

## Recent Monetary Policy Developments in the EMU



**REPORT** by Marius Kokert, Dorothea Schäfer, and Andreas Stephan

### Low Base Interest Rates: An Opportunity in the Euro Debt Crisis

3

**INTERVIEW** with Dorothea Schäfer

### »The ECB's Policy of Low Interest Rates Is Indispensable for Now«

14

**REPORT** by Kerstin Bernoth, Marcel Fratzscher, and Philipp König

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

15

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# Low Base Interest Rates: An Opportunity in the Euro Debt Crisis

by Marius Kokert, Dorothea Schäfer, and Andreas Stephan

Member states of the euro area have been struggling with the legacies of the severe financial and economic crisis for four years now. But debt ratios are still rising. The crisis countries of the euro area were able to “buy time” with bailout packages and low interest rates. But as long as the other influencing factors are not developing more positively, it remains uncertain whether the current stabilization of the euro debt crisis is sustainable. The ECB’s low interest rate policy undoubtedly offers some relief in this situation. First, the interest burden for most countries in the euro area has declined in recent years. This effect has tended to stifle increases in the debt ratio. Second, low interest rates strengthen the economy. In turn, this increases government tax revenue and improves the primary balance. Low interest rates also played an important role in driving down the debt ratio in the US. Between 1946 and 1953, the US was able to almost halve its debt with no haircuts. However, negative primary balances, low growth, and low inflation do not allow for a recovery similar to the one in the US after World War II. For this reason, low interest rates currently appear to be the only lever in the euro area which could be used to make euro area countries’ debt more sustainable. What is essential now is that they seize this opportunity.

## US 1953: Burdens of the War Overcome In Seven Years

After the end of World War II, Harry S. Truman became the new president of the US. The country was ravaged by a severe debt crisis and a pronounced recession. While the debt ratio—gross debt divided by GDP—had been roughly 40 percent in the years preceding the war, it rose from 116 percent in 1945 to a peak of over 121 percent in 1946. In the postwar years 1945, 1946, and 1947, the economy contracted by 4.3 percent on average in real terms.

In January 1953, Truman left the White House. The ratio of debt to economic output had dropped to just 70 percent by the end of 1953. In the course of eight years, the debt ratio had virtually halved (see Table 1 and Figure 1) without any haircuts and even though average real economic growth had not been particularly high between 1945 and 1953, at just over 1.7 percent.

In other words, the US exited the debt trap in a relatively short time. A number of factors were responsible for the rapid reduction of the debt ratio (see box). First, interest rates were very low at the time. For example, nominal interest on 3-month Treasury Bills was 0.6 percent or less per annum from 1945 to 1947. The average annual nominal interest rate on these bills was 1.1 percent during the entire eight-year period, and the inflation rate averaged almost five percent. The real average interest rate was accordingly low during this period. The average real interest rate of the three-month bills was minus 3.7 percent between 1945 and 1953.<sup>1</sup> Much like today, stocks did well in this time of low interest rates. For instance, the Standard & Poor’s 500 (S&P 500), which includes the 500 largest publicly owned US businesses, increased by 84 percent between the beginning of 1945 and the end of 1953 (see Figure 2).

<sup>1</sup> The nominal interest rate used here is the annualized interest rate on 3-month Treasury Bills.

Table 1

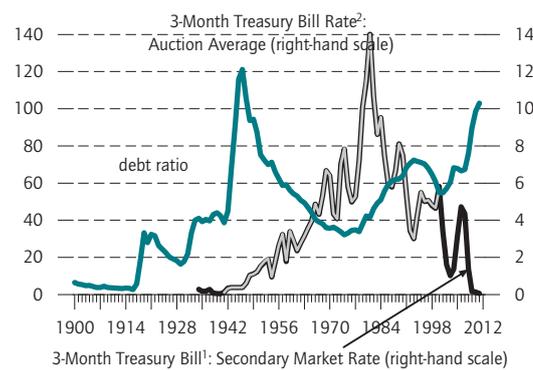
**Level of Debt, Inflation, Interest Rates, and Economic Growth in the US**

	Inflation rate <sup>1</sup>	Nominal interest rate per annum (3-month Treasury Bills)	Real interest rate	Debt ratio = debt/GDP	Nominal GDP in billions of US dollars	Nominal growth	Real GDP in billions of 1996 US dollars	Real growth
	In percent				In percent	In percent		In Prozent
1945	2.3	0.4	-1.9	116.6	223.0	1.5	1,693	-1.2
1946	8.3	0.4	-8.0	121.9	222.3	-0.3	1,506	-11.1
1947	14.4	0.6	-13.7	105.2	244.4	9.9	1,495	-0.7
1948	8.1	1.1	-7.0	93.5	269.6	10.3	1,560	4.3
1949	-1.2	1.1	2.4	94.4	267.7	-0.7	1,551	-0.6
1950	1.3	1.2	-0.1	87.3	294.3	9.9	1,687	8.7
1951	7.9	1.5	-6.4	75.2	339.5	15.4	1,815	7.6
1952	1.9	1.7	-0.2	72.3	358.6	5.6	1,887	4.0
1953	0.8	1.9	1.1	70.0	379.9	5.9	1,974	4.6
Average	4.8	1.1	-3.7	-	-	6.4	-	1.7

<sup>1</sup> Based on the Consumer Price Index.  
Sources: Historical Statistics of the United States, Earliest Times to the Present: Millennial Edition Online, [hsus.cambridge.org](http://hsus.cambridge.org); calculations by DIW Berlin.

Despite moderate growth figures ...

**Figure 1**  
**Debt Ratio of the US and Annual Interest Rate on the Basis of 3-Month Treasury Bills**  
In percent



<sup>1</sup> TB3MS, monthly, not seasonally adjusted.  
<sup>2</sup> Discontinued series, TB3MA, monthly, not seasonally adjusted.  
Sources: Federal Reserve Bank of St. Louis, Federal Reserve Economic Data (FRED); IMF Historical Public Debt Database.

... the US was able to virtually cut its debt ratio in half within less than a decade after World War II.

US depositors in fixed-rate investments in general and purchasers of US government bonds in particular saw themselves confronted with a real loss in the nominal value of the repayment at maturity for several years. Conversely, the government's default risk also decreased year by year. A combination of the probability of repayment and the interest rate on the investment capital determines the value of government bonds in investment portfolios. Consequently, the loss in value due to negative real interest rates is also offset by an increase in value due to the higher probability of repayment. The other depositors are also likely to have benefited from the debt ratio reduction. As a rule, a lower debt ratio is associated with greater solvency on the part of the government and greater stability of the financial system.

One recent example of a successful reduction of the debt ratio is Sweden, which was able to cut its debt ratio in half within a few years. After the Scandinavian financial crisis had been overcome, Sweden reduced its debt ratio from about 80 to just over 40 percent of GDP over the course of the 1990s. The government accomplished this by making substantial cuts in public spending in a period of strong economic growth and strong growth in tax revenues.<sup>2</sup>

<sup>2</sup> OECD Economic Surveys 2007: Sweden, chap. 1, 39.

Box

### Growth of the Debt Ratio

The increase in the debt ratio from one year to the next can be expressed by the following equation, where  $d$  is the growth rate of the state's gross debt and  $r$  is the growth rate of GDP at market prices (nominal GDP):

$$d = \frac{\frac{\text{Level of debt in the current year}}{\text{GDP at market prices in the current year}} - \frac{\text{Level of debt in the previous year}}{\text{GDP at market prices in the previous year}}}{\frac{\text{Level of debt in the previous year}}{\text{GDP at market prices in the previous year}}}$$

The following equation holds for the growth rate of gross debt:

$$d = \frac{\text{primary balance} + \text{interest payments in the current year}}{\text{level of debt in the previous year}}$$

The primary balance is calculated as follows: state revenues minus expenditures that are not interest payments to the holders of government bonds. It is zero if expenditures before interest payments are equal to revenues. If the primary balance is zero, the growth rate of gross debt  $d$  equals the average interest rate on gross debt. The primary balance increases if expenditures drop at constant revenues, or if revenues increase when expenditures are constant.

The growth rate of nominal GDP  $r$  is a function of the real growth rate  $r^{\text{real}}$  and the inflation rate  $IF$ ,

$$r = f(r^{\text{real}}, IF).$$

If the inflation rate and/or the real growth rate increase, so does the nominal growth rate of GDP.

Therefore, the growth rate of the debt ratio depends on the primary balance, the average interest rate on government debt, the real growth rate, and the inflation rate in the current year.

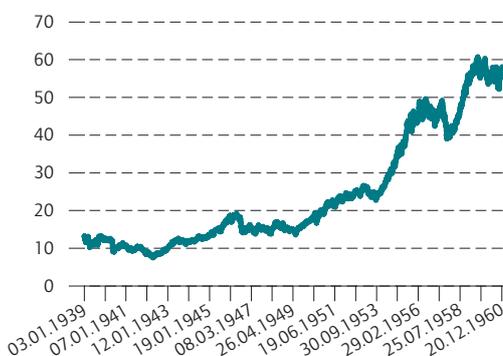
The debt ratio increases (decreases) over time if the growth rate of the level of debt is greater (smaller) than the growth rate of nominal GDP. If the primary balance is zero and the average interest rate on gross debt  $d$  equals the nominal growth rate  $r$  of GDP, then the debt ratio stagnates over time.

If, in a given case, the other components are constant, the growth of the government debt ratio decreases if

- the primary balance increases,
- the average interest rate decreases,
- the real growth rate rises,
- the inflation rate goes up.

Figure 2

### Performance of the S&P 500



Source: Historical data: S&P 500 - U.S.

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The stock market did well in the period of low interest rates.

### Europe After 2007: Financial Crisis Gives Rise to Debt Crisis

The current debt problem in the euro area was not preceded by a war, but by the most severe financial crisis since World War II. Greece lost its A rating just over four years ago. At the time, the Hellenes were the first to fall from the Mount Olympus of credit ratings. However, the same fate befell numerous euro countries between 2009 and 2012 (see Table 2). Greece, Ireland, and Portugal even lost access to the capital market in the course of the debt crisis.

States' high levels of debt are often blamed on the notion that they had "lived beyond their means"—in other words, that the mountain of debt had grown continuously because of the political leadership's inclination to finance all manner of benefactions on credit. Yet the development of the debt ratio in the euro countries does

Table 2

**Credit Ratings of Euro Countries**

	S & P	Moody's	Fitch
Germany	AAA	Aaa	AAA
Finland	AAA	Aaa	AAA
Luxembourg	AAA	Aaa	AAA
Netherlands	AA+	Aaa	AAA
Austria	AA+	Aaa	AAA
Belgium	AA	Aa3	AA
France	AA	Aa1	AA+
Estonia	AA-	A1	A+
Slovakia	A	A2	A+
Slovenia	A-	Ba1	BBB+
Ireland	BBB+	Ba1	BBB+
Malta	BBB+	A3	A
Italy	BBB	Baa2	BBB+
Spain	BBB-	Baa3	BBB
Portugal	BB	Ba3	BB+
Greece	B-	Caa3	B-
Cyprus	B-	Caa3	B-

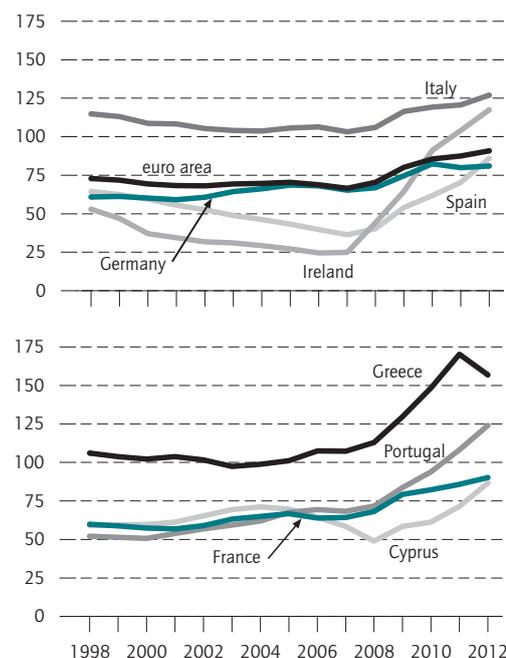
Source: Rating agencies, November 29, 2013.

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Top credit ratings have become rare in the euro area.

Figure 3

**Debt Ratios of Selected Euro Area Countries**  
In percent



Sources: Eurostat; calculations by DIW Berlin.

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Government debt soared when the financial crisis broke out.

not confirm this belief. When the Monetary Union came into being in 1999,<sup>3</sup> most of the euro countries observed were close to or below the debt limit of 60 percent of GDP acceptable under the Maastricht criteria (see Figure 3). The only exceptions were Greece and Italy with debt ratios of over 100 percent. During the following eight years through 2007, the two countries' debt ratios remained relatively constant. In Germany and France, they grew at a moderate pace; in Portugal, however, markedly (by 17 percentage points). The debt ratios of Spain and Italy, the countries to subsequently become major causes of concern, even decreased during this initial phase of the Monetary Union—both countries were on a trajectory to cutting their debt ratios by half.

The beginning of the financial crisis in 2007/2008 marked a decisive turning point. Germany's, France's, and Italy's debt ratios all increased noticeably. Germany, whose government bonds investors consider to be secure, has seen stable development in the past three years. In contrast, extremely strong growth was recorded by the crisis countries of Greece, Portugal, Ireland, and Spain. The Irish debt ratio increased at the fastest rate, relatively speaking, almost quintupling between 2007 and 2012.<sup>4</sup>

The reasons for increasing debt ratios during the crisis are manifold. Since the debt level is a gross value, some burdens arising from the euro crisis are temporary, at least in part. One example of this is the government-established bad banks: the debt level takes the liabilities assumed by the government (bad banks' liabilities) into account, but not their assets. If the bad banks' portfolios, i.e., their assets, shrink in the future (for instance, because bonds mature as scheduled or assets are sold), then the revenues will be used to repay liabilities and contribute to further reducing the debt ratio.<sup>5</sup>

The financial sector bailout was a decisive factor in the debt crisis (see Table 3). Direct support measures, for example state holdings in a bank, are included in the debt level, while state guarantees for banks are classified as contingent liabilities. These guarantees present an ad-

**3** Greece joined the Monetary Union, originally comprising eleven countries, in 2001, and Cyprus in 2008.

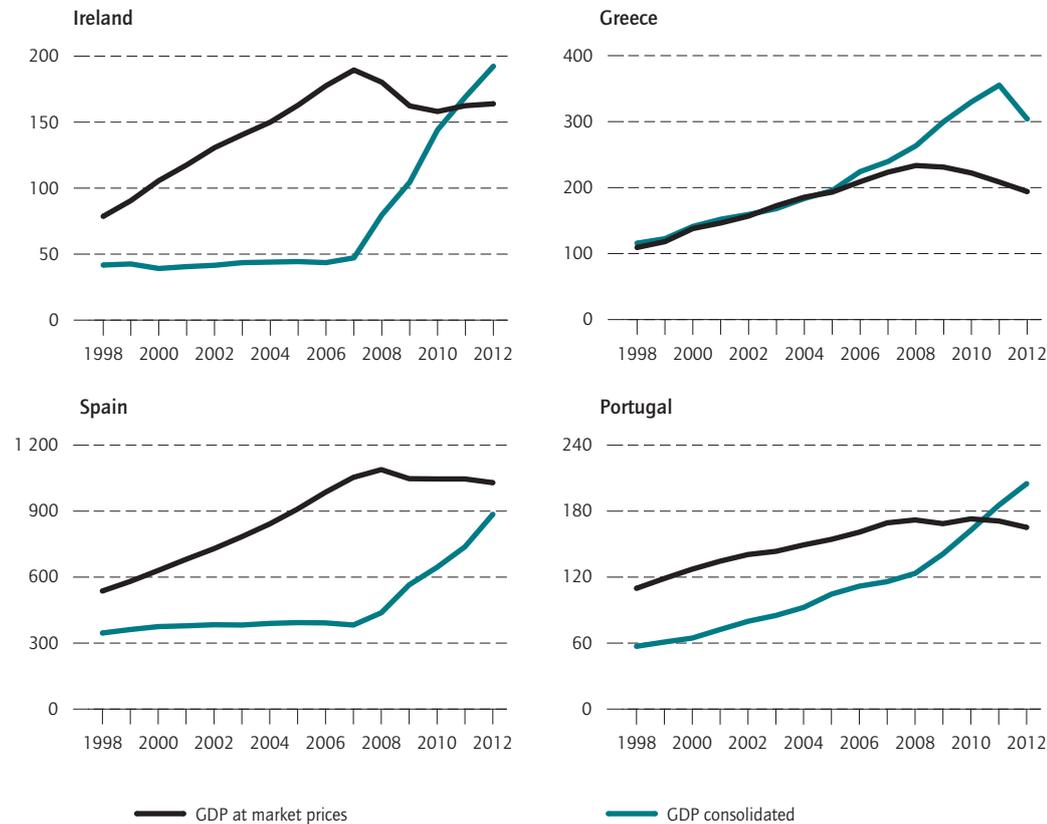
**4** When the new accounting framework „ESA 2010“ is implemented in September 2014, there will be minor changes in the EU countries' levels of GDP. For example, Eurostat expects GDP to increase by 2.4 percent in the EU, but only by one or two percent in the crisis countries. As a result, the debt ratios will also decrease by a similar amount. The most important reason for this is the definition of research and development expenditure as investments and thus as capital formation. See Eurostat, „Technical Press Briefing,“ January 16, 2014, [epp.eurostat.ec.europa.eu/portal/page/portal/esa\\_2010/documents/technical\\_press\\_briefing\\_ESA\\_2010.pdf](http://epp.eurostat.ec.europa.eu/portal/page/portal/esa_2010/documents/technical_press_briefing_ESA_2010.pdf).

**5** The same effect occurs when loans from the aid packages for countries are paid back.

Figure 4

**Composition of the Debt Ratio in Selected Countries**

In billions of euros



Source: Eurostat.

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In the crisis countries, increasing debt went hand in hand with declining growth rates.

ditional and serious risk to public finances, which is, however, difficult to quantify. The net effect of support measures results from the difference between the measures and the profits they generate (for instance, interest income from assistance loans for financial institutions, or dividends and fees for guarantees).<sup>6</sup>

In sum, support measures increased the debt level to a particularly large extent in Ireland and Greece. Ireland's downfall in particular was the enormous size of its financial sector. But their contribution to Germany's debt ratio shouldn't be ignored either. The debt ratio of 81 percent registered for 2012 would have been only roughly 70 percent in the absence of support for the financial sector. The sequence of events varied distinctly from country to country: in Ireland, the highest costs for support

Table 3

**Net Costs of Support for the Financial Sector, 2008 to 2012**

In percent of GDP

	Level of debt	Contingent liabilities
Ireland	31.4	69.8
Greece	14.5	27.9
Portugal	10.6	10
Cyprus	10	5.6
Germany	11.6	2.2
Spain	5.1	6.5
Italy	0.2	5.5
France	0.2	2.5
Euro area	5.7	5.7

Source: ECB Monthly Bulletin June 2013, 86.

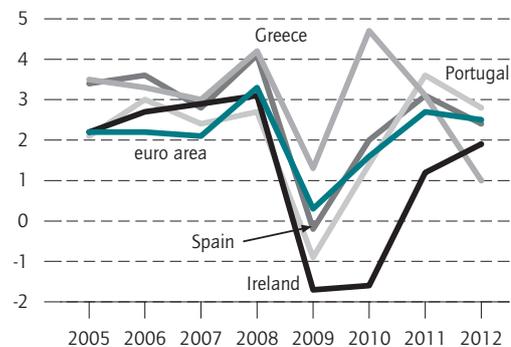
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Support of financial sector is a major factor contributing to debt level.

<sup>6</sup> See ECB Monthly Bulletin June 2013, 86.

Figure 5

**Inflation Rates<sup>1</sup> in the Euro Area**  
In percent



<sup>1</sup> Harmonised Index of Consumer Prices.  
Source: Eurostat.

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Greece's inflation rate remained positive even during the crisis.

measures were incurred as early as 2010, while lower revenues (for example, from interest income) were recorded for the first time in 2012. In Greece and Spain, these costs were particularly high in 2012—in particular because of recapitalization of banks.<sup>7</sup>

Apart from the expenditure for stabilizing the financial system, the absolute debt level also rises in times of crisis because of a combination of lower tax revenues and higher spending on social welfare and economic stimulus packages. At the same time, nominal economic output usually sees less growth than the debt level during a crisis, or even falls. Both developments make the debt ratio soar (see box).

In all states experiencing such difficulties, both components of the debt ratio, namely, the debt level and nominal economic growth, developed poorly during the crisis years (see Figure 4). The debt level increased markedly, while nominal GDP decreased or stagnated at the same time. With regard to growth, Ireland is ahead of the other crisis countries: its GDP has begun to grow again. In Greece, however, nominal economic output at market prices is continuing to fall. In nominal terms, Greek GDP was roughly 17 percent lower in 2012 than in 2008.

<sup>7</sup> See ECB Monthly Bulletin June 2013, 86 and Eurostat Statistics in Focus 10/2013, [epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-SF-13-010/EN/KS-SF-13-010-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-13-010/EN/KS-SF-13-010-EN.PDF). See also Eurostat, Supplementary tables for the financial crisis, [epp.eurostat.ec.europa.eu/portal/page/portal/government\\_finance\\_statistics/excessive\\_deficit/supplementary\\_tables\\_financial\\_turmoil](http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turmoil).

The real decline is even greater, since Greece had positive inflation rates during the crisis, too (see Figure 5).

**Buying Time, Round One: Bailouts**

When Greece, Ireland, and Portugal lost access to the capital markets at acceptable interest rates, the IMF as well as other EU or euro area countries made refinancing and new loans available.<sup>8</sup> In turn, the countries receiving the aid packages submitted to the donors' conditions.<sup>9</sup>

**Two Aid Packages and a Haircut for Greece**

The first aid package for Greece began in April 2010. It included bilateral loans between Greece and the members of the euro area totaling 80 billion euros as well as 30 billion euros in loans from the International Monetary Fund (IMF). Of the total amount, 34.4 billion euros were transferred to the second aid package, which began in March 2012. It amounts to 164.5 billion euros and is scheduled to end in December 2014. The European Financial Stability Facility (EFSF) accounts for 144.7 billion euros, and the remainder is from the IMF. A total of 214 billion euros was paid out in the two packages through December 2013.

An important component of the second aid package was the haircut approved in November 2011 and carried out in March 2012.<sup>10</sup> It reduced Greek debt by about 107 billion euros initially.<sup>11</sup> A bond buyback agreed in December 2012 resulted in a further reduction of Greek government debt in the hands of private investors by just under 22 billion euros. The buyback was financed by just over eleven billion euros from the second aid package (see Table 4).<sup>12</sup> The first aid package's creditor states also lowered the interest rates on the bilateral loans in December 2012. In addition, they extended the periods of the loans. The vast majority of the portions of the loans

<sup>8</sup> Short-term loans that Greece, too, can obtain on the capital market from time to time are the exception; see, for example, „Athen leiht sich erneut kurzfristig Geld," Handelsblatt, September 17, 2013, [www.handelsblatt.com/finanzen/boerse-maerkte/anleihen/griechenland-athen-leihtsich-erneut-kurzfristig-geld/8804052.html](http://www.handelsblatt.com/finanzen/boerse-maerkte/anleihen/griechenland-athen-leihtsich-erneut-kurzfristig-geld/8804052.html).

<sup>9</sup> European Commission, Financial assistance to Greece, [ec.europa.eu/economy\\_finance/assistance\\_eu\\_ms/greek\\_loan\\_facility/index\\_en.htm](http://ec.europa.eu/economy_finance/assistance_eu_ms/greek_loan_facility/index_en.htm).

<sup>10</sup> Just over 30 billion euros from the second aid package went in the form of top EFSF bonds directly to those investors who had participated in the haircut. These bonds expired after conversion.

<sup>11</sup> [www.efsf.europa.eu/attachments/EFSF%20FAQ%202013-12-09.pdf](http://www.efsf.europa.eu/attachments/EFSF%20FAQ%202013-12-09.pdf), 17, see also F. Fichtner, S. Junker, D. Schäfer, „EU-Gipfelbeschlüsse: erste wichtige Schritte, aber keineswegs eine endgültige Lösung," Wochenbericht des DIW Berlin, no. 44 (2011).

<sup>12</sup> [www.efsf.europa.eu/attachments/EFSF%20FAQ%202013-12-09.pdf](http://www.efsf.europa.eu/attachments/EFSF%20FAQ%202013-12-09.pdf), 20/21.

paid out is now set to expire between 2040 and 2048. The weighted average maturity is just over 30 years.

Greece was able to reduce its public debt in private hands by a total of around 118 billion euros by means of the haircut and the buybacks. This reduction is, however, not included in the official Eurostat figures on Greece's annual debt level. It declined by only about 50 billion euros from December 2011 (355 billion euros) to December 2012 (304 billion euros). A considerable proportion of the relief provided by the haircut did not take effect because of compensatory measures taken by the Greek government. For example, it stocked up, at least in part, the capital that domestic banks had lost because of the haircut. In April 2012, about a month after the haircut, the donors disbursed just under 70 billion euros to recapitalize the banks.

The compensatory measures had the effect that the haircut merely converted public debt in private hands into government debt. The actual goal, namely, sustainable reduction of the debt ratio, was not accomplished, at least not to any great extent. A smaller haircut without compensatory measures may have been able to achieve the same result, and would have been less damaging to Greece's reputation as a creditor.

Using the reported gross debt of the Greek state of 321 billion euros in mid-2013 as a basis, Greece's debt level increased by just under six percent in the second half of the year. The difference between this amount and the assistance loans paid out is roughly 107 billion euros. This is the portion of total debt currently still in the hands of other (private) creditors and not held by the euro countries and the IMF.

### Aid Packages for Ireland, Portugal, Spain, and Cyprus

Ireland was the second country to apply for financial assistance and the first to exit the aid package. In December 2013, donors EFSF and IMF disbursed the last tranche of the 67.5 billion euros committed. In light of their revised maturity, as in the case of Greece, the Irish loans now run for an average of around 20 years (see Table 5): Ireland seeks to return to obtaining its financing independently on the capital market from 2014 on. As early as January, bonds worth more than 3.5 billion euros were issued at an interest rate of just over 3.5 percent. This capital market interest rate for five-year bonds is higher than the average interest on outstanding Irish debt.

Table 4

### Assistance Loans for Greece<sup>1</sup>

In billions of euros

#### First Aid Package for Greece

Disbursements	Euro area	IMF	Total
May 2010	14.5	5.5	20
Sept. 2010	6.5	2.6	9.1
Dec. 2010-Jan. 2011	6.5	2.5	9
March 2011	10.9	4.1	15
July 2011	8.7	3.2	11.9
Dec. 2011	5.8	2.2	8
<b>Total</b>	<b>52.9</b>	<b>20.1</b>	<b>73</b>

#### Second Aid Package for Greece

Date of EFSF/ESM disbursement	Cumulative disbursement	Maturity	IMF (cumulative disbursement)
March 9, 2012	34.6	2042	
March 19, 2012	40.5	2047	
April 10, 2012	43.8	2041	
April 19, 2012	68.8	2046 <sup>2</sup>	
May 10, 2012	73.0	2042	
June 28, 2012	74.0	2040	1.6
Dec. 17, 2012	81.0	2046 <sup>3</sup>	
Dec. 17, 2012	92.3	2042 <sup>4</sup>	
Dec. 19, 2012	108.3	2023, 2024, 2025 <sup>5</sup>	
Jan. 31, 2013	110.3	2043	4.8
Feb. 28, 2013	111.7	2043	
Feb. 28, 2013	113.1	2044	
April 29, 2013	115.9	2032	
May 17, 2013	120.1	2043	
May 30, 2013	127.3	2024, 2025 <sup>6</sup>	6.6
June 25, 2013	130.6	2045	
July 31, 2013	133.1	2048	8.4
Dec. 18, 2013	133.6	2050	
<b>Total (EFSF/ESM and IMF)</b>			<b>142</b>

1 Planned end of aid package: December 31, 2014.

2 Loan for bank recapitalization. Repayment between 2034-2039 and 2043-2046.

3 Repayment in regular installments from 2044 to 2046.

4 Repayment in regular installments from 2023 to 2042.

5 Loan for bank recapitalization. The target for the weighted average credit period is 38.06 years (prior to debt restructuring: 11.06 years).

6 Loan for bank recapitalization. The target for the weighted average credit period is 39.5 years (prior to debt restructuring: 11.5 years).

Sources: [www.efsf.europa.eu/about/operations/index.htm](http://www.efsf.europa.eu/about/operations/index.htm); [ec.europa.eu/economy\\_finance/assistance\\_eu\\_ms/greek\\_loan\\_facility/index\\_en.htm](http://ec.europa.eu/economy_finance/assistance_eu_ms/greek_loan_facility/index_en.htm).

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The country has received a total of 215 billion euros in financial assistance to date.

Portugal applied for its aid package in April 2011. It is limited to 78 billion euros. EFSF, ESM, and IMF are each responsible for 26 billion euros. By the end of 2013, 72 billion euros, or 90 percent had been disbursed. The aid package is scheduled to expire in May 2014. Portu-

Table 5

**Assistance Loans for Ireland<sup>1</sup>**

In billions of euros

Support through the EFSF			
	Cumulative disbursement	Initially agreed maturity	Revised maturity
Feb. 1, 2011	1.9	2016	2032
Feb. 1, 2011	3.6	2016	2033
Nov. 10, 2011	4.5	2022	2030
Nov. 10, 2011	6.6	2022	2031
Dec. 15, 2011	7.6	2019	2030
Jan. 12, 2012	8.8	2015	2029
Jan. 19, 2012	9.3	2041	2034
April 3, 2012	12.0	2037	2031
May 2, 2013	12.8	2029	2029
June 18, 2013	14.4	-	2042
Sept. 27, 2013	15.4	-	2034
Dec. 4, 2013	17.7	-	2033

**Additional support granted outside the EFSF**

European Commission (EFSM)	Bilateral loans	Total support
22.5	4.8	67.5

<sup>1</sup> The aid package ended on December 8, 2013.  
<sup>2</sup> UK, Sweden, and Denmark.  
 Source: [www.efsf.europa.eu/about/operations/index.htm](http://www.efsf.europa.eu/about/operations/index.htm).

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The average credit period is now roughly 20 years.

gal, too, has already experienced a restructuring of the initially agreed durations of the loans. In 2013, the maturity of the individual tranches was postponed by between one and 20 years (see Table 6). On average, the loans will expire in just over 20 years. The country intends to return to the capital market as soon as possible. January 2014 was the first time that Portugal again issued a larger amount of five-year bonds, as an experiment. The interest rate was just under 4.6 percent, which is significantly higher than the average interest rate on outstanding Portuguese government debt.

Spain received a promise of assistance from the EFSF/ESM in 2012 to stabilize its banking sector with a maximum of 100 billion euros. In return, the country committed to restructuring its banking sector through capital contribution and the establishment of a bad bank. Winding up banks with the involvement of the private sector was also planned.<sup>13</sup> The aid package was termi-

<sup>13</sup> European Commission, Intergovernmental adjustment programme, [ec.europa.eu/economy\\_finance/assistance\\_eu\\_ms/intergovernmental\\_support/index\\_en.htm](http://ec.europa.eu/economy_finance/assistance_eu_ms/intergovernmental_support/index_en.htm) and the relevant links to the economic adjustment programs for Ireland, Portugal, Spain, and Cyprus.

Table 6

**Assistance Loans for Portugal<sup>1</sup>**

In billions of euros

	Cumulative disbursement	Initially agreed maturity	Revised maturity
June 22, 2011	3.7	2021	2036
June 29, 2011	5.9	2016	2025
Dec. 20, 2011	6.9	2025	2025
Jan. 12, 2012	8.6	2015	2035
Jan. 19, 2012	9.6	2026	2027
May 30, 2012	13.1	2032	2032
May 30, 2012	14.8	2032	2035
July 17, 2012	16.3	2038	2038
July 17, 2012	17.4	2038	2040
Dec. 3, 2012	18.2	2028	2028
Feb. 7, 2013	19.0	2022	2026
June 26, 2013	20.1	-	2033
June 26, 2013	21.1	-	2034
Nov. 22, 2013	24.8	-	2033

<sup>1</sup> Support through the EFSF; planned end of aid package: May 18, 2014.  
 Source: [www.efsf.europa.eu/about/operations/index.htm](http://www.efsf.europa.eu/about/operations/index.htm).

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Maturity was revised for the Portuguese assistance loans, too.

nated at the end of 2013. In total, the ESM disbursed just over 41 billion euros to the Spanish Fund for Orderly Bank Restructuring (FROB) (see Table 7).

The fund used 37 billion euros to recapitalize the banks it owned that had been placed under state control. Just under 2.5 billion euros were invested in the Spanish bad bank (Sarep). An additional almost 1.9 billion euros went to banks that had not been taken over by the state and needed capital. The majority stake in Sarep is held by Spanish banks, so liabilities are not counted as government debt—in contrast to the situation with the German bad banks. However, the state has taken on comprehensive guarantees for any losses accrued by Sarep. Spain was recently able to sell five- and fifteen-year bonds totaling 5.3 billion euros on the capital market. The interest rate for the five-year bonds was just under 2.4 percent, significantly lower than the average interest rate on outstanding Spanish debt, which was 3.5 percent.

Cyprus is the country that most recently received an aid package. In total, Cyprus was promised disbursement of ten billion euros in loans by 2016, 90 percent of which will be from the ESM and the remainder from the IMF.<sup>14</sup> Cyprus was the first country where creditors

<sup>14</sup> European Commission, Intergovernmental adjustment programme, [ec.europa.eu/economy\\_finance/assistance\\_eu\\_ms/intergovernmental\\_support/index\\_en.htm](http://ec.europa.eu/economy_finance/assistance_eu_ms/intergovernmental_support/index_en.htm) and the relevant links to the economic adjustment programs for Ireland, Portugal, Spain, and Cyprus.

Table 7

**Assistance Loans for Spain<sup>1</sup>**

In billions of euros

	Cumulative disbursement	Maturity
Dec. 11, 2012	39.468	2027 <sup>2</sup>
Feb. 5, 2013	41.333	2025 <sup>3</sup>

1 Support through the ESM; the aid package ended on December 31, 2013.  
 2 Constant servicing of the loan between 2022 and 2027 at 6.578 billion per year.  
 3 Constant servicing of the loan between 2024 and 2025 at 0.933 billion per year.  
 Source: [www.esm.europa.eu/assistance/spain/index.htm](http://www.esm.europa.eu/assistance/spain/index.htm).

Table 8

**Assistance Loans for Cyprus<sup>1</sup>**

In billions of euros

	Cumulative disbursement	Maturity
May 13, 2013	2.0	2027
June 26, 2013	3.0	2028
Sept. 27, 2013	4.5	2030
Dec. 19, 2013	4.6	2029

1 Support through the ESM; planned end of aid package: March 31, 2016. The ESM is responsible for 9 billion of the 10-billion-euro total aid package, and the IMF for the other 1 billion. The first IMF disbursement of 86 million euros was made on May 15, 2013.  
 Source: [www.esm.europa.eu/assistance/cyprus/index.htm](http://www.esm.europa.eu/assistance/cyprus/index.htm).

The Spanish assistance loans served to stabilize the banking sector.

Cyprus was the first country where creditors were also held liable.

of the two major troubled banks, Cyprus Popular Bank (Laiki Bank) and Bank of Cyprus, had to bear a significant part of the burden. Owners of assets over 100,000 euros and bondholders of the now-closed Laiki Bank will only receive the proceeds of the sale of the capital assets to be liquidated. Assets in Laiki Bank up to 100,000 euros were taken over by the Bank of Cyprus. The bondholders of the Bank of Cyprus and their uninsured asset holders had to accept a bail-in in order to achieve the minimum core capital ratio of nine percent. These measures and the pledging of future central bank profits raised almost nine billion more euros as Cyprus's own contribution to the rescue. The aid package will continue through 2016. Almost 50 percent of the total amount has already been disbursed (see Table 8).

average interest rate on gross debt fell noticeably for all countries under review; on average, it halved from around 6.5 percent to 3.3 percent between 1998 and 2012 (see Figure 6).

Shortly before the crisis, in 2006 and 2007, this trend was temporarily interrupted. Government bonds were affected by the environment of rising interest rates—the ECB base interest rate increased from 2.25 percent at the end of 2005 to four percent in mid-2007. The trend of falling interest rates continued in the following years. Parallel to this, the base interest rate also fell sharply, and within a year, in May 2009, reached their lowest level so far of only one percent (see Figure 7).

**Buying Time, Round Two: Base Interest Rates at a Low**

When countries no longer receive aid packages, the Monetary Union loses much of its control, since the fiscal restraint required as part of the aid package also expires at the same time. It is possible that the end of aid packages for Ireland and Spain is a sign of improvement. However, this remains to be seen. Long-term recovery from the debt crisis depends on whether or not the debt ratios begin to fall in the near future. As the example of the US after World War II shows, interest rates are one of the key indicators.

Subsequently, the picture was mixed. Like the euro area as a whole, Germany and France experienced a stagnation of their interest burden. It is worth noting that France had to bear the lower average interest burden. Overall, the Netherlands, Finland, and Luxembourg were also borrowing more cheaply than Germany.<sup>15</sup>

With regard to the countries hit particularly hard by the crisis, Ireland was the forerunner once again and, after experiencing the lowest level in 2008, initially showed an increase and then another decline in its interest burden. Spain and Portugal underwent a similar development, albeit somewhat later. It remains to be seen, however, whether they will be able to reduce their interest burden to the same extent as Ireland. This is something that Italy has failed to do so far, standing out with its rising interest burden. Just as conspicuous is the development in Greece, where the average interest rate fell dra-

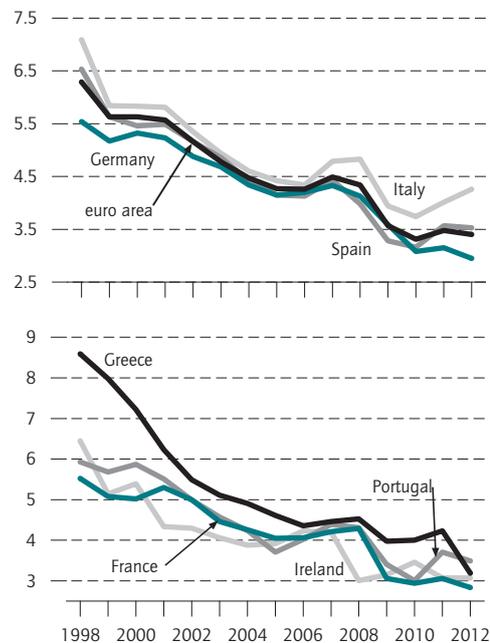
**Interest Burden in Euro Area Falling for Years**

The long-term development of the interest burden since the euro area was established has been positive. The

15 See also Deutsche Bundesbank, Die Entwicklung staatlicher Zinsausgaben in Deutschland. Monatsbericht, September 2013.

Figure 6

**Average Interest Rate on Gross Debt**  
In percent



Sources: Eurostat; calculations by DIW Berlin.

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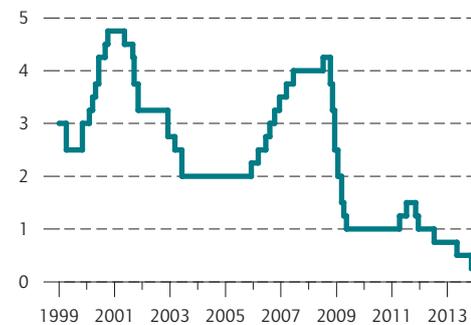
Since the establishment of the Monetary Union, the average interest rate on gross debt has dropped by roughly half.

matically, reaching a level still below the euro area average, after a slight increase during the crisis.

Only at first glance is this contradictory to the dramatically high returns demanded by investors for newly issued short-term Greek government bonds. First, it should be taken into account that, even in times of crisis, average interest rates did not see jumps as extreme as those experienced by the crisis countries with regard to their yields on newly issued bonds. On the other hand, this reveals an effect of the rescue packages which offer an alternative to the prohibitively high interest rates on the financial markets. When the aid packages were first introduced, it was often emphasized that loans could not be provided for free and donors should be rewarded with appropriately high interest. It was later recognized, however, that the high interest rates—the highest of all countries under review between 2009 and 2011—were detrimental to Greece’s recovery. There were correspondingly tough negotiations with private creditors as part of the debt restructuring in spring 2012 concerning

Figure 7

**Base Interest Rate of the ECB**  
In percent



Source: [www.ecb.europa.eu/stats/monetary/rates/html/index.en.html](http://www.ecb.europa.eu/stats/monetary/rates/html/index.en.html).

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Since the establishment of the Monetary Union, the trend of the base interest rate has been downward.

the interest rates on the new bonds.<sup>16</sup> And in the same year, the Eurogroup expressed its willingness to reduce the interest rate on the bilateral loans from the first aid package retrospectively by one percentage point. A ten-year interest deferral for EFSF loans from the second aid package was granted at the same time.<sup>17</sup> These decisions will have positive effects on Greece’s interest burden in the coming years. Moreover, the member states explicitly do not rule out further reductions of the Greek interest burden.<sup>18</sup>

Stagnation of gross debt is easier to achieve, the lower its interest rate is. Consequently, if the interest rate on outstanding debt is very low, high debt ratios can also be supportable. In such cases, the interest payment puts very little strain on the current budget and therefore hardly contributes to further growth of gross debt. In a hypothetical extreme case of an interest burden of zero, the level of debt has no influence at all on the budget-

<sup>16</sup> See "Athen in der Falle," *Süddeutsche Zeitung*, January 24, 2012, [www.sueddeutsche.de/wirtschaft/griechenland-rettung-athen-in-der-falle-1.1265357](http://www.sueddeutsche.de/wirtschaft/griechenland-rettung-athen-in-der-falle-1.1265357).

<sup>17</sup> However, this does not mean increased costs for the EFSF, since interest is payable on Greece’s deferred interest payments. See EFSF, New disbursement of financial assistance to Greece, [www.efsf.europa.eu/attachments/faq\\_greece\\_en.pdf](http://www.efsf.europa.eu/attachments/faq_greece_en.pdf).

<sup>18</sup> See Eurogroup statement on Greece, [www.consilium.europa.eu/uedocs/cms\\_Data/docs/pressdata/en/ecofin/133857.pdf](http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ecofin/133857.pdf).

ary situation.<sup>19</sup> A positive primary balance then suffices to reduce gross debt.

Low base interest rates are a key prerequisite for a continually falling average interest rate. Consequently, the European Central Bank can actively contribute to making debt supportable again through its interest rate policy. An essential requirement for this—even with very low interest rates—is a positive primary balance, however.

### Primary Balances Not Following a Uniform Trend

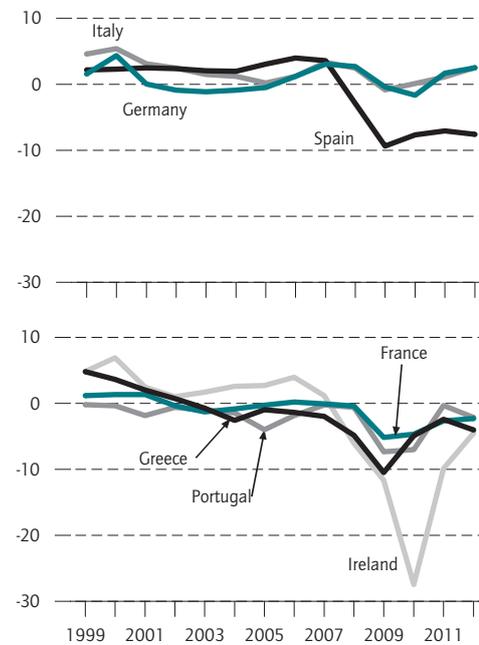
The primary balance, i.e., the difference between annual revenues and expenditures before interest payments is the second determining factor for growth of gross debt. Some countries in the euro area, including Spain, Ireland, and Italy, had positive primary balances up until 2007. France, too, achieved a positive primary balance in 2006. Portugal was at least close to a positive value in 2007 (see Figure 8). Greece also hovered around the zero level in 2005 and 2006. Subsequently, the trend reversed. Since then, the selected countries' primary balances have been more or less in negative territory, with no uniform trend. Germany and Italy are exceptions. With a negative primary balance of just under minus eight percent of GDP recently, Spain's budget is still in crisis mode. Greece, Ireland, and Portugal, which have received aid packages, are gradually approaching a primary balance of zero, with only Ireland able to maintain the upward trend in 2012, however. The development of primary balances in all euro countries after 2009 could be described as strong growth following a deep trough. In combination with the low base interest rates, the reduction of the negative values of primary balances has had a positive impact on the ability of these countries to shoulder their debts.

### Conclusion

Base interest rates tending toward zero can be frustrating for savers and other new creditors because the remuneration for reducing their consumer spending then also tends toward zero. But a low interest rate can also be beneficial to them because it strengthens the economy, thereby also safeguarding employment and employees' incomes. Low base interest rates are generally a blessing for debtors, however, because their debt burden becomes easier to bear. As a rule, governments constantly pass on their debts, replacing old creditors with new

Figure 8

### Primary Balances of Selected Euro Area Countries In percent of GDP



Quellen: Eurostat; Berechnungen des DIW Berlin.

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Most primary balances have improved since the crisis.

ones. A low reference interest rate then ensures that the debt burden is easier to bear with each refinancing of the old debts. Together with the bailouts, the ECB's low base interest rate—if maintained over a longer period of time—can therefore make the high level of debt in the euro area easier to bear. This occurs not only directly, but also indirectly. Low interest rates strengthen the economy and government revenues. The example of the US in the postwar period shows that with low interest rates and rising inflation, even a very high debt ratio can be reversed in a relatively short period of time.

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Keywords: Sovereign debt, financial crisis, history of national debt, financial markets

<sup>19</sup> Some economists have recently also called for reducing interest rates on the bonds of countries receiving aid to zero.



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## FIVE QUESTIONS TO DOROTHEA SCHÄFER

# »The ECB's Policy of Low Interest Rates Is Indispensable for Now«

1. Prof. Schäfer, Europe is still suffering from the debt crisis. Is the ECB's low base interest rate a cure or a symptom of the euro crisis? While the low base interest rate is certainly due to the euro crisis, it also helps countries manage their debt. A persistently low interest rate has the effect of reducing countries' interest burdens. This can be demonstrated empirically. The average interest rate on government debt has declined continuously over the past few years. The ECB's policy of low interest rates is indispensable for now in order to cope with the debts and make them more bearable.
2. You have compared the current situation in Europe with historical examples from the US (1953) and Sweden (1990). What can Europe learn from them? The US debt level dropped from 120 percent to 70 percent of GDP within seven years after World War II, which is a relatively brief period of time for that to happen. It was achieved through low interest rates, a heightened inflation rate, and ultimately also by increasing economic growth, among other things. These factors contributed to the debt level dropping. In Sweden, the situation was somewhat different. There, economic growth increased sharply after the financial crisis had been overcome. At the same time, the Swedish government exercised strict budgetary discipline, which resulted in an annual surplus in the fiscal budget. These two conditions were also conducive to the debt level coming down quickly. There are simply several paths to reducing the debt level. If economic growth is strong, then countries can grow their way out of high debt levels, so to speak. If that is not the case, like at present, then other instruments must be used, for example, a policy of low inte-

rest rates, which helps first of all to bear the mountains of debt and then to reduce them in the long term.

3. What about budgetary discipline in Europe? The budgetary discipline of the debt-ridden countries has improved within the aid packages. These countries are developing toward a positive primary balance, and this is definitely a positive development. The entire debt situation is also eased by the fact that the average interest rate on existing liabilities is dropping, with the effect that the hurdle that needs to be taken to reach a positive overall balance has become smaller because of declining average interest rates.
4. What about the increase in the individual euro countries' gross debt? The only exception is Greece because the haircut enabled the country to reduce its gross debt by more than 110 billion euros. Interestingly, Greece's gross debt actually reflects only half of that amount, since the Greek government also took compensatory measures for some of the losses that the bondholders had to accept because of the haircut. Because of this, only about 50 billion euros of the 110 billion euros can be proven to be a reduction in the debt level. But in the other countries, gross debt is still continuing to grow.
5. That's not necessarily a good sign, is it? It always depends on the other factors. If nominal economic growth, which is always determined by the inflation rate and the real growth rate, increases sharply at the same time, then rising gross debt can certainly be compatible with declining debt levels. In other words, growth of gross debt is not in itself an indication of whether debt ratios are increasing. It's always a combination of several factors, including interest burdens and economic growth.

Interview by Erich Wittenberg.

# 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).

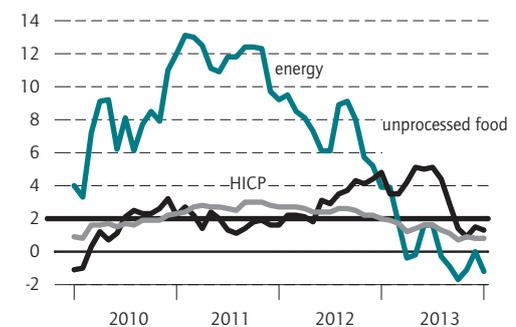
## Inflation Very Low Throughout Euro Area

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.

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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.<sup>1</sup> 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

<sup>1</sup> 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.

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.<sup>2</sup> (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.<sup>3</sup> (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.<sup>4</sup>

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

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

<sup>4</sup> 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 Stylized Model," Working Paper no. 176 (Bank for International Settlements, April 2005).

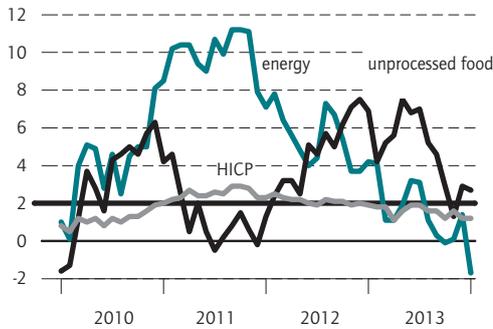
tion in Germany was at 1.2 percent, slightly higher than the euro area average. The same applies to core inflation which is currently at approximately 1.5 percent in Germany (see Figure 2).

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.

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

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

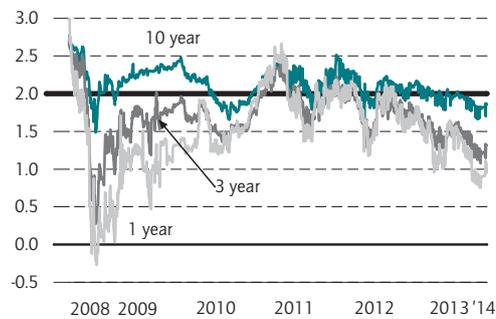
Is the euro area at risk of sliding into a self-reinforcing deflationary spiral, which, at the same time, could also undermine the financial stability of the currency union by exacerbating public and private debt (see Box 1)? To date, the ECB has answered this question with a resounding “no.” On the 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.<sup>1</sup> 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.

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

Figure 3

**Inflation Expectations Derived from Inflation Swaps**

In percent



Sources: Thomson Reuters; calculations by DIW Berlin.

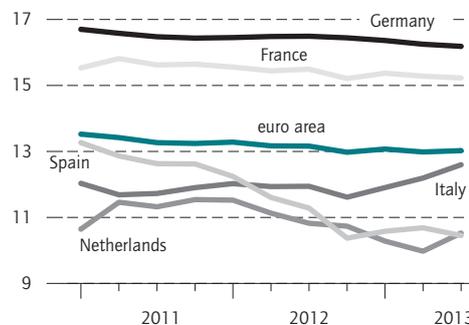
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Despite historically low interest rates, the savings rates in large parts of the euro area have not declined substantially.

Figure 4

**Gross Savings Rate of Households**

In percent, moving four-quarter average



Source: Eurostat.

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

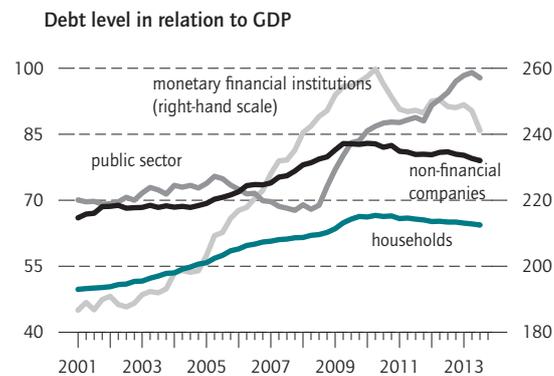
**Short and Medium-Term Inflation Expectations Only Loosely Anchored**

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

Figure 5

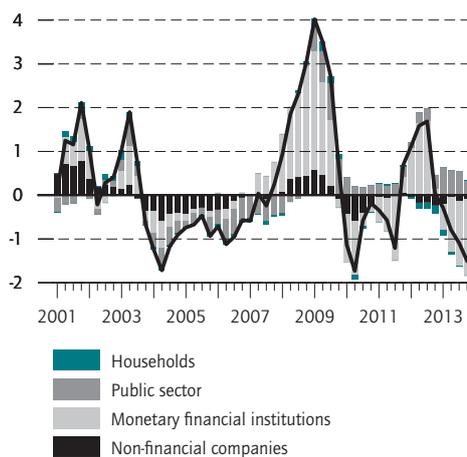
**Debt Level and Debt Reduction in Sectors in the Euro Area**

In percent



**Borrowed capital in relation to accounts receivable**

Changes over the same quarter of the previous year



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.

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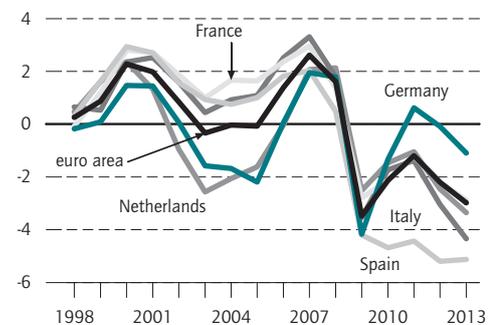
Debt is being reduced, particularly in the private sectors, which has led to weakened demand and subdued price development.

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-

Figure 6

**Output Gap**

In percent of output potential



Source: Eurostat.

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

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 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.<sup>2</sup>

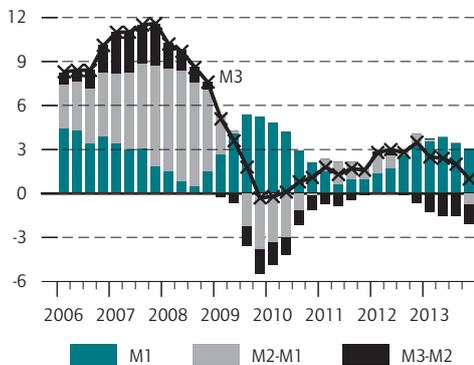
If we also take into consideration that inflation has been lower than two percent for almost two years now and, according to market expectations, will not move above this level for at least the next three years, there is good reason to question whether the ECB can fulfill its price stability mandate. 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.

<sup>2</sup> 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.

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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.

**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.<sup>3</sup>

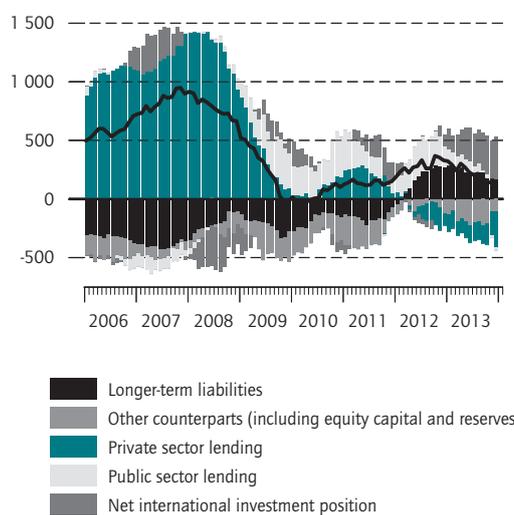
The only positive contribution to M3 growth in the last six quarters has come almost exclusively from the expansion of very short-term components (overnight deposits and cash) whereas the reduction in marketable instru-

<sup>3</sup> 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.

Figure 8

**Development of M3 Counterparts**

Changes over previous year, in billion euros



Source: ECB.

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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.

ments 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.

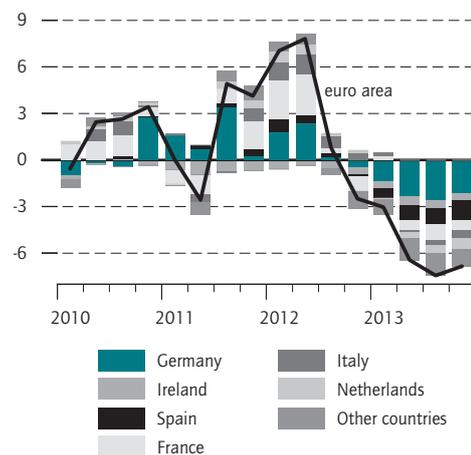
As a counterpart to M3, the low monetary growth rate in particular resulted in more restrictive private sector lending during the course of last year (see Figure 8).<sup>4</sup> As a consequence, the total aggregate assets of monetary financial institutions in the euro area have declined by around 4.4 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.

<sup>4</sup> 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.

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

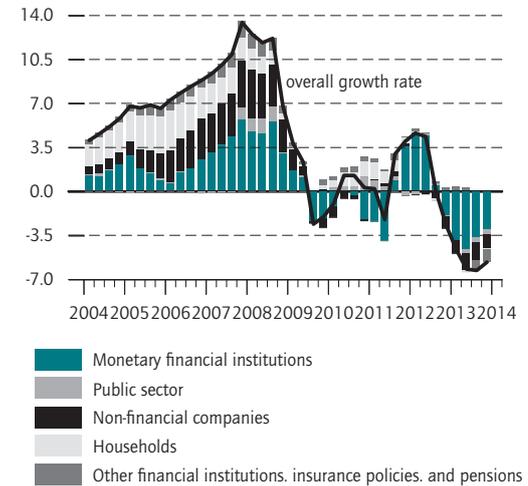
The decline in the balance sheet total on the assets side was primarily due to downturn in lending to businesses located in the euro area, and especially a reduction in interbank loans and loans to non-financial companies (see Figure 10). A comparison of the economically most important member states 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 unfavor-

Figure 10

### Change in Business Lending in the Euro Area

Growth contributions in percent



Source: ECB.

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

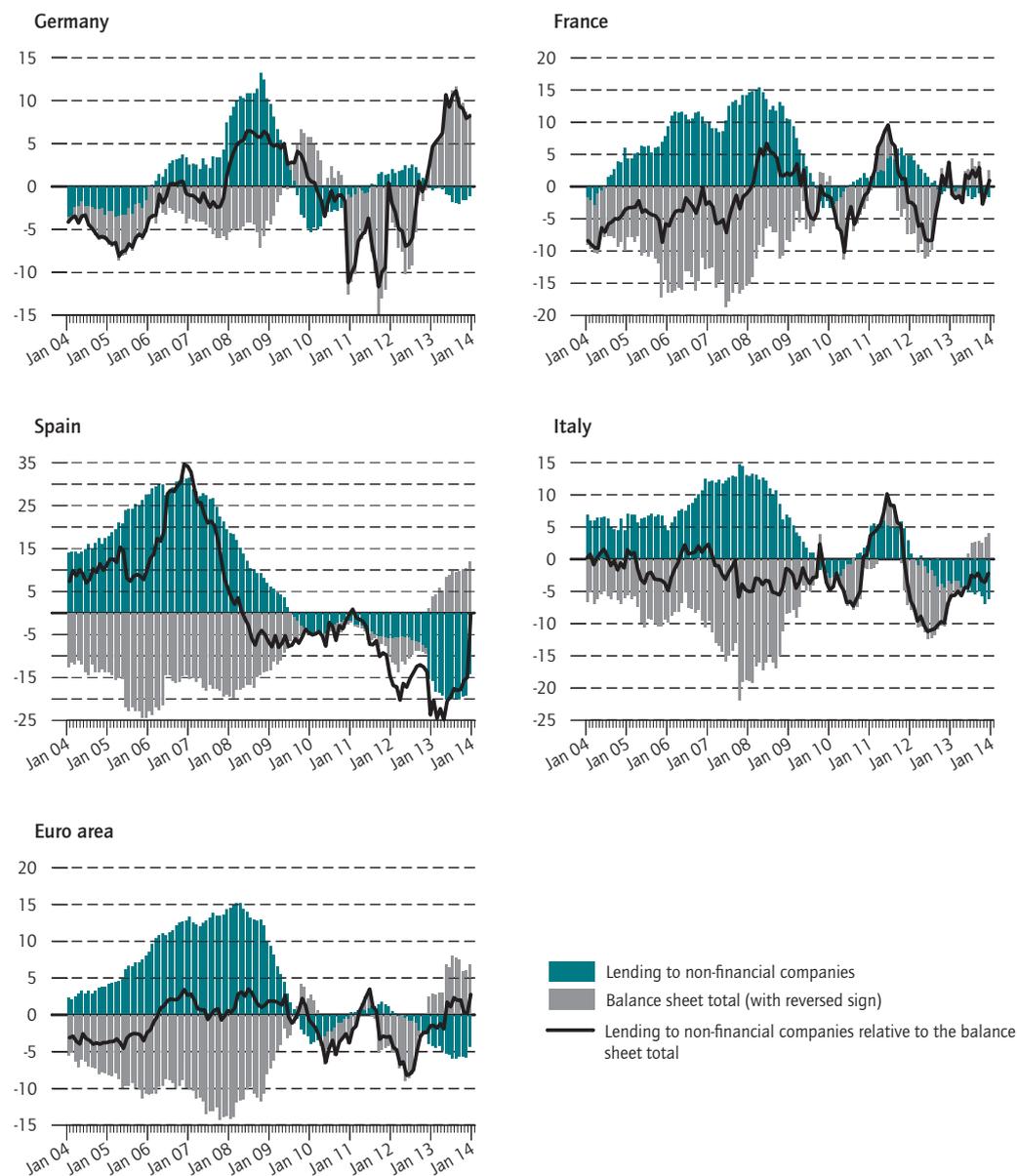
able credit conditions in the crisis countries have contributed to low lending levels. In these countries, the average loan interest rates for non-financial companies, for example, continue to differ substantially (currently by over 1.3 percent) from interest rates in the rest of the euro area (see Figure 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.

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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**

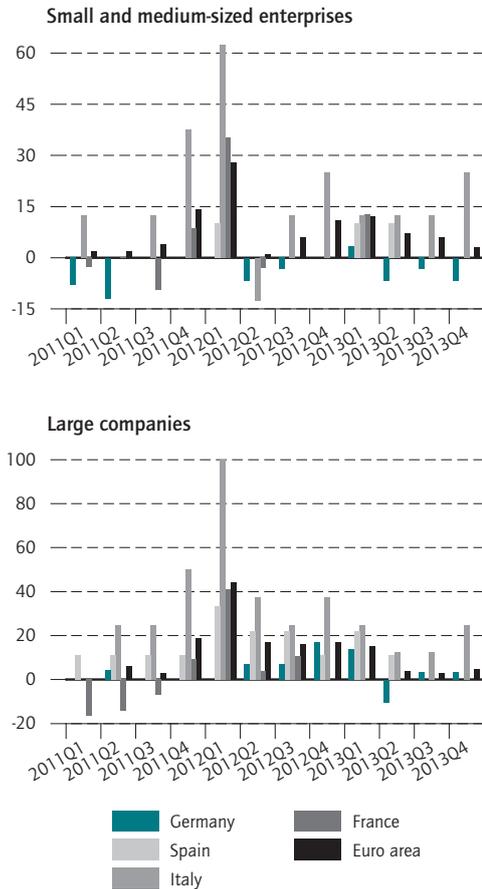
However, the current weak price development in individual member states is also a key feature of the

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).

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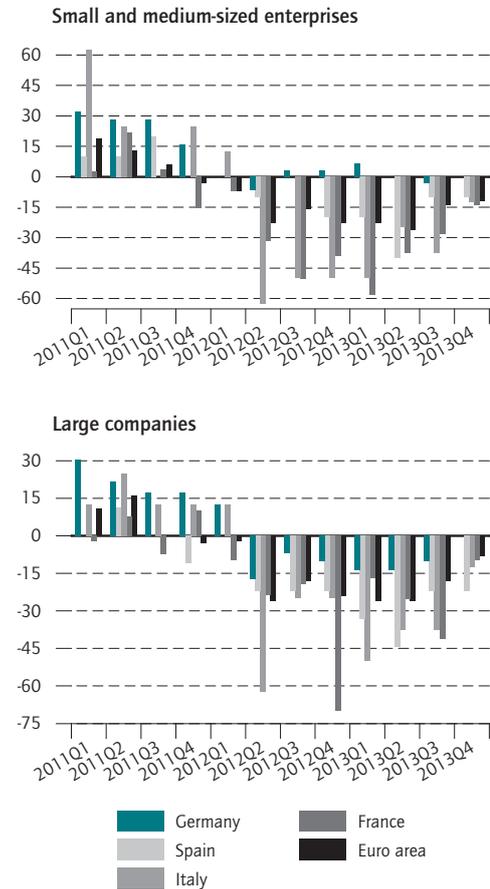
In the last half of the year there was only a minimal tightening of lending standards (with the exception of Italy).

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

Figure 13

**Change in Demand for Loans**

Net balances (+ increased, - decreased)



Source: ECB (Bank Lending Survey).

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

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.<sup>5</sup>

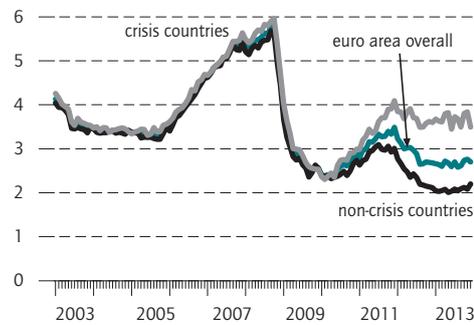
It is therefore all the more important that, particularly in the economically stable euro area countries, inflation does not continue to decline, on the one hand, so as not to slow down the convergence and adjustment process,

<sup>5</sup> 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.

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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).<sup>6</sup>

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

<sup>6</sup> 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.

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.<sup>7</sup>

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**

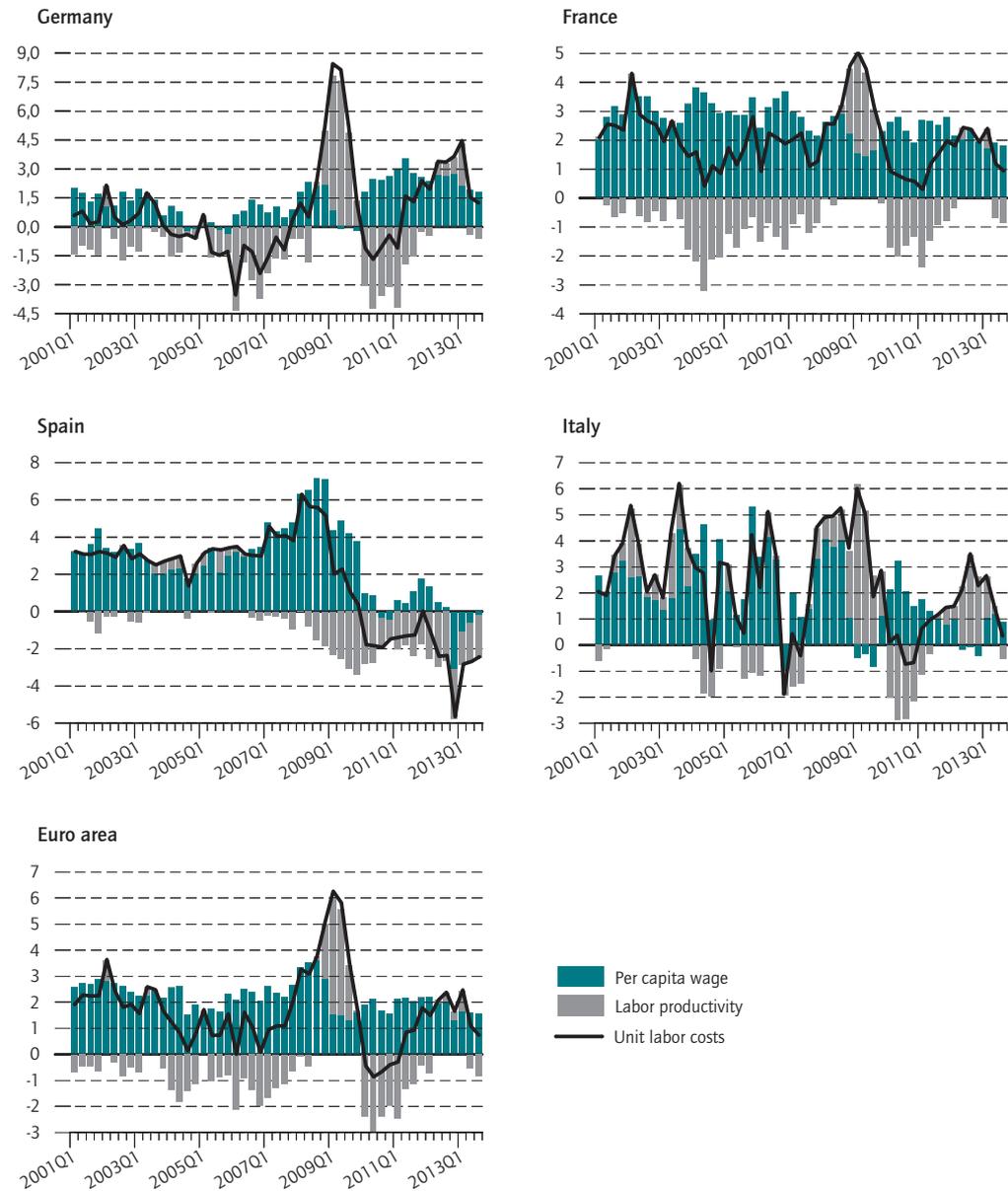
In the current environment of low inflation, what options does the ECB have to counter the risk of deflation in line with its mandate?

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

<sup>7</sup> 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.

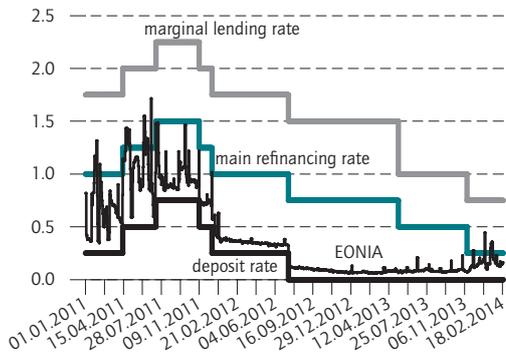
reducing the high debt burden in these countries and the associated restraints on new spending and additional borrowing is perfectly rational from the individual perspective, the situation in Japan shows that such behavior, on aggregate, is capable of driving the economy into a balance-sheet recession. The accompanying de-

flation 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.

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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.

ing the excessive debt amassed, the Central Bank's options are limited.<sup>8</sup>

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.

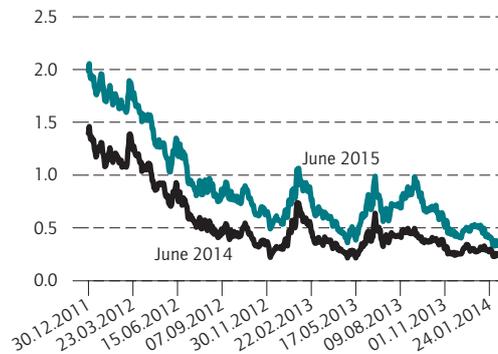
Given the improved situation currently in the financial markets, the introduction, for example, of new longer-term refinancing at existing conditions as a means of stimulating investment and credit demand would not be particularly effective. The demand for liquidity in the banking sector has consistently 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 refi-

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

Figure 17

### 3-Month Euribor Futures

In percent



Sources: Thomson Reuters; calculations by DIW Berlin.

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

finance 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.<sup>9</sup> 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-

<sup>9</sup> 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.<sup>1</sup> 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."<sup>2</sup> 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.<sup>3</sup> 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;<sup>4</sup> 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.<sup>5</sup> Since the ECB retrieved additional Central Bank money generated from the purchases with the aid of fixed-term deposits and thus was able to keep the liquidity in circulation unchanged, the SMP is not usually referred to as a program of "quantitative easing."

<sup>1</sup> 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.

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

<sup>3</sup> Bank of England, Quantitative Easing Explained (2011) [www.bankofengland.co.uk/monetarypolicy/Documents/pdf/qe-pamphlet.pdf](http://www.bankofengland.co.uk/monetarypolicy/Documents/pdf/qe-pamphlet.pdf).

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

<sup>5</sup> See ECB press release from May 10, 2010.

### 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<sup>6</sup>

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:<sup>7</sup>

- 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-

<sup>6</sup> 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.

<sup>7</sup> 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," *Brookings 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.<sup>8</sup> However, there are findings which certainly suggest that the effects faded again relatively quickly.<sup>9</sup> 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.<sup>10</sup> 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.<sup>11</sup>

F447-466.

<sup>10</sup> 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).

<sup>11</sup> 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 the 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).

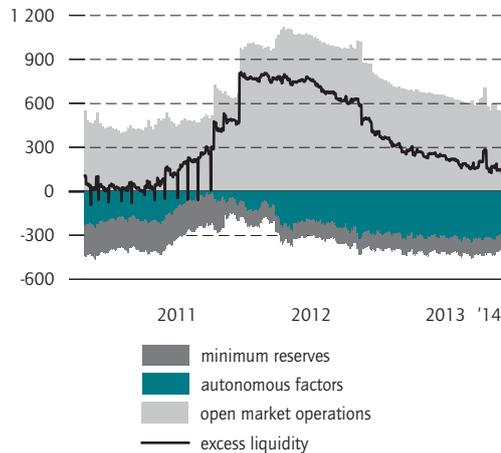
<sup>8</sup> Krishnamurthy and Vissing-Jorgensen, "The Effects of Quantitative Easing" or J. Gagnon, M. Raskin, J. Remache, and B. Sack, "Large-Scale Asset Purchases by the Federal Reserve: Did They Work?," Federal Reserve Bank of New York, Staff Report no. 441 (March 2010) or J. Meaning and F. Zhu,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

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

Figure 18

### Liquidity Provision, Liquidity Absorption, and Surplus Liquidity

In billions of euros



Sources: ECB; calculations by DIW Berlin.

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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.<sup>10</sup> 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.<sup>11</sup> 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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<sup>10</sup> See ECB press release from October 31, 2012.

<sup>11</sup> 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.