB's balance sheet. The adjustment may start later, be spread over a longer or a shorter time span. A central issue is related

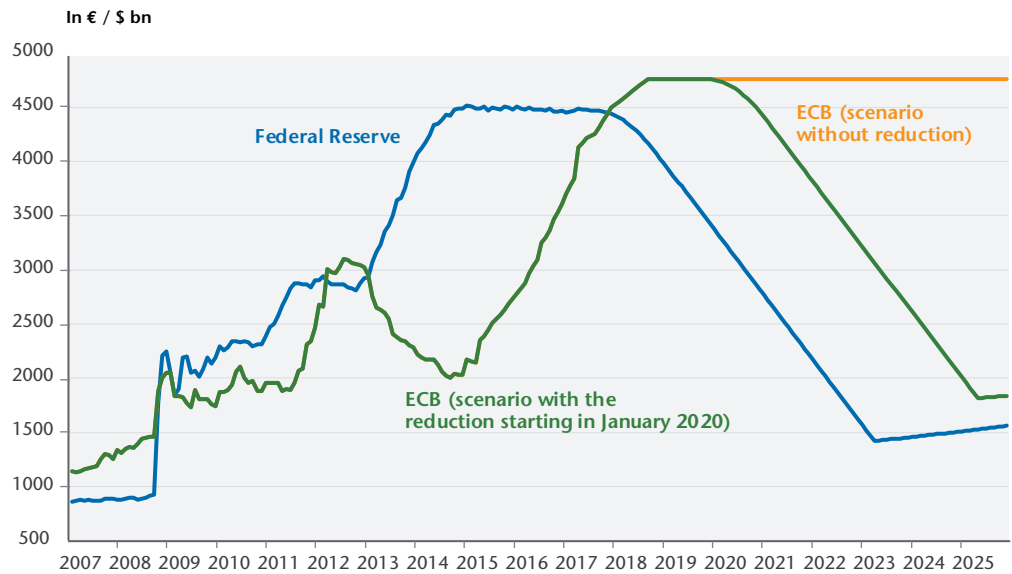
4.

Actually, it is not the first cut in purchases decided by the ECB. The programme had already been decreased in March 2017 when assets' purchases went from 80 bn € to 60 bn €.

to the liquidity needs of the banking system. Since October 2008, all refinancing operations are conducted at fixed-rate and full-allotment and ECB recently announced that it will maintain the fixed-rate / full-allotment procedure until the end of 2019. Consequently, any surge in liquidity needs to be automatically served by the ECB at a constant cost—zero under current conditions—for banks. The size of the balance sheet will still be partly demand driven and may still increase—through the item “5.Lending to euro area credit institutions related to monetary policy operations denominated in euro”—after September 2018 even if the ECB stops purchasing assets.<sup>5</sup> Though the outstanding amount of “Lending to euro area credit institutions related to monetary policy operations denominated in euro” has decreased since a peak at 1 250 € bn in June 2012, it still represents 770 € bn (Figure 2) that is 18% of the total assets.

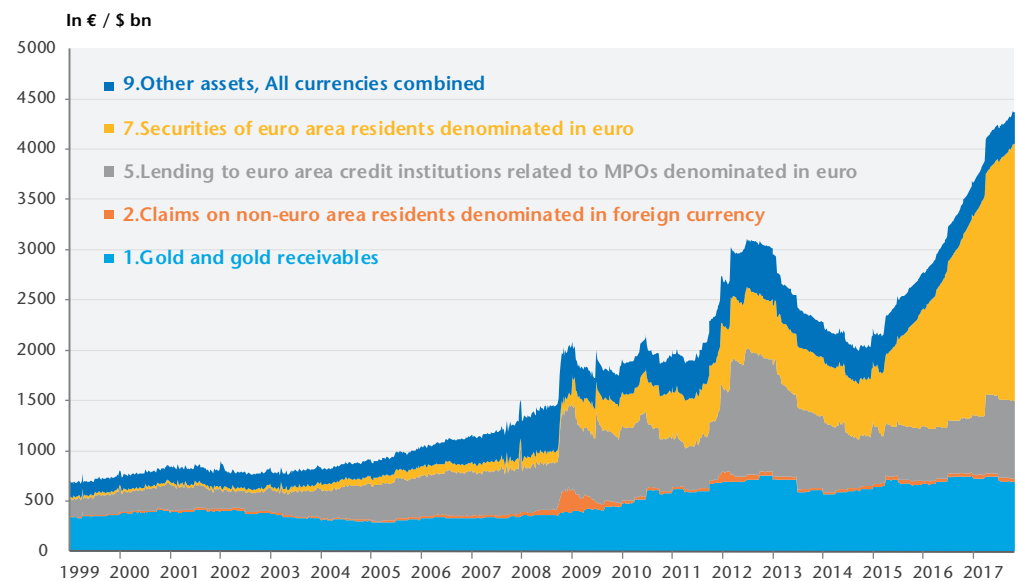
5. Asset purchases appear in item “7.1 Securities held for monetary policy purposes”.

Figure 1. ECB and Federal Reserve bank balance sheet



Sources: ECB, Federal Reserve, Authors calculations. Note: The potential nominal GDP growth is exogenously fixed at 3.5% for the United States and 3% for the euro area.

Figure 2. Assets of the Eurosystem



Source: ECB.

Finally, the adjustment process of the balance sheet is not the only critical issue at stake. There is a specific information that neither ECB nor the FED has yet communicated, namely the *final* size of its balance sheet. As assumed in Figure 1, at the end of the exit process, will the ECB balance sheet be 1,500 € billion (or 12% of Eurozone GDP) as it was at the beginning of 2008? This is just an hypothesis and the “new normal” may be either lower or higher. For instance, the ECB could well decide to stabilize the balance sheet at 18% of Eurozone GDP, *i.e.* at the level prevailing in February 2015 before the start of the PSPP. The assessment ultimately depends on policy makers’ views about the potential use and effectiveness of the central bank’s balance sheet as a new instrument for implementing monetary policy and addressing financial stability.

As far as the size of central banks’ balance sheets is concerned, advocates of a large central bank balance sheet stress that there is finally little difference between central bank owning government bonds and paying interest on excess reserves to the banks and banks owning government bonds themselves (*modulo* the difference between the interest rate paid on excess reserves and government bond yields). The first option relies on a large balance sheet whereas the second one relies on a small one. Much of the Jackson Hole 2016 Economic Symposium was devoted to discussions on the potential benefits of retaining a large balance sheet. Two arguments emerged, one concerning financial stability—*i.e.* on whether central banks shall have a clear stability mandate—and the other emphasizing the monetary policy transmission—*i.e.* the mechanisms through which balance sheet policies affect the economy. We discuss these arguments in the following paragraphs.

## 2. The evolving mandate of the ECB

The mandate of the ECB has been laid down in the Treaty on the Functioning of the European Union, Article 127 (1) and clearly emphasizes the price stability objective over the growth objective.<sup>6</sup> The hierarchy introduced explicitly in the objectives of monetary policy in the euro area makes a difference with the dual mandate of the Federal Reserve in the United States. However, even if the dual mandate is not explicit as it is for the Federal Reserve, [Friedman \(2008\)](#) considers that central banks weighing more role on price stability also seek to achieve output growth. The dual mandate would therefore be implicit. In practice, the ECB has been concerned with both inflation and growth. Actually, the so-called monetary rule of the Taylor-type—where the policy rate decreases when inflation is below the target and when the output gap is negative—has long nicely fitted the behaviour of the ECB. [Castro \(2011\)](#) estimated Taylor rules over the period 1999:1 to 2007:12 and found that the ECB had significantly reacted to the inflation rate (gap) as well as the output gap.

In addition, in the context of the Banking Union, the ECB is now also in charge of the supervision of the banking system. This additional task makes the ECB also responsible for financial stability, by means of two instruments: under the single supervision mechanism, the ECB has macro-prudential supervision powers over the most “significant” banks of the Eurozone; under the single resolution mechanism, it embraces micro-prudential supervision powers in case of a failing bank.

It may be claimed that the ECB has de facto a triple mandate ([Blot et al., 2014](#)) and, as an independent institution, it is free to choose the instruments that are best suited to achieve its objectives. Consequently, the ECB could consider using balance sheet policies permanently if they prove to be effective even in normal times.

6.

The Treaty actually states that “without prejudice to the primary objective of price stability, the ESCB [European System of Central Banks] shall support the general policies in the Union”, including “full employment” and “balanced economic growth”.

7.  
See Smets (2014).

In the current institutional framework, it seems that there is a separation between monetary policy and financial supervision, with the first tool targeting macroeconomic stability and the second tool targeting financial stability. However, financial stability and macroeconomic stability are closely related which makes the distinction between both instruments artificial. Yet, there is a growing debate on the role of monetary policy to achieve financial stability.<sup>7</sup> It raises the issue of the transmission channel of monetary policy and notably of non-standard measures.

### 3. Transmission channels of balance sheet policies

Joyce *et al.* (2011) and Krishnamurthy *et al.* (2014) highlight several channels through which large-scale asset purchases could affect the economy:

1. **Policy signalling effect:** an announcement of large-scale asset purchases may be perceived as a signal of a more accommodative monetary policy and send the signal that monetary policy rate will remain low for a long period, at least until the end of the asset purchase program. This policy of “forward guidance” can also consist of announcing that the central bank benchmark rate will not be cut before a pre-announced date or until the unemployment rate falls below a certain threshold (e.g. 7% of the working population as the Bank of England did since summer 2013); or announcing an unlimited conditional buyback of sovereign debt to limit the upward pressure on government bond yields (as was the case for ECB’s Outright Monetary Transactions programme launched in the summer of 2012 and yet to be used). Considering that long-term interest rates reflect expectations of future short-term interest rates, announcing large-scale purchases of government bonds should trigger a decline in long-term rates, through the expectations channel.
2. **Portfolio balance effect:** if the central bank buys assets, portfolio arbitrage generates an increase in the prices of the assets concerned as well as assets which are close but imperfect substitutes, lowers yields and, thus, borrowing costs. The portfolio balance channel may create (or correct) a distortion in asset prices since central bank operations consist in increasing the demand of a class of assets. When asset purchases are long-term Treasuries, it will involve a reduction in the term premia, which adds to the policy signalling effect and triggers a further decline in long-term rates. The signal is also transmitted to closely related financial substitutes through changes in the risk premia. At the same time, higher asset prices increase the wealth of economic agents and thus their ability to generate more spending.
3. **A liquidity effect:** By buying financial assets, the central bank creates money, thus quickly injecting liquidity into the financial system.
4. **A confidence effect:** if economic agents trust a central bank policy, the announcement can boost consumers and firms’ confidence and, in turn, rise spending. For instance, monetary policy easing may be successful in lifting inflation (expectations), thus leading to a decline in real interest rates (Eggertson and Woodford, 2003). A confidence effect is also likely to generate an increase in asset prices and decrease risk premia.
5. **A bank lending channel:** if QE’s modalities allow the central bank to buy assets from non-banks (directly or indirectly), the bank-lending channel improves. Indeed, a rise of banks’ reserves at the central bank, will be matched by a corresponding rise of deposits. Meanwhile, as non-banks’ assets become more liquid, additional loans can be granted.



6. **A default channel:** with QE lowering long-term bond yields and improving macroeconomic perspectives, risk premia decline. This reduces the risk of sovereign default and gives leeway for a more accommodative fiscal policy as investors realise that there is a buyer-of-last-resort. In the Euro area, this would help to mitigate the risk of a liquidity squeeze or sudden stops of capital flows, stemming from the fact that in the monetary union “governments issue debt in a currency over which they have no control” (as explained by [De Grauwe, 2012](#)).
7. **An exchange rate channel:** money creation also weakens the exchange rate, favouring net exports. This channel may be viewed as a consequence of the portfolio channel as rebalancing involves the purchase of foreign assets. The seller is indeed in search for higher yields and may thus find profitable to hold more foreign assets, hence triggering a depreciation of the domestic currency.

By influencing asset prices, unconventional monetary policy measures affect investment and consumption. Since monetary policy measures alter interest rates, term- and risk-premia, they operate through the risk-taking channel: lower returns on some asset prices such as government risk-free bonds increase the incentives of agents to invest in riskier assets. Consequently, unconventional measures affect final demand and financial stability.

These transmission channels of unconventional monetary policy measures are often complementary to the transmission channels of “conventional” measures. However, while asset purchases may introduce price distortions and have a specific effect on the long end of the yield curve, standard monetary policy affects the short end of the yield curve. As the relative effectiveness of these different channels is mostly an empirical issue, this leaves open the question on the ability for central banks to use balance sheet policies permanently. The following section provides some detailed arguments on this matter.

## 4. Balance sheet policies as a permanent tool of monetary policy

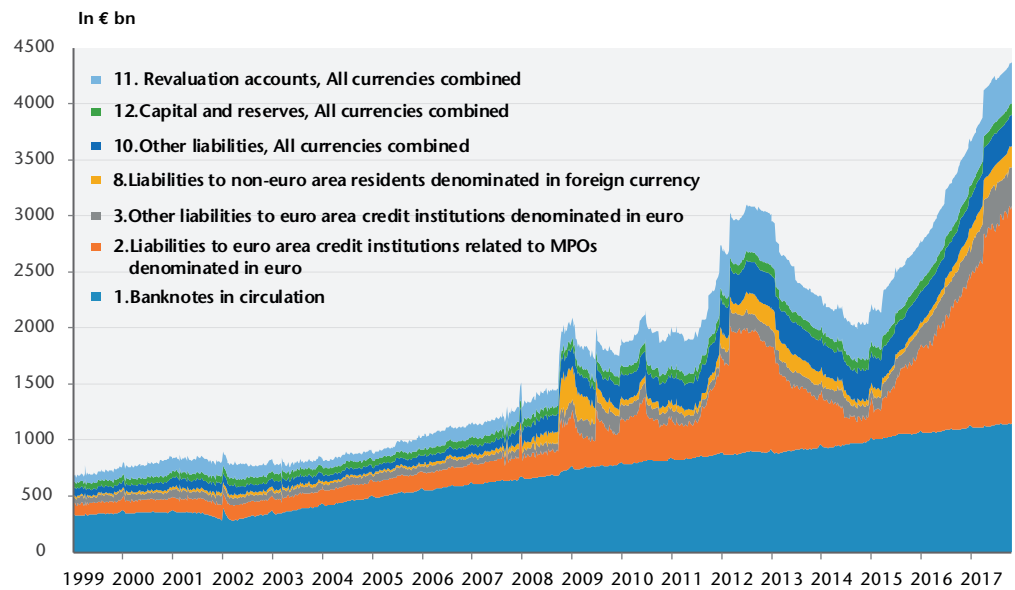
Together with the increase in ECB assets, there have been substantial changes to the liability side of the balance sheet. Before the financial crisis, the ECB liabilities were mostly notes (currency) whereas today the largest category of liabilities is bank reserves, with the bulk of these reserves being composed of excess reserves and deposit facilities (Figure 3). This increase in reserves is the direct consequence of the ECB’s unconventional programmes first through the liquidity provided to banks with LTRO (long-term refinancing operations), VLTRO (very long-term refinancing operations) and TLTRO (targeted long-term refinancing operations) and more recently through the asset purchases programme (APP).<sup>8</sup>

Importantly, this large increase in the amount of bank reserves changes the way a central bank may affect its short-term policy interest rate. Prior to the financial crisis, central banks managed the policy rate by adjusting the supply of reserves in the system. Central banks first set the policy rate to signal the stance of monetary policy and then set the amount of liquidity provided to the banking system. The supply of central bank reserves was adjusted to meet the liquidity needs—determined by required reserves and autonomous factors—of the banking system and to reduce the volatility of the overnight market interest rate (the EONIA in the euro area).<sup>9</sup>

8. APP includes all asset purchases programmes: CBPP (covered bond purchase programme), ABSPP (asset-backed securities purchase programme), PSPP (public sector purchase programme) and CSPP (corporate sector purchase programme).

9. EONIA stands for euro-area overnight index average. It is a measure of the effective interest rate prevailing in the euro interbank overnight market and is calculated as a weighted average of the interest rates on unsecured overnight lending transactions denominated in euro, as reported by a panel of contributing banks.

Figure 3. Liabilities of the Eurosystem



Source: ECB.

With the large quantity of reserves available since the start of the asset purchases, changes in the supply of reserves are no longer enough to control the policy rate. The demand for reserves has been saturated creating downward pressures on the overnight market rate. As a consequence, central banks now influence short-term rates primarily by varying the interest rate paid on excess reserves, the deposit facility rate for the ECB, which represents a floor rate. This setting relies on the condition that banks do not want to borrow or lend in the interbank markets at an interest rate different from what they can earn on the reserves held at the central bank balance sheet. Consequently, when excess reserves are positive, the policy rate signalling the stance of monetary policy is not the MRO rate but the rate of deposit facilities as illustrated by the fluctuations of the EONIA (Figure 4) since October 2008.<sup>10</sup> It appears that when excess reserves decline and revert close to zero, the EONIA rate increases and gets closer to the MRO rate, its reference rate before the implementation of non-standard policies.

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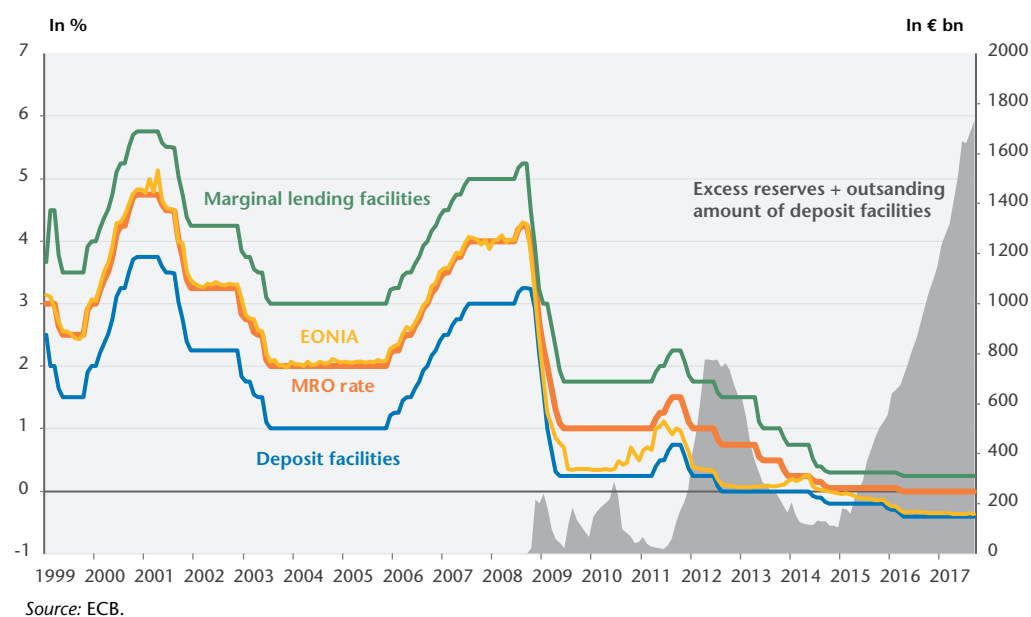
Here excess reserves actually also include the outstanding amount of deposit facilities as they are perfect substitutes since interest applied to both of them are the same.

The question about the size of the central bank balance sheet therefore also refers to the preferred method of policymakers for signalling the policy rate. It is essential to understand that balance sheet policies may thus be implemented during normal times, i.e. when the policy rate is in positive territory (above the ZLB). With a “small” balance sheet—without excess reserves—the EONIA rate fluctuates around the MRO interest rate which signals the stance of monetary policy. The supply of reserves is fixed to meet demand and avoid too much volatility around the MRO rate. With a “large” balance sheet—with excess reserves—the EONIA rate would stand close to the interest rate on deposit facilities, whatever the level of the floor rate: -0.4%, 0% or 3%. The supply of reserves exceeds demand to bring the overnight market rate to the floor rate. Consequently, the choice of adopting a permanently large balance sheet requires a cost-benefit analysis of large and permanent excess reserves and the use of the deposit facility rate as a policy rate.

A first argument for adopting a permanently large balance sheet has been put forward by Greenwood, [Hanson and Stein \(2016\)](#). They suggest that a large balance sheet could be a tool for enhancing financial stability. In a situation where there is a strong private demand for safe and liquid short-term securities, central banks could be



Figure 4. Excess reserves and policy rates



the ultimate provider of such an asset. Changes in bank regulation are likely to increase the demand for safe and liquid assets. The fact that investors accept much lower yields for very short-term government securities (at the one-week maturity for example) than for longer-term government securities (even one year for example) is a good indicator of such a demand. The market is able to supply such short-term assets in principle. However, in a period of crisis when the quality of the underlying assets is uncertain, this form of financing disappears, forcing banks to sell off their (quality) assets. These fire sales may destabilise the market and amplify the crisis. Greenwood et al. suggest that central banks could provide safe and liquid short-term assets as it already does through bank reserves. This potentially unlimited supply of a *genuinely* safe asset would reduce the liquidity premium on very short-term financing. This strategy implies that central banks have to keep their balance sheet expanded. A complementary argument for such a strategy refers to the Tinbergen principle of “one objective one instrument”: central banks may use their balance sheet as an instrument for enhancing financial stability, while they may use the policy rate for stabilising the economy.

The literature about the supply of safe assets to enhance financial stability has been surveyed by Golec and Perotti (2017). Short-term safe assets carry a “money-premium” that lowers their yield as they can be used as “money-like” assets. Government debt securities or central bank liabilities have this feature. Gorton and Metrick (2012) show that privately-issued short-term securities may be part of this category. Indeed, the incentives of private financial intermediaries to engage in maturity and liquidity transformations and to fund their investment by issuing collateralized short-term debt is strong. It must be recalled that this phenomenon greatly increased the fragility of financial intermediaries by exposing them to larger funding risk (see Brunnermeier and Pedersen, 2009). Because public short-term securities can be close substitutes to private short-term debt (see Carlson et al., 2016, and Krishnamurthy and Vissing-Jorgensen, 2012), monetary policy in the form of asset purchases that increase the supply of public short-term securities – namely central bank reserves – could thus lower the money premium below the one prevailing for privately issued bonds. This policy would then decrease the incentive of private financial intermediaries to issue short-term debt. Finally, central bank issuances of short-term securities would crowd-

out private issuances and participate to limit funding risk. [Woodford \(2016\)](#) shows that this mechanism can limit banks' incentives to engage in liquidity transformation.

Second, [Cúrdia and Woodford \(2011\)](#) analyse the relevance of balance sheet policies together with the more traditional interest-rate policy. They find that quantitative easing in general is likely to be ineffective for macroeconomic stabilization (they do not consider financial stability), but targeted asset purchases would be effective when financial markets are disrupted or interest rates are at the ZLB. Their conclusion is that central bank's asset holdings should be irrelevant for macroeconomic stabilization in the case of well-functioning financial markets. However, such an assumption may not hold even in normal times. If financial markets are characterized by financial imperfections and inefficiencies, there is a role for using balance sheet policies: the central bank may take advantage of the size and the composition of the balance sheet to create (or correct) distortions on financial markets by influencing risk and term premia.

The recent Eurozone debt crisis following the financial crisis revived the debate about the loop between sovereign debt and bank risk ([Brunnermeier \*et al.\*, 2016](#)) as the deterioration of government solvency decreases the value of the assets held by financial intermediaries. This increases the probability of banks bail-outs and deteriorates further the initial fiscal situation. It has led to a panic-driven situation where sovereign yields sharply increased because of a liquidity squeeze on the market for sovereigns of some countries (Spain, Italy, Portugal, Ireland, and Greece). Under such circumstances, the implementation of balance sheet policies can break the vicious circle either by taking the risk of defaulting out of the balance sheet of commercial banks or by limiting the variation in sovereign bonds prices. [Reis \(2017\)](#) analyses the usefulness of central bank balance sheet policies in a fiscal crisis, modelled as a situation where the fiscal outlook is inconsistent with both stable inflation and no sovereign default. The crisis propagates through two channels, aggregate demand on one side, and credit contraction and financial disruption on the other. Reis (2017) suggests that the size and composition of the central bank's balance sheet can interfere with these channels since central bank balance sheet policies are grounded on interest-paying reserves which is a special public liability, neither substitutable with currency nor government debt.

Third, because the real effects of monetary policy measures depend crucially on their transmission to financial conditions, being able to affect directly the interest rate faced by non-bank institutions or non-financial corporations help removing one intermediate step in the transmission of policy. Indeed, in period of crisis, banks may not be willing to fully pass on changes in the policy rate to depositors and borrowers. The link between the policy rate and interest rates in securities markets may also be weak because of market fragmentation and inadequate liquidity. With the asset purchase program providing a direct effect on the securities market, central banks could rely less on the indirect transmission of monetary policy through the banking system. [Duffie and Krishnamurthy \(2016\)](#) suggest a similar argument for the Fed's overnight reverse repurchase program, the aim of large balance sheet is to improve the transmission channel of monetary policy. [Adler, Castro and Tovar \(2016\)](#) examines whether the composition of central bank capital influences the conduct of monetary policy. They suggest that central bank capital and more specifically a measure of central bank financial strength matters for monetary policy. The distortions implied by asset purchase would then provide the central banks with an additional tool that would not only affect macroeconomic stabilization but also financial stability. It must be noticed here that such distortions are implied by changing the composition of the assets held by central banks. It does not necessarily involve increasing or reducing the size of the balance sheet. Balance sheet policies may therefore be a useful complement to the standard

interest rate policy in order to reinforce the effect of standard policy when the transmission channel is impaired or to mitigate the effect of standard policy on targeted financial markets for enhancing financial stability.

A fourth argument for keeping a large central bank balance sheet relates to its role as a lender of last resort during financial crises. During a panic, central banks can replace the missing liquidity. However, for such a mechanism to work, banks have to be willing to borrow from the central bank, which they may avoid to do if they fear the market “stigma” associated with such borrowings (which would signal their financial weakness). A good example of this potential stigma are the different actions undertaken by US and EU banks during the crisis. Because European financial institutions had both large deposits at the ECB (bank reserves) as well as large borrowings before the crisis (in contrast with the US banks), they were able to use their reserves or adjust their borrowings thus providing few signals to the market as regards their (weak) internal financial conditions. A larger central bank balance sheet therefore contributes to its ability to act as a lender of last resort.

A counter-argument to permanent large balance sheet for central bank relates to the depth and breadth of financial markets. Both features of financial markets are a prerequisite to large and long-lasting purchases of financial assets. This is a key argument as regards European public bonds (Blot and Creel, 2017) that can well apply to private bonds and stocks in the Eurozone. As a matter of fact, bank intermediation in the Eurozone is the major funding determinant, unlike in the US. While this is a good argument against a *rising* ECB balance sheets after the end of APP, this is not one against a permanent large and steady balance sheet. Moreover, it is not one against the permanent use of balance sheet policies under the composition argument: targeting financial segments through the use of balance sheet policies may correct distortions on these segments and lower financial fragmentation across segments or across Eurozone countries.

## 5. Conclusion

There are many arguments in favour of adding balance sheet policies to the central bank toolkit that would support financial stability and complement the role of the standard – pre-crisis – policy to enhance macroeconomic stability. However, it must be acknowledged that economists have not yet fully analysed the potential effect of balance sheet policies on macroeconomic and financial stability. Empirical uncertainty remains on their precise effectiveness. This should not prevent central banks to resort to balance sheet policies as only experience can provide a comprehensive assessment of the power of balance sheet policies.

There are two major challenges when using balance sheet policies permanently. The first one refers to the trade-off between effectiveness and distortions. Conventional interest rate policy aims at market neutrality whereas balance sheet policies target specific securities or markets by construction. Central banks would therefore face a trade-off between the costs of these distortions against reaching their policy objectives. However, if financial markets are not efficient and are characterized by imperfections, balance sheet policies would not create distortions but help to mitigate them.

The second challenge relates to communication. Under some circumstances, it might be needed to implement an increase in the short-term policy rate—a decision perceived as restrictive—while increasing the size of the balance sheet—a decision perceived as expansionary. If central banks have two instruments at hands –interest rate and balance sheet policies—they must make clear how they use them and for what purpose in order to avoid sending a confusing signal on the monetary policy stance ■

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