Weak Inflation and Threat of Deflation in the Euro Area: Limits of Conventional Monetary Policy

by Kerstin Bernoth, Marcel Fratzscher, and Philipp König

Inflation in the euro area has been below the European Central Bank's target for almost a year now and is also expected to remain at a very low level in the near future. On the one hand, such a low level of inflation is not in line with the ECB's objective. On the other hand, there is the risk that this situation will lead to a slide into deflation. In view of the ECB's historically low base rates, the question arises as to which monetary policy options are available. In order to counteract possible deflation, primarily unconventional measures remain open to the ECB, such as outright purchases of securities. But the onus is also on fiscal and economic policy to actively address low inflation and the risks of deflation.

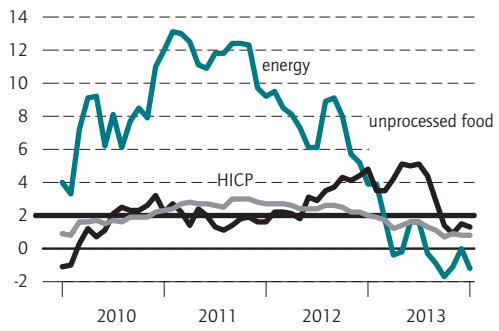
Current inflation trends further fuel fears that the euro area may slide toward deflation. For slightly more than two years, the inflation rate, as measured by the Harmonised Index of Consumer Prices (HICP), has continued to decline. In January 2014, at just 0.8 percent, inflation was significantly lower than the medium-term target of almost two percent set by the European Central Bank (ECB). This development is partially due to the rate of change in energy prices which has been on a downward trend for more than a year and the slow growth of unprocessed food prices. However, at under one percent, January's core inflation adjusted for both of these components was also very low (see Figure 1).

Inflation Very Low Throughout Euro Area

The rates of inflation (measured by HICP) in the individual member states of the euro area vary greatly from -1.6 percent (Cyprus) to 1.9 percent (Finland). In January, infla-

Figure 1

Inflation Rates in the Euro Area
In percent



Source: EZB.

The inflation rate in the euro area has been below the ECB target for almost a year now.

Box 1

Deflation and Its Impact

Deflation limits the ability of monetary policy to ensure price stability using traditional and well-proven monetary instruments. The mandate of price stability refers not only to countering rising prices but also to preventing a general price decline. Typically, a central bank counteracts inflationary developments by raising interest rates and deflationary developments by cutting interest rates. However, if it has lowered its interest rates to almost zero, it can no longer stop continued price declines solely using an interest rate policy. A central bank will then only have unconventional measures at its disposal to raise prices and/or inflation expectations.

Deflation also brings the threat of a self-reinforcing spiral in which the deflationary expectations of economic actors encourage them to spend, which reduces aggregate demand, and thus reinforces or causes deflation.[1] A key determinant of the spending and saving behavior of households and companies is the (long-term) real interest rates. If a deflationary development and therefore a rise in real interest rates is expected, household and business investment and consumer spending decrease in favor of saving. This, in turn, leads to a downward pressure on prices of goods and real assets and can therefore cause a downward price spiral and a recession; the Central Bank is only able to break this spiral using conventional means as long as it has not yet reached an interest rate of zero.

In addition, deflation represents an acute threat to financial stability since debt problems, financial crises, and deflation may reinforce one other. On the one hand, deflation increases the real burden of debt on borrowers and debtors and thus compounds the risk of them running into financial hardship. On the other hand, debt problems reinforce deflationary tendencies. The current literature assigns these to three transfer channels: (a) Borrowers try to lower real debt burdens, which are rising due to deflation, by distress-selling assets in order to service their debts with the proceeds. As long as debtors have a higher spending tendency than their creditors, this process will, on aggregate, lead to a contraction of overall economic demand and a further fall in prices.[2] (b) Furthermore, distress sales also exert downward pressure on asset prices, which not only results in (higher) losses for business entities that rely on these sales to service their debts, but also leads to losses for owners with similar portfolios not yet in financial hardship. This increases the number of distress sales and, in turn, decreases overall economic demand and intensifies deflationary pressure.[3] (c) A large portion of the losses from bankruptcies caused by deflation has burdened the financial and banking sector; this hinders the financial intermediation process. The consequences are a significant deterioration in the financial conditions of the real economy and a credit crunch. They also reduce consumption and investment spending and reinforce the initial deflationary development.[4]

1 This applies equally to self-fulfilling inflationary expectations, however, with inflation, there isn't the problem of the zero interest rate boundary and therefore an explicit restriction on conventional monetary policy. The Central Bank always has, technically, the option to increase interest rates indefinitely. An example of such a policy was the successful combating of high inflation in the US by Paul Volcker and the Federal Reserve in the early 1980s using widely unpopular, yet more effective, high average base rates.

2 I. Fisher, "The Debt-Deflation Theory of Great Depressions," Econometrica 1 (4) (October 1933): 337-357.

3 H. Minsky, "Can 'It' Happen Again" in "Can 'It' Happen Again?," Essays on Instability and Finance (Armonk, NY: M.E. Sharpe Inc., 1982).

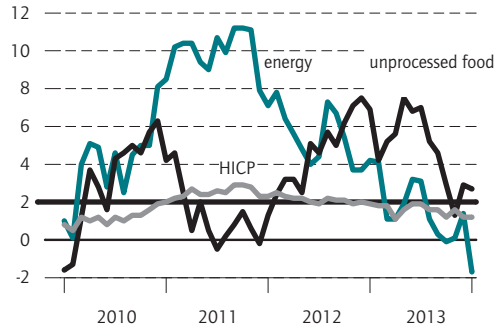
4 B. Bernanke, "Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression," The American Economic Review 73 (3) (1983): 257–276. For an overview and a stylized model of these three channels, see also G. Peter, "Debt-Deflation: Concepts and a Stylised Model," Working Paper no. 176 (Bank for International Settlements, April 2005).

tion in Germany was at 1.2 percent, slightly higher than the euro area average. The same applies to core inflation which is currently at approximately 1.5 percent in Germany (see Figure 2).

Currently, Greece (-1.4 percent) and Cyprus are the only member states experiencing deflation, though inflation is at a historic low in all the other crisis countries (Spain: 0.3 percent, Italy: 0.6 percent, Ireland: 0.3 percent, Portugal: 0.1 percent) and even the larger euro area coun-

Figure 2

Inflation Rates in Germany
In percent

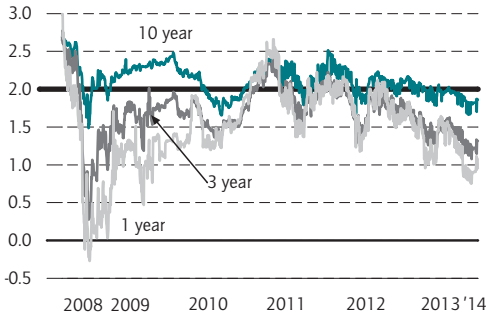


Source: EZB.

Although higher than in many other parts of the euro area, the inflation rate in Germany is still very low at 1.2 percent.

Figure 3

Inflation Expectations Derived from Inflation Swaps
In percent



Sources: Thomson Reuters; calculations by DIW Berlin.

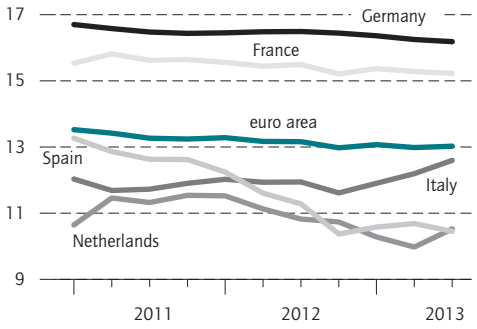
Despite historically low interest rates, the savings rates in large parts of the euro area have not declined substantially.

tries have very low inflation (France and the Netherlands: 0.8 percent).

Is the euro area at risk of sliding into a self-reinforcing deflationary spiral, which, at the same time, could also undermine the financial stability of the currency union by exacerbating public and private debt (see Box 1)? To date, the ECB has answered this question with a resounding "no." On the one hand, it argues there is currently no evidence of delayed spending. On the other hand, it states that long-term inflation expectations in the euro area are firmly anchored to the ECB's target level. Both of these developments would be prerequisites for a self-reinforcing deflationary cycle. However, the ECB assumes that inflation is likely to remain subdued for some time.[1] Nevertheless, an extended period of very low inflation could also seriously damage the economy and negatively impact the adjustment processes in the euro area. On the one hand, it makes the necessary debt reduction process in both the private and public sectors more difficult, particularly in the crisis countries. The lower the inflation rate, the more difficult it is to reduce the real debt burden. On the other hand, nominal wages tend to display downward rigidity. Very low inflation therefore results in minimal downward flexibility of real wages too, which, in turn, impairs and slows the generation of competitiveness in the crisis countries. Further, a prolonged period of low inflation actually increases the risk of sliding into deflation.

Figure 4

Gross Savings Rate of Households
In percent, moving four-quarter average



Source: Eurostat.

The savings rates of households have remained constant in large parts of the euro area.

Short and Medium-Term Inflation Expectations Only Loosely Anchored

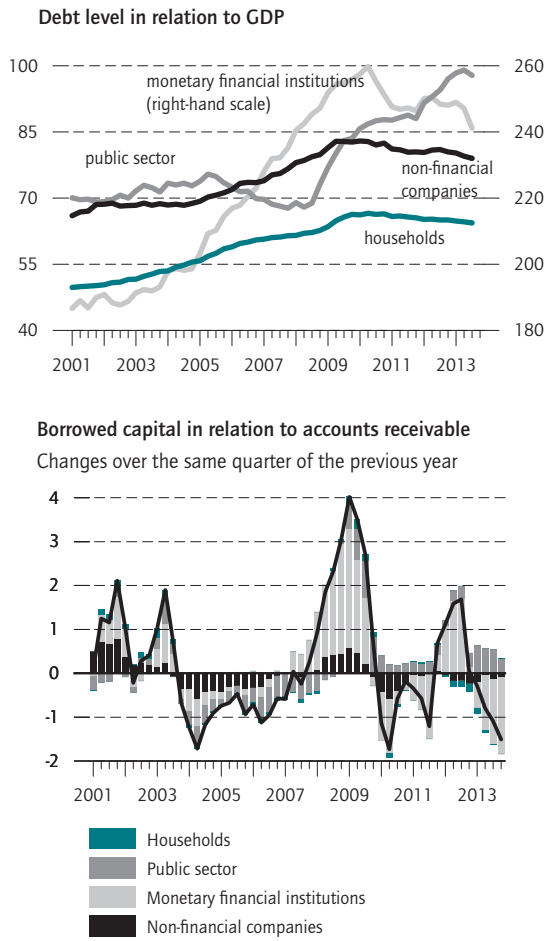
One indication that low inflation rates can be anticipated for the longer term is that inflation expectations in the euro area have declined significantly in recent months. Consequently, even inflation forecasts from the ECB's "Survey of Professional Forecasters" lie within a range that is unlikely to meet the ECB's target, at least for the

1 See also the transcript of the press conference held by ECB President Mario Draghi on February 6, 2014.

Figure 5

Debt Level and Debt Reduction in Sectors in the Euro Area

In percent



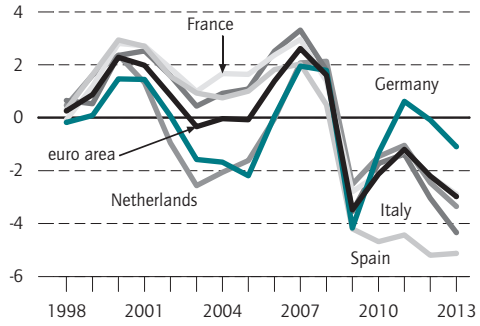
Sources: EEA/ECB, taken and updated from P. Cour-Thimann and B. Winkler, "The ECB's non-standard monetary policy measures: the role of institutional factors and financial structure," Oxford Review of Economic Policy 28, no. 4 (2013): 765–803.

Debt is being reduced, particularly in the private sectors, which has led to weakened demand and subdued price development.

Figure 6

Output Gap

In percent of output potential



Source: Eurostat.

The economy in the euro area is producing significantly less than its potential and Germany also recorded a negative output gap last year.

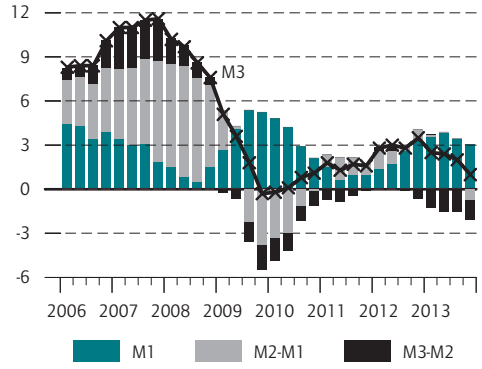
next two years. In January 2014, those surveyed anticipated an average inflation rate of 1.1 percent for 2014, 1.4 percent for 2015, and 1.7 percent for 2016. Further, almost a third of those surveyed even forecasted an inflation rate of less than one percent for 2014. The markets' inflation expectations derived from inflation swaps are significantly lower even than the survey forecasts. In addition to declining price growth in the euro area, the last few months have seen a sharp drop in expectations for the next few years (see Figure 3). The decline in short-term inflation expectations was particularly significant. Between July and December, the prices for one-year inflation swaps dropped from approximately 1.6 percentage points to around just 0.8 percentage points. Also for the medium term, the markets expect an environment of persistently low inflation; for the next three years, average inflation is expected to reach are only 1.3 percentage points. Only long-term inflation expectations over the next ten years are, at 1.8 percent, in line with the ECB's definition of price stability. However, not so much credence should be placed on long-term inflation expectations. First, it is the short and medium-term expectations that are key for actual price and wage developments. Second, the case of Japan demonstrates that a country can still slide into deflation despite long-term inflation expectations being firmly anchored at a high level.[2]

If we also take into consideration that inflation has been lower than two percent for almost two years now and, according to market expectations, will not move above this level for at least the next three years, there is good reason to question whether the ECB can fulfill its price stability mandate. In view of the fact that expectations are below the inflation target, there is, therefore, the risk of an extended period of very low inflation and possibly even deflation in the euro area.

2 IMF, "The dog that didn't bark: Has inflation been muzzled or was it just sleeping?," World Economic Outlook, chap. 3 (April 2013).

Figure 7

Growth in M3 Money Supply and Its Components
Growth contributions and growth rate in percent

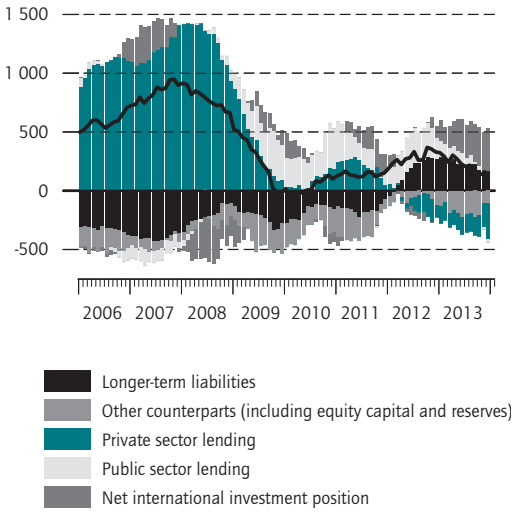


Source: ECB.

The monetary growth rate continued to fall last year. More recently, the only positive growth contributions observed came from the expansion of short-term components in the M1 aggregate.

Figure 8

Development of M3 Counterparts
Changes over previous year, in billion euros



Source: ECB.

Among other developments, the decline in private sector lending has subdued monetary growth. However, more recently, strong growth in the net international investment position has been observed.

Weak Monetary, Credit, and Macroeconomic Demand

Despite the historically low interest rates, the savings rates of households in large parts of the euro area are currently relatively stable and even on the increase (see Figure 4); instead of taking advantage of the low interest rates to bring about higher consumer and investment spending, the private sector is particularly focused on alleviating its debt burden (see Figure 5). Combined with the large negative output gap in the euro area as a whole and in the individual member states (see Figure 6), this is having a dampening effect on price growth.

Monetary and credit development in the euro area has also been weak in the last few quarters and shows no signs of an imminent inflationary trend anytime soon. On the contrary, the decline in monetary growth observed since October 2012 has continued in the past 12 months (see Figure 7). Although the broad money supply (M3) still increased by 3.4 percent in January 2013 compared to the same period of the previous year, at only one percent, December's growth rate was significantly below the ECB reference level of 4.5 percent.[3]

The only positive contribution to M3 growth in the last six quarters has come almost exclusively from the expansion of very short-term components (overnight deposits and cash) whereas the reduction in marketable instruments such as fixed-term deposits and money market funds had a dampening effect on monetary growth in 2013. One reason for this could be the restructuring of portfolios shifting the focus from longer-term to short-term investments and the consistently high liquidity preference of investors. Further, this development also reflects the low financing requirements of the banks which have accompanied the debt reduction process in the banking sector.

As a counterpart to M3, the low monetary growth rate in particular resulted in more restrictive private sector lending during the course of last year (see Figure 8).[4] As a consequence, the total aggregate assets of monetary financial institutions in the euro area have declined by around 4.4 billion euros or 12.7 percent since May 2012 (see Figure 9). German and Spanish banks reported the strongest negative contributions to growth last year.

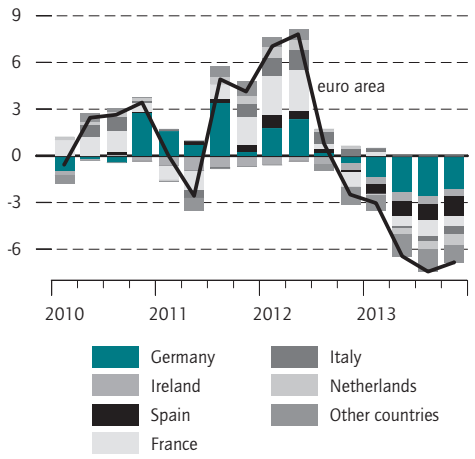
3 Within the framework of its two-pillar monetary policy, since 1998, the ECB has been using a reference value for broad money supply M3 growth of 4.5 percent.

4 This development which has an inhibitory effect on monetary dynamics was offset, in particular, by a significant improvement in the net international investment position. However, this was shaped less by increases in the monetary financial institutions' external financial assets and was much more due to a significant reduction in external liabilities and therefore reflected an increasing restructuring of investors outside the euro area toward lucrative security investments in the euro area.

Figure 9

Change in Aggregate Balance Sheet Total of Monetary Financial Institutions

Growth contributions of countries in percent



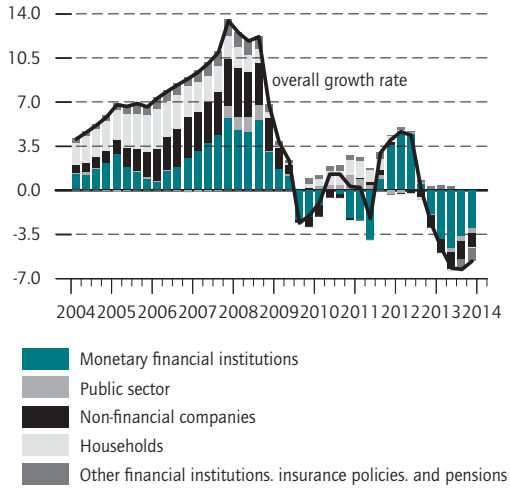
Source: ECB.

The aggregate balance sheet total of the banking sector has contracted significantly since 2012.

Figure 10

Change in Business Lending in the Euro Area

Growth contributions in percent



Source: ECB.

Lending within the MFI sector and to non-financial companies in particular fell sharply.

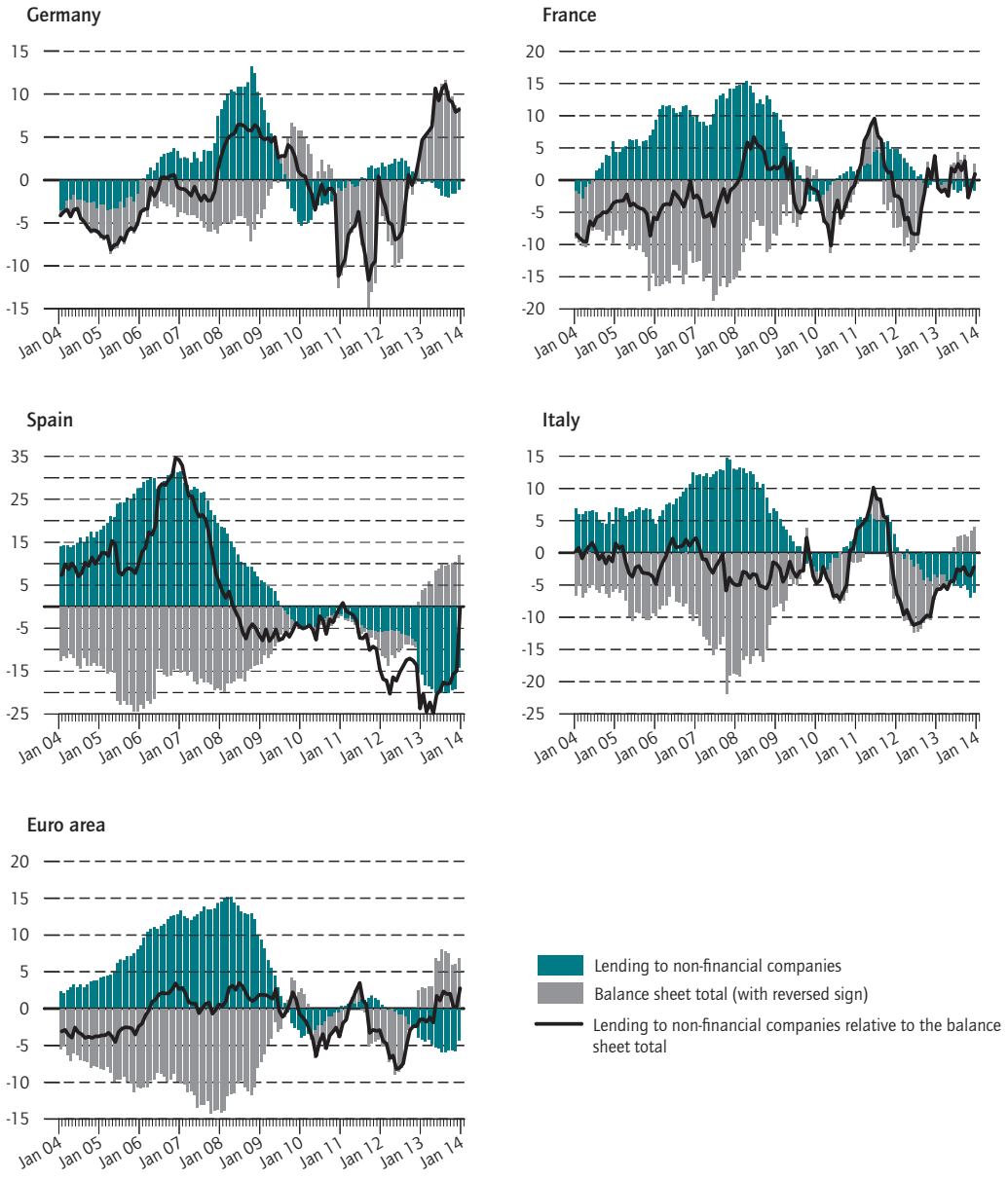
The decline in the balance sheet total on the assets side was primarily due to downturn in lending to businesses located in the euro area, and especially a reduction in interbank loans and loans to non-financial companies (see Figure 10). A comparison of the economically most important member states shows that the decline in lending to non-financial companies was particularly pronounced in Spain and Italy, whereas in Germany and France this dip was much less significant (see Figure 11). The drop in lending to businesses is probably, to a great extent, determined by demand-side factors. The ECB Bank Lending Survey shows that banks only tightened their lending standards slightly, particularly during the second half of 2013 (with the exception of Italy) (see Figure 12). At the same time, the banks surveyed reported a consistently very strong decline in demand for business loans over the course of last year, although the downturn was slightly more pronounced among larger companies than among small and medium-sized enterprises (see Figure 13).

On the one hand, the low lending levels are likely due to the adverse economic situation in the euro area in recent months. Therefore, in view of the slight improvement in the economic climate on the periphery recently, lending to businesses is expected to stabilize. On the other hand, it is also likely that the extremely unfavorable credit conditions in the crisis countries have contributed to low lending levels. In these countries, the average loan interest rates for non-financial companies, for example, continue to differ substantially (currently by over 1.3 percent) from interest rates in the rest of the euro area (see Figure 14). In December, for instance, interest rates for medium and long-term loans to non-financial companies in Germany were, on average, approximately 2.8 percent, while in Spain and Italy, they were around 80 and 65 basis points higher. The interest rate difference is even more marked for small-volume loans where the variance between Germany and Spain was a good 200 basis points. The situation with lending to households is similar and, in fact, the interest rate differences between crisis and non-crisis countries are, in some cases, even significantly higher.

In summary, it can be concluded that a series of developments point towards the likelihood of a prolonged period of low inflation that is unlikely to be in line with the ECB's price stability mandate. Further, when it comes to current inflation, the downside risks tend to outweigh the upside risks.

Figure 11

Lending to Non-Financial Companies in Relation to the Balance Sheet Totals of Banks
Change over the same month in the previous year, in percent



Source: ECB.

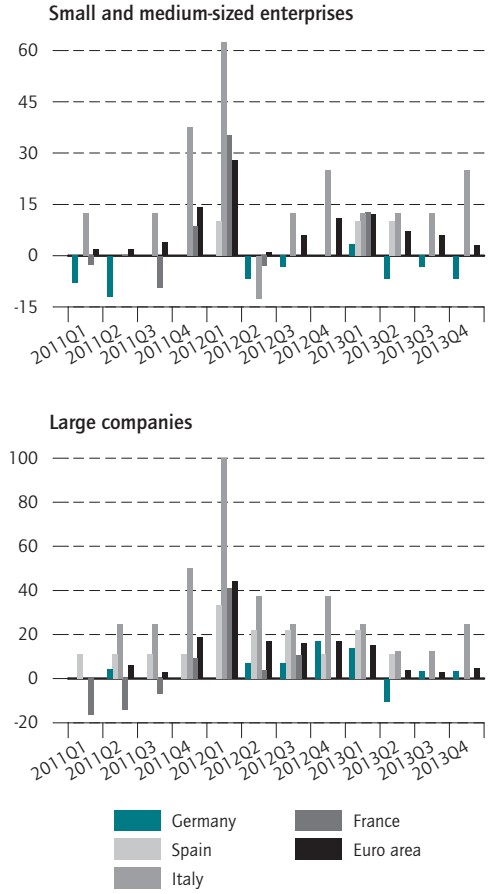
Particularly in Spain and Italy, lending to the non-financial sector compared to the overall bank balance sheet fell sharply last year. In Germany, the downturn in lending was considerably less pronounced.

Adjustments in Euro Area Increase Risk of Deflation

However, the current weak price development in individual member states is also a key feature of the adjustment process within the currency area that became inevitable as a result of the crisis. This process is crucial for the stability and preservation of the common currency.

Figure 12

Change in Lending Standards
Net balances (+ tightened, - relaxed)

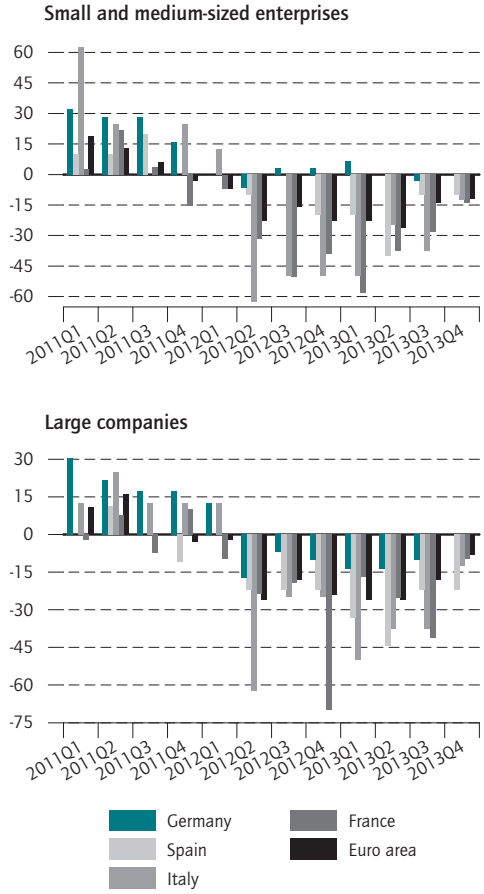


Source: ECB (Bank Lending Survey).

In the last half of the year there was only a minimal tightening of lending standards (with the exception of Italy).

Figure 13

Change in Demand for Loans
Net balances (+ increased, - decreased)



Source: ECB (Bank Lending Survey).

According to the banks surveyed, demand for loans declined sharply.

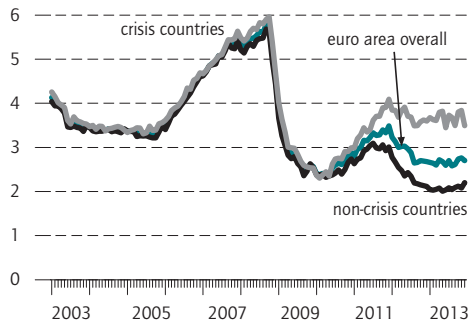
Prior to the crisis, the current crisis countries saw their price competitiveness decline relative to countries such as Germany and the Netherlands. While unit labor costs in Germany only increased slightly and even fell due to productivity gains and wage restraints, productivity growth in Spain and Italy continued to lag behind the consistently strong wage increases (see Figure 15). Moreover, favorable credit and refinancing conditions allowed massive debt levels to develop, both in the private and the public sectors. These undesirable developments now have to be rectified. For price competitiveness to be restored in the crisis countries, there must be a sufficiently strong drop in prices and wages and the excessive debt must be reduced. These developments are necessarily linked to low spending and high savings rates which counteract an increase in general pricing levels. Although the countries affected by the crisis have already made significant progress in the adjustment process, it can on no account be seen as concluded. Therefore, we should continue to expect deflationary tendencies, at least in the crisis countries, in the coming quarters as well.[5]

It is therefore all the more important that, particularly in the economically stable euro area countries, inflation does not continue to decline, on the one hand, so as not to slow down the convergence and adjustment process,

5 See also Fichtner et al., "Frühjahrsgrundlinien," DIW Wochenbericht, no. 11 (2014).

Figure 14

Loan Interest Rates for Non-Financial Companies
In percent, volume-weighted average across all terms



Source: ECB.

Loan interest rates for non-financial companies in the crisis countries are substantially higher than the euro area average and loan interest rates in the non-crisis countries.

on the other hand, so as to prevent a slide into deflation occurring throughout the euro area.

Monetary Policy Decisions in the Past 12 Months

Given the developments described above, the monetary policy stance of the European Central Bank (ECB) has remained expansive for the last 12 months. In May and November 2013, the ECB reduced its base rates. In both cases, the main refinancing rate was also reduced by 25 basis points and the marginal lending rate initially also by 25 and then by as much as 50 basis points. The deposit rate, which was already at zero percent in July 2012 when the interest rate was cut, remained unchanged in both cases. Consequently, the base rates are currently at a historic low of 0.25 percent (main refinancing rate), 0.75 percent (marginal lending rate), and zero percent (deposit rate) (see Figure 16).[6]

Further, the ECB has also introduced an important new change to its communication strategy. In July 2013, it announced that it would be keeping its base rates at a low level for an extended period of time. This is the first time that the ECB has made a statement about the future direction of its monetary policy (forward guidance). In contrast to the US Central Bank (Federal Reserve Bank), however, the ECB is using a much weaker form of forward guidance; it specifies no explicit quantitative upper or lower threshold values outside of which interest rate increases would be necessary.[7]

The purpose of forward guidance is to steer the expectations of market participants with regard to future monetary policy decisions. On the one hand, the uncertainty surrounding the future path of the base rate and consequently also financial market volatility is reduced. On the other hand, forward guidance can play an important role precisely as the base rates approach zero. According to the expectation hypothesis of the term structure of interest rates, the long-term interest rate will be the same as the average anticipated short-term interest rate in the future. The announcement by the Central Bank that it would keep the base rate at a low level for an extended period therefore resulted in downward pressure on longer-term interest rates without actually having to reduce the base rate; given the zero interest rate, this would hardly have been possible anyway.

Looking at the prices for three-month Euribor Futures maturing in June 2014 or June 2015, it is clear that the interest rate expectations on the money market have subsequently also adjusted downwards in recent months (see Figure 17). Although in August last year, the markets still expected a money market interest rate of around half a percentage point for mid-2014 and approximately one percentage point for mid-2015, over time, they significantly revised these expectations downwards; currently, expected interest rates are at just 0.35 and 0.25 percentage points, respectively. In part, this reduction is due to declining inflation expectations but it also reflects the markets' assumptions that the ECB will maintain its expansive monetary policy course for the next two years.

Monetary Policy Options

In the current environment of low inflation, what options does the ECB have to counter the risk of deflation in line with its mandate?

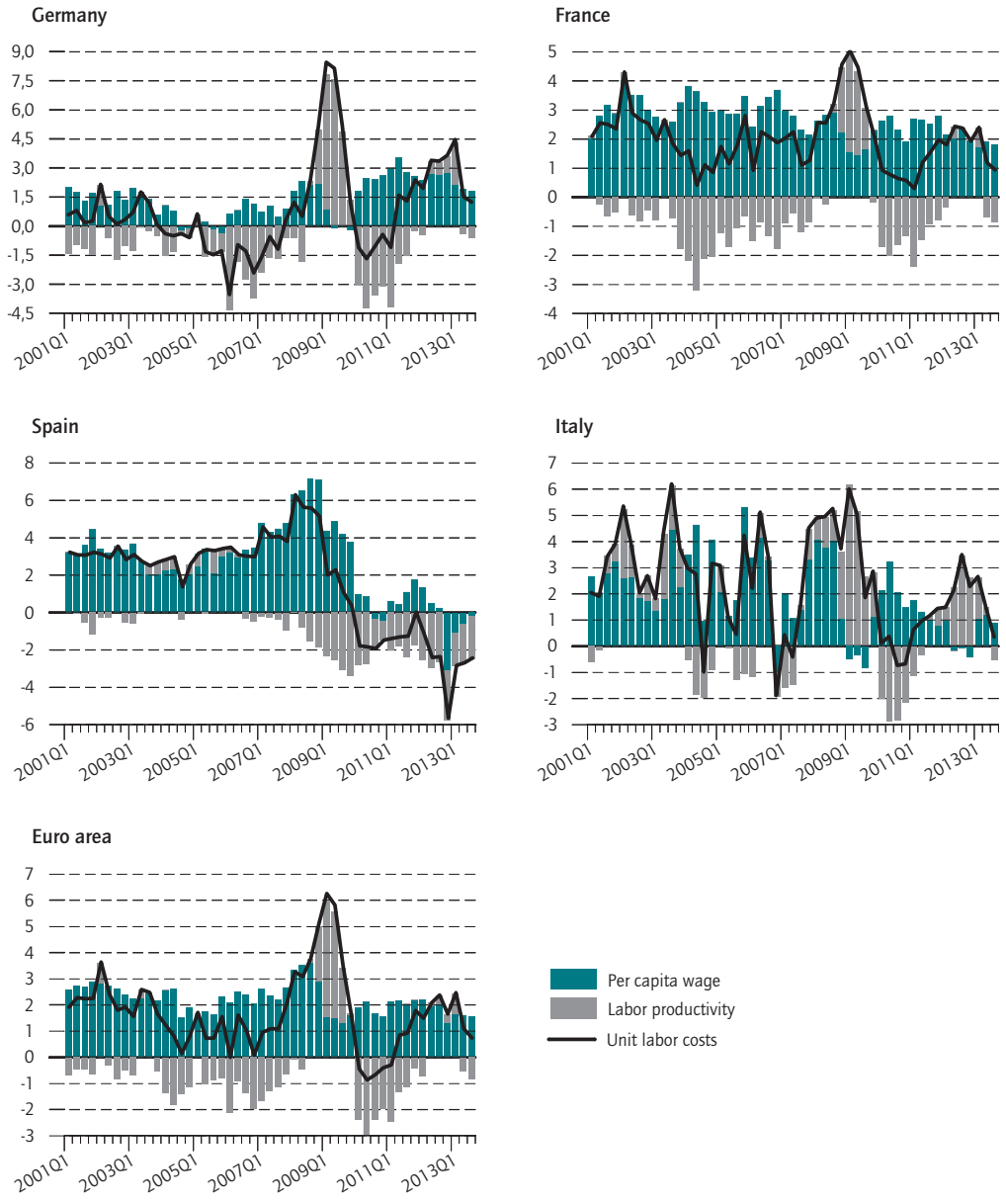
It can probably be assumed that credit developments in the crisis countries are weak due to demand rather than supply, and the accompanying deflationary trends are attributable to the poor economic situation. Although

6 Since the deposit rate was not changed in this case either, the cut in interest rates also induced an asymmetric interest rate corridor. Although an asymmetric corridor is normally likely to make the implementation of monetary policy slightly more difficult, in the current environment which continues to be shaped by relatively high excess liquidity, this development had no further consequences.

7 See also "Die EZB und Forward Guidance" in Fichtner et al., "Herbstgrundlinien," DIW Wochenbericht, no. 38 (2013): 37.

Figure 15

Change in Unit Labor Costs
In percent



Source: ECB.

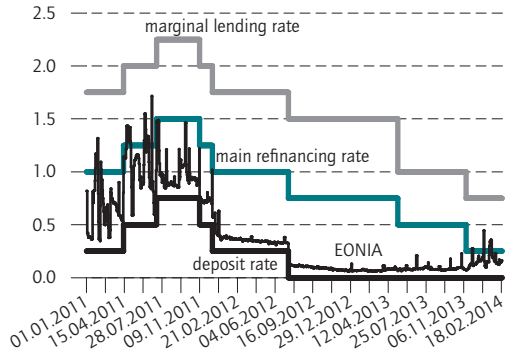
Productivity growth in Spain and France lagged significantly behind wage increases. Consequently, in the course of the adjustment process, particularly in Spain, there were a large number of redundancies, which also resulted in increases in productivity.

reducing the high debt burden in these countries and the associated restraints on new spending and additional borrowing is perfectly rational from the individual perspective, the situation in Japan shows that such behavior, on aggregate, is capable of driving the economy into a balance-sheet recession. The accompanying deflation may continue for a long time and is hard to control through unconventional monetary policy means; since the cause of the deflation in this case is reduc-

Figure 16

ECB Base Rates and Short-Term Market Interest Rate (EONIA)

In percent



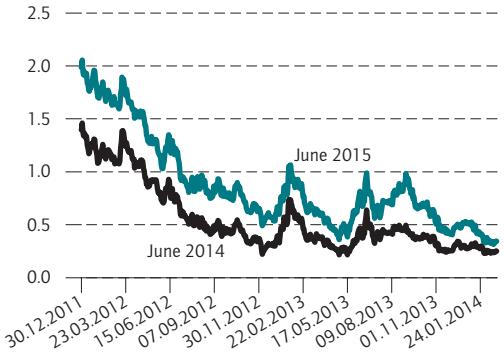
Source: ECB.

The ECB base rates are at a historic low. While, for a long time during the crisis, the market interest rate nestled alongside the deposit rate and only fluctuated to a limited extent from 2012 to 2013, it has now gradually begun to align itself with the main refinancing rate and, moreover, is also displaying somewhat greater volatility.

Figure 17

3-Month Euribor Futures

In percent



Sources: Thomson Reuters; calculations by DIW Berlin.

Interest rate expectations on the money market for June 2014 and June 2015 have decreased substantially in the last few months.

ing the excessive debt amassed, the Central Bank's options are limited.[8]

Monetary policy measures aimed at improving credit supply conditions are therefore not likely to be very effective at present. Rather, monetary policy and other policy instruments should be chosen that can stimulate credit and investment demand long term.

Given the improved situation currently in the financial markets, the introduction, for example, of new longer-term refinancing at existing conditions as a means of stimulating investment and credit demand would not be particularly effective. The demand for liquidity in the banking sector has consistently declined in recent months. Banks have prematurely repaid a large proportion of their loans from former operations with three-year terms. For this reason, among others (and due to expiring securities purchased through the ECB's purchase programs), excess liquidity has decreased significantly in recent months. While at the start of 2013 it was still around 620 billion euros, it fell continuously over the course of the year and averaged 127 billion euros during the last reserve period (see Figure 18). The ECB's provision of unlimited liquidity, which was extended again in July 2013 to 2015, certainly makes it easier to refinance new loans but does not significantly benefit the real economy because of the lack of demand for credit.

The reintroduction of longer-term refinancing in combination with forward guidance might be an option. The ECB could offer, for example, another tender with very long terms and fixed at current low interest rates instead of keeping the interest variable as in the previous three-year operations. This would signal to the markets a prolonged phase of low-interest rates and could therefore help stimulate demand for credit.[9] It is questionable, however, whether the banks would be at all willing to lend the additional liquidity.

In addition, the ECB would still have the option of purchasing securities at lower long-term interest rates, thereby stimulating spending and investment behavior by households and companies, and to counteract further price erosion (see Box 2).

This could be achieved by purchasing securities from private issuers or purchasing government bonds. Securities purchase programs have already been successful-

8 Richard C. Koo, The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession. (Singapore: John Wiley & Sons).

9 See also T. Wollmershäuser, "Die Geldpolitik der EZB in der Klemme. Kann mehr Forward Guidance helfen?," ifo Schnelldienst 22 (66) (2013), November 25, 2013 for an argument in favor of a stronger form of the ECB's forward guidance.

Box 2

US, British, and European Central Banks' Purchasing Programs

During the crisis, the US Federal Reserve Bank (Fed), the Bank of England (BOE), and the ECB implemented extensive programs for the definitive acquisition of securities (see table). The programs are best divided according to their officially pursued objectives. The first program by the Fed was primarily conducted to improve credit conditions for households. The second and third programs had the broader goal of supporting the economic recovery after the crisis and reducing longer-term interest rates. The program known as "Operation Twist" was also aimed at lowering longer-term interest rates and improving financing conditions for the private sector.[1] The Fed's programs, with the exception of "Operation Twist," also had a direct effect on liquidity since the amount of central bank money in circulation increased to the amount of the purchases and thus extended the Fed's balance sheet. However, this increase was not, in itself, the objective of the respective programs which is why the Fed called its first two programs "credit easing" rather than "quantitative easing."[2] In contrast, it was the declared aim of the Bank of England to increase the monetary base and thus nominal demand in the sense of "quantitative easing" by purchasing British government bonds.[3] The ECB's covered bonds purchase programs were ultimately part of its "enhanced credit support," the objective of which was also to improve credit and financing terms;[4] the ECB's Securities Markets Programme, however, served as a means to alleviate the dramatic impact of the debt crisis on the euro area and was intended, first and foremost, to lower the interest rates of government bonds in certain countries affected by the crisis and to ensure that the monetary policy transfer channel was functioning properly.[5] Since the ECB retrieved additional Central Bank money generated from the purchases with the aid of fixed-term deposits and thus was able keep the liquidity in circulation unchanged, the SMP is not usually referred to as a program of "quantitative easing."

Impact Channels of Bond Purchasing Programs

From a theoretical point of view, the efficacy of bond purchase programs is controversial. As long as investors (a) are willing to hold securities exclusively for their pecuniary returns and (b) can buy or sell any amount of them, purchases by the Central Bank should be "irrelevant." The purchasing of securities by the Central Bank changes its risk income profile. Since Central Bank profits and losses are ultimately added to the national budget, in the long run, they impact on households again through changes in taxation. If the Central Bank buys a bond with a certain risk and maturity profile, households and investors will anticipate any changes in their future tax burdens and behave in such a way as to offset the effects of the Central Bank's bond purchases[6]

The argument against this theory is that the two supporting assumptions (a) and (b) rarely apply in reality and therefore purchase programs actually do have an effect. The key transfer channels usually listed here are:[7]

- Signaling channel: Purchases of longer-term bonds signal that the Central Bank will keep its interest rates down over a longer period of time. If it holds assets with longer terms and higher durations, it will suffer a loss on these assets as a result of the interest rate increase. Since the Central Bank usually aims to avoid such losses, buying longer-term bonds indicates that interest rates will remain low for a longer period of time. As a result, this should reduce the interest on all securities.
- Portfolio balance channel: By buying (longer-term) securities, the Central Bank increases their price. As long as the reserves given a cash injection from the purchases do not represent a perfect substitute for the securities acquired, the seller will want to invest in other asset forms which, in turn, increases the prices of these securities. This process continues until, on aggregate, the economic operators are ready to hold the to-

1 See press releases from the Board of Governors of the Federal Reserve dated November 25, 2008, November 3, 2010, September 9, 2011, and September 13, 2012.

2 B.S. Bernanke, "The Crisis and the Policy Response" (speech at the Stamp Lecture, London School of Economics, London, January 13, 2009).

3 Bank of England, Quantitative Easing Explained (2011) www.bankofengland.co.uk/monetarypolicy/Documents/pdf/qe-pamphlet.pdf.

4 J.-C. Trichet, "The ECB's Enhanced Credit Support" (keynote address at the University of Munich, Munich, July 13, 2009).

5 See ECB press release from May 10, 2010.

6 See, for example, V. Curdia and M. Woodford, "The Central Bank Balance Sheet as an Instrument of Monetary Policy," Journal of Monetary Economics 58 (1) (January 2011): 54–79; the claim that Central Bank purchases have no effect is also known as "Wallace Neutrality" and refers to N. Wallace, "A Modigliani-Miller Theorem for Open-Market Operations," American Economic Review 71 (1981): 267–274.

7 For a detailed explanation of different channels, see A. Krishnamurthy and A. Vissing-Jorgensen, "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy," Brooking Papers on Economic Activity (fall 2011): 215–288.

Central Bank	Program	Start	End	Volume	Liquidity effect	Type of security
Fed	Large-Scale Asset Purchase Program 1	December 2008	March 2010	600 billion + 750 billion	Yes	Mortgage-backed securities
Fed	Large-Scale Asset Purchase Program 2	November 2010	June 2011	600 billion	Yes	Government bonds with a longer maturity
Fed	Maturity and Reinvestment Program ("Operation Twist")	June 2011	December 2012	667 billion + 267 billion	No	Exchanging bonds with shorter maturities for bonds with longer maturities
Fed	Large-Scale Asset Purchase Program 3	September 2012		Initially 40 billion, from December 2012 then an additional 45 -billion per month	Yes	40 billion (mortgage-backed bonds), 45 billion (longer-term government bonds)
BOE	Quantitative Easing	March 2009		375 billion pounds sterling to date	Yes	Government bonds
ECB	Covered Bond Purchase Programme	July 2009	June 2010	60 billion euros	Yes	Covered bonds
ECB	Covered Bond Purchase Programme 2	November 2011	October 2012	Up to 40 billion planned, 16 billion euro actually purchased	Yes	Covered bonds
ECB	Securities Market Programme	May 2010	September 2012	Approximately 210 billion euros	No	Government bonds

tal amount of Central Bank money made available and the assets on the market. Furthermore, the purchases reduce the risk of interest rate changes that holders of longer-term securities face. Consequently, their returns fall and returns on short-term securities rise.

- Liquidity channel: Since the amount of Central Bank money is increased by purchasing securities and Central Bank money is the most liquid asset, liquidity premiums on assets that would otherwise be particularly in demand due to their liquidity, fall.
- Credit channel: The additional liquidity made available by the Central Bank makes it easier for banks to refinance loans to the real economy and should lead to an increased supply of credit and/or better refinancing terms for the real economy.

Empirical Findings on the Effectiveness of the Programs

The majority of studies on the effectiveness of the programs mentioned above have indeed found positive results. There are differences between the programs in terms of the transmission of the effects via the individual channels and the duration of their effectiveness. The Fed's first two purchase programs lowered interest on a wide range of different securities. This was mainly due to the signaling and portfolio balance channels.[8] However, there are findings which certainly suggest that the effects faded again relatively quickly[9] In addition, the Fed's programs also influenced the portfolio decisions of international investors via the portfolio balance channel. As a result, interest rates on government bonds declined, particularly through the first program, while share markets rose around the world. However, although the first program triggered another capital inflow to the US, this was reversed with the second program and capital flows moved increasingly toward emerging markets.[10] The ECB's first covered bonds program, as well as its purchases of government bonds, also achieved a significant impact. While the CBPP lowered longer-term money market rates and was able to improve market liquidity in important segments of the financial market long term, the government bond purchases had a significantly negative impact on returns in secondary markets. The impact of the SMP was felt through the signaling channel, the portfolio balance channel, and the liquidity channel. In addition, the announcements of both the introduction and revival of the program in summer 2011 had significant effects on returns from the corresponding government bonds. But so far it is unclear whether the impact of the purchases will be longer-lasting or only temporary.[11]

8 Krishnamurthy and Vissing-Jorgensen, "The Effects of Quantitative Easing" or J. Gagnon, M. Raskin, J. Remache, and B. Sack, "Large-Scale Asset Purchases by the Federal Reserve: Did They Work?," Federal Reserve Bank of New York, Staff Report no. 441 (March 2010) or J. Meaning and F. Zhu, "The impact of recent central bank asset purchase programmes," BIS Quarterly Review (December 2011): 73–83.

9 J. Wright, "What does monetary policy do to long-term interest rates at the zero lower bound?," The Economic Journal 122 (564) (2012): F447–466.

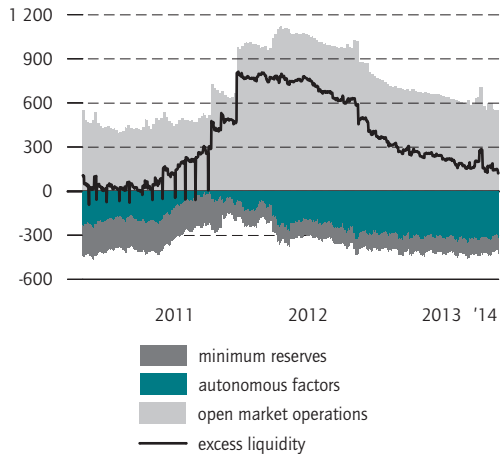
10 M. Fratzscher, M. Lo Duca, and R. Straub, "A Global Monetary Tsunami? On the Spillovers of Quantitative Easing," CEPR Discussion Paper no. 9195, (October 2012).

11 On the effects of the CBPP, see Beirne et al. "The Impact of the ECB's Covered Bond Purchase Program on Primary and Secondary Markets," ECB Occasional Paper Series no. 122 (January 2011). On the effects of SMP, see F. Eser and B. Schwab, "Assessing Asset Purchases within de ECB's Securities Market Programme," ECB Working Paper Series no. 1587 (September 2013), as well as C. Trebesch and J. Zettelmeyer, "ECB interventions in Distressed Sovereign Debt Markets: The Case of Greek Bonds," (mimeo). E. Ghysels, J. Idier, S. Manganelli, and O. Vergote, "A High Frequency Assessment of the ECB's Securities Markets Programme," ECB Working Paper Series no. 1642 (February 2014).

Figure 18

Liquidity Provision, Liquidity Absorption, and Surplus Liquidity

In billions of euros



Sources: ECB; calculations by DIW Berlin.

Excess liquidity has fallen significantly over the past year and is currently at nearly 120 billion euros.

ly used during the crisis by several central banks to reduce medium to longer-term interest rates.

Given the zero interest rate, purchasing longer-term bonds is particularly promising here. In this situation, Central Bank money and short-term (less risky) bonds are very close substitutes, from the investor's point of view. Additional Central Bank money is merely stockpiled and has no stimulative effect. Instead, the Central Bank can reduce longer-term interest rates on a wide range of securities by buying up longer-term bonds and/or bonds with more risk. Such purchases not only have a direct effect on the price of each security purchased, but also an indirect effect on the interest on other securities through the change in market expectations, portfolio shifts, and the increased amount of Central Bank money in circulation.

While the American Federal Reserve can quite easily purchase comprehensive mortgage-backed securities and longer-term government bonds due to the large market volumes in the US, the ECB is restricted in its ability to purchase privately issued bonds because of the much smaller and less liquid markets in the euro area. For comparison: while the Fed has been acquiring monthly mortgage-backed securities to the tune of 45 billion US dollars each month since September 2012, the ECB could only purchase around 16 billion euros as part of its recent program due to a decline in the supply of eligible debentures, among other reasons, although originally it was scheduled to make purchases totaling 40 billion euros.[10] Alternatively, the ECB could buy non-marketable loans which it already accepts as collateral in its operations. However, such purchases would require significantly more monitoring and auditing, and it is questionable whether the ECB would be willing and able to do this.

Thus, the ECB's options are restricted to purchasing government bonds on secondary markets, or to purchasing a mix of government bonds and privately issued bonds, depending on current availability and market conditions. A program of this kind with a monthly target for the volume of purchases would extend the ECB's currently limited scope and allow it to influence longer-term interest rates and interest rates in different market segments. It should be emphasized here that such purchases do not have the same objectives as the Securities Market Programme or the ECB's current Outright Monetary Transactions Programme. They had or have the goal of reducing interest rates only for certain countries experiencing financial hardship. Purchases of government bonds to reduce longer-term interest rates should, in contrast, include bonds from all member countries and be subject to a particular weighting (for example, according to the ECB's capital key); thus, the general level of interest rates would be reduced and not necessarily the interest rate differentials between the countries.[11] Given the persistently low inflation and the possibility that the euro area could slide into deflation, it is essential that such a program is given the required support through economic policy, if it should actually become necessary. In addition, the ECB's narrow scope shows, however, that the current situation requires more than just monetary policy measures. In particular, economic and financial policies are required to sustainably promote growth and investment.

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10 See ECB press release from October 31, 2012.

11 In principle, a program of this kind does not conflict with prohibited government monetary financing (Article 123 TFEU) because the purchases are made on secondary markets and should be in accordance with the ECB's provisions on the implementation of monetary policy in the euro area. However, the debate concerning OMT in Germany has certainly shown that one can come to a different conclusion.

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