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**Article**

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DIW Economic Bulletin

**Provided in Cooperation with:**

German Institute for Economic Research (DIW Berlin)

*Suggested Citation:* Kokert, Marius; Schäfer, Dorothea; Stephan, Andreas (2014) : Low base interest rates: An opportunity in the euro debt crisis, DIW Economic Bulletin, ISSN 2192-7219, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 4, Iss. 5, pp. 3-13

This Version is available at:

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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.

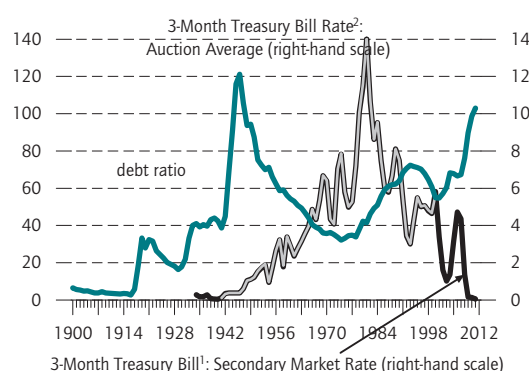
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Despite moderate growth figures ...

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.

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... 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):

$$d = \frac{\frac{\text{Level of debt in the current year}}{\text{GDP at market prices in the current year}} - \frac{(1+d) \times \text{level of debt in the previous year}}{(1+r) \times \text{GDP at market prices in the previous year}}}{1}$$

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.

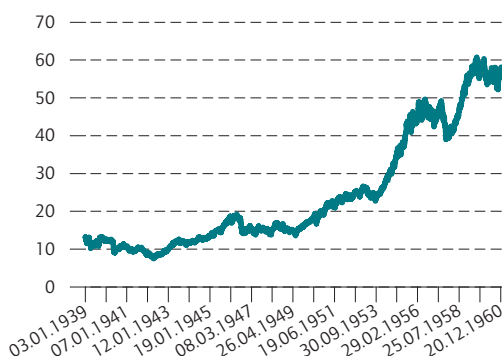
The debt ratio increases (decreases) over time if the growth rate of the level of debt is greater (smaller) than the growth rate of nominal GDP. If the primary balance is zero and the average interest rate on gross debt  $d$  equals the nominal growth rate  $r$  of GDP, then the debt ratio stagnates 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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2015

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-

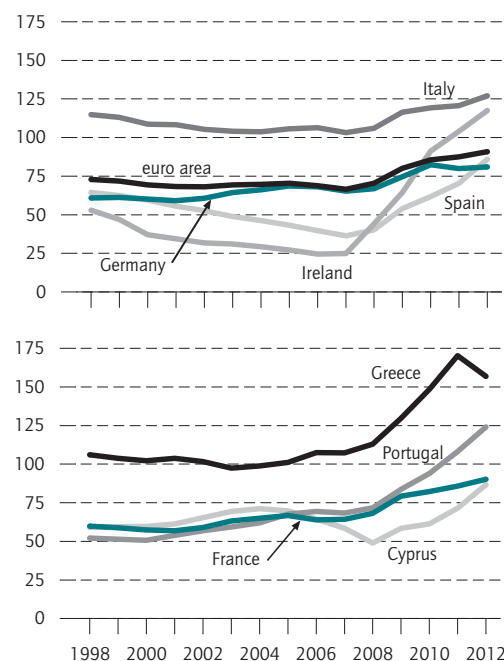
Source: Rating agencies, November 29, 2013.

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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-

<sup>3</sup> Greece joined the Monetary Union, originally comprising eleven countries, in 2001, and Cyprus in 2008.

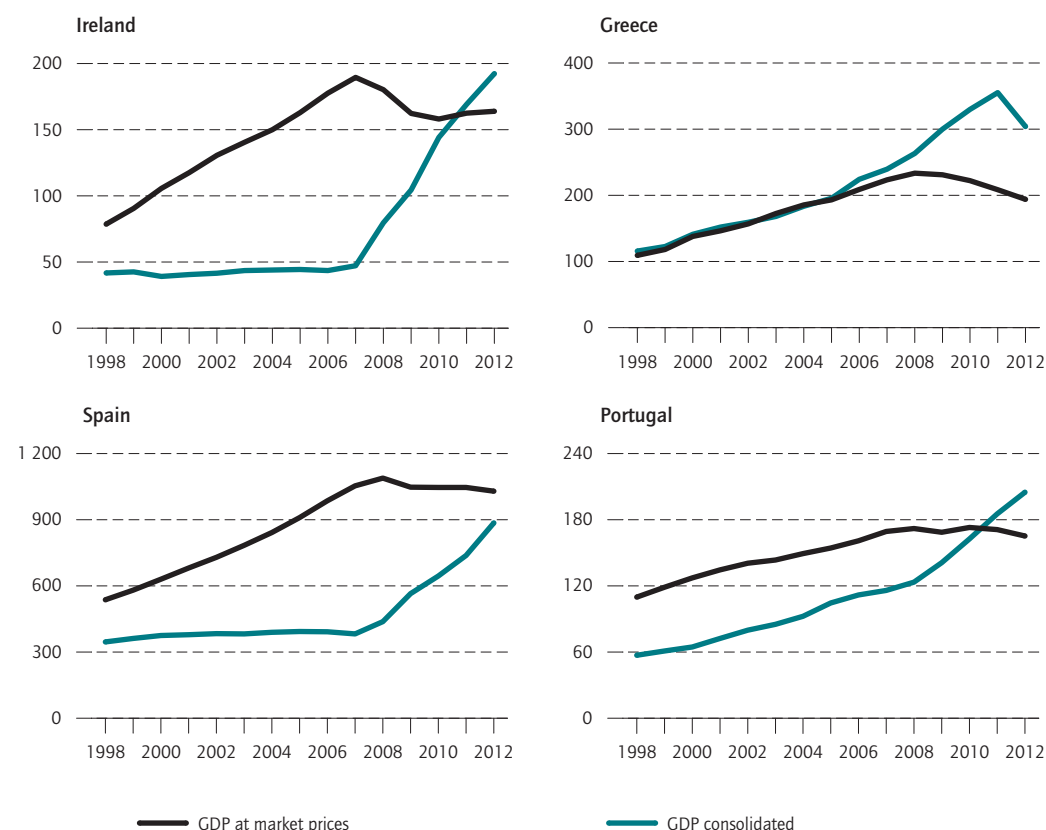
<sup>4</sup> When the new accounting framework „ESA 2010“ is implemented in September 2014, there will be minor changes in the EU countries' levels of GDP. For example, Eurostat expects GDP to increase by 2.4 percent in the EU, but only by one or two percent in the crisis countries. As a result, the 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).

<sup>5</sup> 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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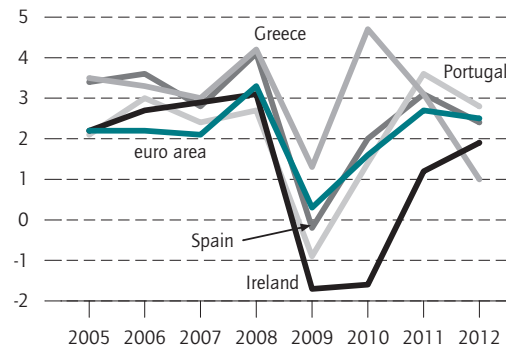
Support of financial sector is a major factor contributing to debt level.

6 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\\_turnoil](http://epp.eurostat.ec.europa.eu/portal/page/portal/government_finance_statistics/excessive_deficit/supplementary_tables_financial_turnoil).

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-leiht-sich-erneut-kurzfristig-geld/8804052.html](http://www.handelsblatt.com/finanzen/boerse-maerkte/anleihen/griechenland-athen-leiht-sich-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>

<sup>1</sup> Planned end of aid package: December 31, 2014.

<sup>2</sup> Loan for bank recapitalization. Repayment between 2034–2039 and 2043–2046.

<sup>3</sup> Repayment in regular installments from 2044 to 2046.

<sup>4</sup> Repayment in regular installments from 2023 to 2042.

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

<sup>6</sup> 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

1 The aid package ended on December 8, 2013.

2 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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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

1 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.

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-

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>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.

<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>

<sup>1</sup> Support through the ESM; the aid package ended on December 31, 2013.

<sup>2</sup> Constant servicing of the loan between 2022 and 2027 at 6.578 billion per year.

<sup>3</sup> 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).

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The Spanish assistance loans served to stabilize the banking sector.

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).

### 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.

### 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

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

<sup>1</sup> 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).

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

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).

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>

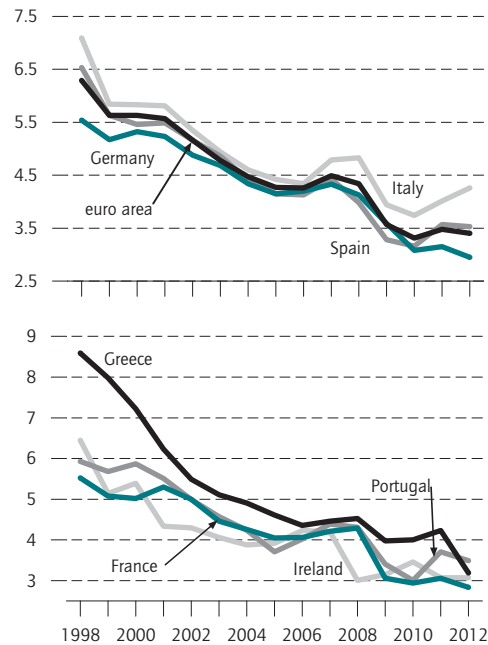
With regard to the countries hit particularly hard by the crisis, Ireland was the forerunner once again and, after experiencing the lowest level in 2008, initially showed an increase and then another decline in its interest burden. Spain and Portugal underwent a similar development, albeit somewhat later. 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-

<sup>15</sup> 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.

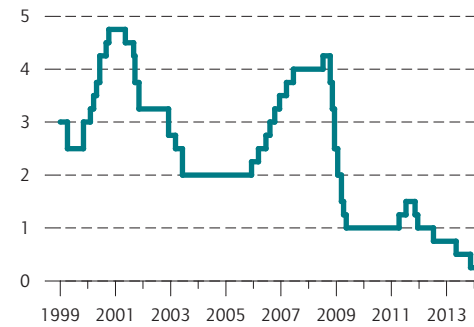
matically, reaching a level still below the euro area average, after a slight increase during the crisis.

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

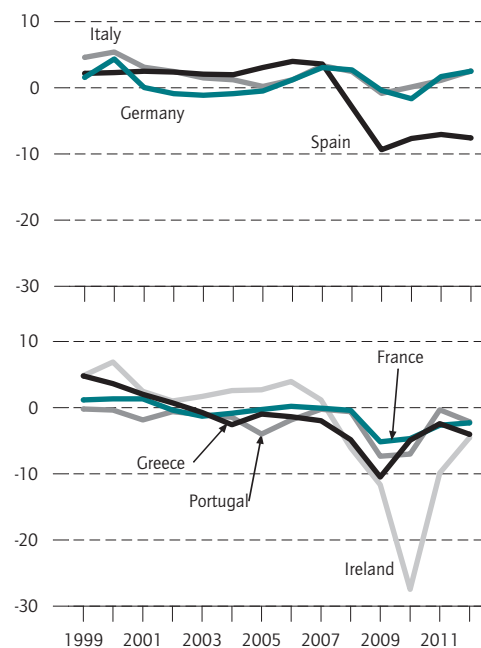
The primary balance, i.e., the difference between annual revenues and expenditures before interest payments is the second determining factor for growth of gross debt. Some countries in the euro area, including Spain, Ireland, and Italy, had positive primary balances up until 2007. France, too, achieved 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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**Volume 4, No 5**  
13 June, 2014  
ISSN 2192-7219

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