

Understanding Central Bank Balance Sheets

BY JOACHIM NAGEL

The new monetary tool.

In response to the financial crisis, the Eurosystem has introduced a number of non-standard monetary policy measures. The aim of these measures has been to sustain financial intermediation in the euro area, foster the flow of credit to enterprises and households, and support the monetary policy transmission mechanism. As a consequence, the composition of the Eurosystem's balance sheet has changed: its balance sheet total has increased while the risks assumed by the Eurosystem have risen substantially. Looking ahead, this development will entail new challenges for the Eurosystem's monetary policy.

A LEAN CENTRAL BANK BALANCE SHEET

Extraordinary times call for extraordinary measures. Unfortunately, a larger balance sheet generally also bears greater financial risks. This is why—under normal economic conditions—central banks aim for lean balance sheets.

What exactly is a “lean balance sheet”? The liability side of a central bank balance sheet reflects the banking system's structural need for central bank money. Banks need this money in order to cover their clients' cash requirements, make payments on the interbank market, and, in some cases, fulfill a minimum reserve requirement. A central bank's balance sheet can thus be regarded as lean if banknotes in circulation make up the

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majority of the balance sheet total, provided that the minimum reserve requirement is correspondingly low. Even including equity and provisions ought not to lead to a significantly higher balance sheet total. Liquidity is provided via monetary policy operations. These constitute the domestic assets of a lean central bank balance sheet, whereas foreign assets are primarily reserve assets.

A lean balance sheet also boosts a central bank's financial strength as banknotes in circulation are a non-interest bearing liability. Banknotes in circulation form the basis for what is known as seigniorage: a central bank's net income from its monopoly of issuing base money. Although profit maximization is not one of the aims of a central bank, a positive income increases its reputation and ultimately also its financial independence. However, central banks' balance sheets are often less than

Under normal circumstances, it is preferable for central banks to have lean balance sheets [left] entailing a low level of risk. In times of crisis, however, this ideal cannot necessarily be achieved.

lean as they may have taken on many past and current additional tasks.

EUROSYSTEM'S BALANCE SHEET BEFORE THE CRISIS

The Eurosystem's consolidated financial statement contains the Eurosystem's assets and liabilities on the balance sheets of the seventeen euro area national central banks and of the European Central Bank. The statement also contains some relics from the past: prior to the launch of monetary union, many national central banks managed exchange rates and accumulated foreign reserve assets whose value far exceeded the volume of banknotes in circulation. Some of these assets remained on central banks' balance sheets after their countries had acceded to European monetary union.

Taking the share of banknotes in circulation in the balance sheet total as an indicator of how lean a central bank's balance sheet is, there were marked differences between the Eurosystem, the U.S. Federal Reserve, and the Bank of England prior to the crisis. Banknotes in circulation comprised around 90 percent of the Fed's balance sheet total, whereas they made up only around half of the balance sheet total for the Eurosystem and the Bank of England. It should be borne in mind that the Eurosystem—in accordance with its statute—has sole responsibility for managing all foreign reserve assets, whereas this task is carried out jointly by the Treasury and the central bank in both the United Kingdom and the United States. This illustrates how a broader area of

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responsibility can lead to less-streamlined balance sheets. Furthermore, accounting principles differ, especially with regards to the valuation of gold, which for example contributes to a shorter balance sheet for the Federal Reserve System. However, as a consequence of the anti-crisis measures, the balance sheet total of all three central banks rose significantly. The increase in a central bank's balance sheet

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total due to crisis-induced measures will be comparatively greater if its balance sheet—like the Fed's—was relatively lean to start with.

DURING THE CRISIS

Exactly how did the crisis-related non-standard monetary policy measures affect the Eurosystem's balance sheet? When the financial market turmoil began in mid-2007, tensions were mainly caused by the lack of trust among the participants on the interbank money market. This was because of uncertainty about counterparties' financial soundness and liquidity. The Eurosystem responded to the reduced interbank activity on the money market by introducing longer maturities for its liquidity-providing monetary policy operations, although overall liquidity from monetary policy operations remained unchanged on average. During the period of extreme uncertainty, heightened mistrust, and increased financing bottlenecks following the Lehman Brothers insolvency, banks made increasing use of the Eurosystem's extended provision of liquidity at rapidly falling key interest rates. Besides introducing fixed-rate tender procedures with full allotment in all monetary policy refinancing operations, the Eurosystem extended its monetary policy collateral framework, for example, by lowering the minimum credit rating threshold while at the same time increasing haircuts. In addition, the introduction of opera-

tions of up to one year represented a clear shift in the structure of the outstanding refinancing operations towards longer-term operations. The Eurosystem's balance sheet total increased a great deal and surpassed the €2 trillion mark for the first time.

When the Covered Bond Purchase Programme was introduced on July 6, 2009, the Eurosystem entered new territory by conducting monetary policy operations as outright purchases for the first time. Until then, Eurosystem monetary policy operations had exclusively been carried out as reverse transactions. The aim of this program was to revive the market for covered bonds in the euro area and to reduce the corresponding spreads in the secondary market. As announced, the purchases were discontinued after one year, during which debt securities with an overall nominal value of €60 billion had been acquired. A second Covered Bond Purchase Programme with a maximum volume of €40 billion was launched in November 2011.

By contrast, the Eurosystem did not announce an end date or a maximum volume for the Securities Markets Programme, which started on May 10, 2010, but always underlined the fact that it was limited in time and volume. The Eurosystem's holdings of SMP securities currently stand at around €211 billion. Moreover, the Governing Council of the European Central Bank decided to suspend the application of the credit rating threshold for specific instruments when conducting Eurosystem operations. This decision has applied since May 2010 for debt instruments issued or guaranteed by the Greek government, since May 2011 for the corresponding Irish ones, and since July 2011 for Portuguese paper.

Following a temporary period of easing, tensions on the European financial markets rose again in the second half of 2011. On December 8, 2011, the Governing Council of the European Central Bank decided to introduce additional enhanced credit support measures. They included, most notably, two three-year longer-term refinancing operations with full allotment. These operations met with unprecedented demand from banks and have driven up outstanding monetary policy credit operations to a historic high of over €1.2 trillion, of which currently around 80 percent are long-term. On balance, the Eurosystem's balance sheet total exceeded the €3 trillion mark for the first time in March of this year.

BALANCE SHEET CHANGES AT OTHER CENTRAL BANKS

Following the collapse of Lehman Brothers, the balance sheets of the Fed and the Bank of England initially developed very similarly to that of the Eurosystem. Both central banks offered loans at longer maturities and with a broader spectrum of collateral. For this purpose, the Fed introduced

its Term Auction Facility. The result was a clear increase in the Fed's balance sheet total. This was quite a remarkable move for the Federal Reserve as it had usually provided the majority of its monetary policy liquidity through outright purchases of government securities.

As the crisis progressed, the Fed and also indirectly the Bank of England were increasingly providing liquidity through outright purchases of securities. Although this is the Fed's traditional form of liquidity provision, the purchases of federal agency securities and mortgage-backed securities changed its composition and its volume increased, especially from November 2010 onwards.

Since June 2011, the outright portfolio holdings are no longer increasing and remain at a level of around \$2.6 trillion. However, in September 2011, the Federal Reserve decided to conduct a maturity extension program in the context of its existing Treasury portfolio. Market participants often refer to this program as "Operation Twist." By the end of 2012, the Federal Reserve intends to sell or redeem a total of \$667 billion of shorter-term Treasury securities and use the proceeds to buy longer-term Treasury securities. This will extend the average maturity of the securities in the Federal Reserve's portfolio. By reducing the supply of longer-term Treasury securities in the market, this action is intended to put downward pressure on longer-term interest rates and contribute to a broad easing in financial market conditions. In sum, the Fed has made extensive use of outright operations not only by significantly increasing the size of its outright portfolio, but also by changing its asset composition and maturity profile over time.

At the beginning of 2009, the Chancellor of the Exchequer authorized the Bank of England to set up the Asset Purchase Facility Fund to help achieve monetary policy objectives. Losses incurred by the fund are offset by the state and its accounts are not consolidated with those of the Bank of England. However, the Bank of England finances this fund with loans that appear on its own balance sheet. It was mainly British government bonds—known as gilts—that were purchased under the Asset Purchase Facility.

Thus, it can be said that the Eurosystem—compared with the Federal Reserve and the Bank of England—has only a very limited monetary policy portfolio resulting from outright purchases (see figure). In the Eurosystem monetary policy portfolio, holdings make up less than 10 percent of the balance sheet total, whereas on the balance sheets of the Federal Reserve and the Bank of England they account for more than 90 percent. By contrast, the Eurosystem primarily uses three-year longer-term refinancing operations to provide ample liquidity.

THE CHALLENGES OF CRISIS-INDUCED BALANCE SHEET DEVELOPMENTS

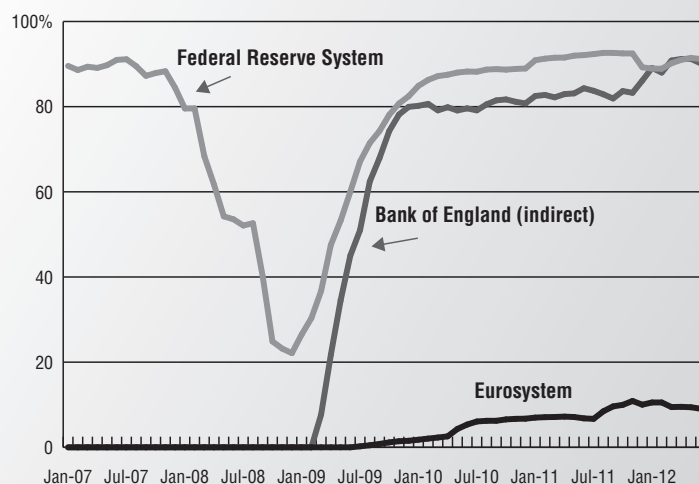
What kind of monetary policy challenges do the central banks face as a result of the balance sheet developments caused by the crisis? Non-standard measures have led to a significant increase in credit institutions' central bank balances with the Eurosystem as well as at the Federal Reserve and the Bank of England. Some economists see inherent inflation risks in this development, which they refer to as quantitative easing. No generally accepted definition exists for the policy of quantitative

easing, and any measures taken in its pursuit as well as the justifications given for such measures vary depending on the central bank in question. Economists Claudio Borio of the Bank for International Settlements and Piti Disyatat of the Bank of Thailand therefore use a more general term of reference, preferring to speak of "balance sheet policy."

Under normal circumstances, central banks use interest rate decisions to signal their monetary policy stance. During the crisis, however, the policy rates of numerous central banks have come close to hitting their natural lower bounds. In addition, steering short-term money market rates is considered inadequate as a means of solving other problems, such as how best to alleviate

Monetary policy outright portfolios

Share of total assets



Source: European Central Bank

tensions on the interbank markets, encourage lending to non-banks, and reduce risk spreads in specific markets.

Large-scale central bank balances are not the primary goal of balance sheet policy, however. They are merely a reflection of measures on the asset side of the balance sheet. Moreover, they do not point to inflation risks as some interpretations of the standard money multiplier might suggest. The Eurosystem, like other central banks, draws on a large number of economic, financial, and monetary indicators to assemble information on future risks to price stability. If inflation risks were to emerge, the Eurosystem would respond by increasing its key interest rates. Since a loan or other banking investment is only ever made if its expected return exceeds the additional costs involved, banks are inclined to slow down their activities as soon as there is an increase in the policy rates. The policy rate can essentially be set independently of the size of the central bank balances. Even in instances where banks have large central bank balances, the central bank can set the interest rate on those balances in accordance with its operational framework, influence market rates, and thus make monetary policy more restrictive at any given time. Central banks such as the Federal Reserve and the Bank of England remunerate all excess reserves, whereas others, including the Eurosystem, provide an interest-bearing deposit facility that sets the lower bound for money market interest rates.

In order to effectively absorb excess liquidity when needed, central banks can utilize a variety of instruments available to them within their operational framework. These include recourse to reverse repo transactions, collecting fixed-term deposits, increasing minimum reserve requirements, issuing central bank debt securities, and selling assets outright. Once the markets have stably resumed their financing and intermediary functions in the future and there is no longer any need for non-standard measures, central banks will start to make active use of such liquidity-absorbing instruments.

THE RISKS OF PROVIDING LIQUIDITY

When conducting liquidity-providing monetary policy operations, central banks automatically take on financial risks, which usually increase in times of financial crisis. From a policymaking perspective, this is justified inasmuch as inaction on the part of a central bank could generate greater risks to monetary and financial stability. However, unlike monetary policy interest rate decisions, balance sheet policies can entail high financial risks without any guarantee of success. Furthermore, such measures do not necessarily have to be implemented by the central bank. For example, governments could purchase even impaired assets and issue sovereign bonds in their place. In

the euro area, coordinating responsibilities with governments and banking communities across seventeen jurisdictions obviously presents a much greater challenge, as evidenced by the debate about the size and application of the European Financial Stability Facility and the European Stability Mechanism.

Given the balance sheet developments that have resulted from the application of non-standard monetary policy measures, the Eurosystem's exposure to financial risk has increased significantly. First, this is directly related to the substantial expansion of its balance sheet on account of the increased scale and longer maturities of monetary policy refinancing operations. Second, the heightened risk is also a consequence of the aforementioned effective

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from the private to the public sector.

Any losses would be socialized.

relaxation of collateral requirements for monetary policy credit operations. This risk is, however, strictly monitored and managed, in particular by applying haircuts which take account of liquidity and credit risk. Given the extremely high "tail risks" involved, however, it would generally be preferable from a risk management perspective to have a narrower range of collateral with lower haircuts rather than a broader range with correspondingly higher haircuts.

In secured lending transactions, a central bank will only experience a loss if the counterparty and the pledged collateral suffer a default simultaneously, in what is known as a double default. If the underlying security defaults, but not the counterparty, then the central bank can initiate a margin call or, where appropriate, unwind a credit operation. If a counterparty defaults, the collateral can be sold on the market. As central banks do not face liquidity constraints, they can hold on to the collateral until market conditions have improved sufficiently to keep the risk of losses to a minimum. When assessing the level of risk

associated with a given double default, it is essential to ascertain the correlation between the counterparties and the collateral. In the Eurosystem, the correlation risk is addressed, notably, by prohibiting counterparties from submitting collateral issued by parties to which they have “close links.” The Eurosystem also applies *pro rata* restrictions within the collateral pools of its counterparties on the value of uncovered bonds issued by banking groups.

On balance, the Eurosystem’s exposure to risk as a result of monetary policy credit operations has increased since October 2008. The collateral framework has been loosened and application of the minimum credit rating threshold has been suspended for marketable debt instruments issued or guaranteed by the Greek, Irish, or Portuguese governments. The rating requirements for certain asset-backed securities have been lowered from two AAA upon issuance to two BBB-minus, provided certain additional criteria are met. At the same time, national central banks have been given some individual discretion to set their own criteria for accepting additional performing credit claims in divergence from those applying to the Eurosystem as a whole. These national central bank-specific criteria are extremely varied and may, for example, specify a lowering of the minimum credit rating threshold to an annual probability of default of 1.5 percent or the acceptance of loan portfolios. The principle of loss sharing among the national central banks of the Eurosystem does not apply to these credit claims. The Bundesbank will provisionally refrain from accepting any additional credit claims.

However, stricter risk control measures are now being applied. These include, for example, higher haircuts and

rating requirements for asset-backed securities as well as tighter rules regarding underlying assets. In parallel with the permanent reduction of the Eurosystem’s minimum credit rating threshold to BBB-minus (previously A-minus), considerably higher haircuts were introduced for this collateral. In addition, since March 2012, national central banks have been allowed to refuse to accept government-guaranteed uncovered bank bonds as collateral if the country providing the guarantee is receiving assistance under an EU or IMF program or if its rating is below the Eurosystem’s minimum credit rating threshold. The Bundesbank has decided not to accept uncovered bank bonds from Greece, Portugal, and Ireland as collateral as of May 10, 2012.

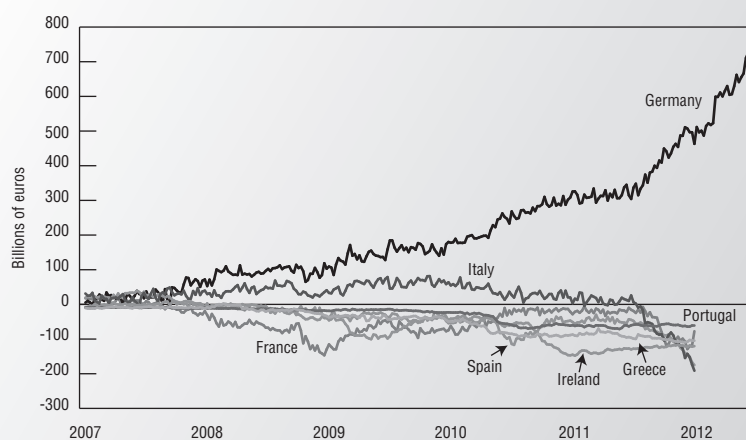
The principle that a double default must occur in order for financial losses to actually set in does not, however, apply to monetary policy securities portfolios created by the Eurosystem as part of the Securities Markets Programme in particular. They clearly entail greater risks for the Eurosystem because, by purchasing securities and retaining them on its balance sheet, the Eurosystem alone bears the issuer’s entire risk of default without any hedging. As the Eurosystem intends to hold all purchased securities until maturity, market, interest rate, and liquidity risks do not apply. The large amount (around €211 billion) of purchased long-term government bonds issued by highly indebted euro area countries means that the central banks of the Eurosystem will have to accumulate appropriate provisions. This is the only way to ensure that the potential risk of default is taken into account in line with the principles of conservative accounting. The central bank profits, which the Eurosystem transfers to the euro area

countries, may therefore be considerably lower for some time to come. By refraining from distributing potential profits, the Eurosystem can effectively make provisions for the heightened credit risk. For precisely this reason, the Bundesbank has been substantially increasing its risk provisions in its annual accounts since 2010.

RISKS FOR THE BUNDESBANK

As an ECB shareholder, the Bundesbank could be indirectly affected by risks to which the European Central Bank is exposed. The public debate on TARGET2 balances, which have risen significantly since 2008, deals with the same issue. The higher balances pri-

Development of TARGET2 balances at national central banks



Source: European Central Bank

marily reflect the crisis of confidence in the banking sectors of some euro area countries and the turmoil on the interbank market. Banks are therefore increasingly turning to the Eurosystem as an alternative source of funding given that the Eurosystem has considerably expanded its refinancing operations in both quantitative and qualitative terms in response to the crisis. The real problem is the risks stemming from the Eurosystem's refinancing operations with these banks; the TARGET2 balances are merely a symptom of these underlying risks.

The TARGET2 balances would only become important in their own right if, hypothetically speaking, a country with a negative balance were to exit the euro area and the national central bank of that country were unable to settle all its liabilities to the European Central Bank. Were this to occur, it would be necessary to devise a strategy for settling the remaining difference, for example by means of a repayment schedule. Only if the residual claim were unrecoverable would the European Central Bank incur a loss on its balance sheet. ECB losses are initially offset by current income and risk provisions. Any necessary additional compensation would be decided upon by the national central banks in their capacity as shareholders on the ECB Governing Council based on a capital majority. However, only the national central banks' shares in the European Central Bank's capital—and not their TARGET2 balance—are relevant for their resulting balance sheet risk.

Conversely, TARGET2 balances will decline as banks' confidence in each other rises and they can go back to refinancing on the market rather than via the Eurosystem.

How do we assess the heightened financial risk associated with the crisis-related measures with regard to central banks' equity capital? The assets purchased by the Eurosystem during the sovereign debt crisis constitute an ongoing transfer of risk from the private to the public sector. Any losses would be socialized. Unlike a private enterprise, however, a central bank can never become illiquid and therefore technically insolvent.

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Central banks can always hold assets until maturity, which is why they are only exposed to credit risk and not to liquidity or interest rate risk. Losses incurred by national central banks do not necessarily have to be offset directly via additional capital injections from their owners and a loss brought forward would have no impact on the Bundesbank's business requirements. However, losses could potentially damage a central bank's reputation. Its capital is therefore more a mark of its political independence, reputation, and credibility with regard to the implementation of monetary policy. Were a central bank to incur losses, credible communication would ultimately be key to shoring up public confidence in its willingness and ability to continue pursuing its primary monetary policy objective, which is to safeguard price stability.

FUNDAMENTAL FOCUS ON PRICE STABILITY

Finally, I would like to highlight a few fundamental points regarding the central banks' non-standard policy measures in response to the crisis.

Under normal circumstances, it is preferable for central banks to have lean balance sheets entailing a low level of risk. In times of crisis, however, this ideal cannot necessarily be achieved. Monetary policy portfolios with government (or quasi-government) assets carry a great deal more weight for other central banks outside the Eurosystem and, in some cases, are coordinated with the state. This is fundamentally questionable as there is no democratic legitimacy for fiscal financing via the central bank balance sheet.

Furthermore, the euro area is a monetary union, not a fiscal union. And introducing a *de facto* fiscal union through the back door—via the central bank balance sheet—would undermine the democratic rights of the euro area's citizens. In the worst-case scenario, the crisis could imply further costs. And the decision on how the euro area should pay these costs has to be taken by elected representatives in the parliaments. Central banks are not authorized to make decisions on this matter.

This is why the clear separation between fiscal and monetary policy must not be compromised. Monetary policy should resume its exclusive focus on price stability in the euro area as soon as possible. This is the primary task of the European Central Bank and the national central banks in the euro area, which they have been successfully accomplishing independently of the political world since the launch of monetary union. I am convinced that the temporary non-standard measures in response to the crisis will do nothing to change the Eurosystem's fundamental focus on price stability in the future. ◆