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GERMANY'S BENEFIT FROM THE GREEK CRISIS

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1 Introduction

This note shows that the German public sector balance benefited significantly from the European/Greek debt crisis, because of lower interest payments on public sector debt. This is due to two effects: One, in crisis times investors disproportionately seek out safe investments ("flight to safety"), bidding down the returns on safe-haven assets. We show that German bunds strongly benefited from this effect during the Greek debt crisis. Second, while the European Central Bank (ECB) monetary policy stance was quite close to an "optimal" monetary policy stance for Germany from 1999 to 2007, during the crisis monetary policy was too accommodating from a German perspective, due to the emerging disparities across the Euro area. As a result of these two effects, our calculations suggest that the German sovereign saved more than 100 billion Euros in interest expenses between 2010 and mid-2015. That is, Germany benefited from the Greek crisis even in case that Greece defaults on all its debt (a total of 90 billions) owed to the German government via diverse channels (European Stability Mechanism [ESM], International Monetary Fund [IMF], or directly).

In the following, we will document in Section 2 the direct effects news in Greece had on German government bond yields by looking at specific events in the past, providing evidence for an effect of flight-to-quality or flight-to-liquidity. In order to assess the amount of savings to the German budget that may have resulted from this, we develop two different measures for counterfactual yields without such a flight effect in Section 3. These counterfactual yields (traded on secondary markets) are then combined with newly issued debt on primary markets in Section 4, resulting in estimates of the gains for the German sovereign. As argued there, these estimates are most likely very conservative.

2 Bad news in Greece trigger flight into German bunds

Bad news in Greece was good news for Germany and vice versa. Faced with market uncertainty, investors shift their portfolios towards safe assets, for example countries with high credit ratings. This is the so-called flight-to-safety effect. Similarly, investors may also shift their portfolios towards assets that are more actively traded (flight-to-liquidity). Both effects have been analyzed in theoretical models (e.g. Vayanos (2004) and documented empirically for an earlier episode in the European government bond market by Beber et al. (2009).

The Appendix reports the most important news from Greece between October 2014 and July 2015 and its effect on German ten-year bond yields. During this time, the conservative Greek government searched for a new president who would be appealing to the parliament. Having failed, it called elections which were easily won by the radical left in January 2015. After winning the election, the new Syriza government stopped many of the reforms imposed on previous governments by creditors, arguing that austerity had only hurt the Greek population in the past. However, in the dramatic negotiations on continuing reforms and support by the Euro area (including the first default by an advanced economy on IMF loans in the beginning of July 2015), the Greek government had to agree to even harsher austerity measures than before. We see that every time an event made agreement on a reform package less likely

(and a Grexit more likely), German government bond yields fell and each time an event increased the likelihood of an agreement on package, German government bond yields increased . Cumulatively, bad news for Greece resulted in a decline of German ten-year bund yields of more than 1.5%. The effect is symmetric: Good news for Greece resulted in increases in German bund yields of about equal magnitude.[1]

3 Counterfactual yields on German bunds without flight-to-safety

The previous section provides convincing evidence that bad (good) news in Greece lowered (increased) German bund yields. However, in order to assess the overall effect on interest costs, one needs to simulate German government bond yields in the absence of a crisis. Hence, we provide two simple ways to calculate counterfactual yields for German bunds for 2010 to 2015. The first (naïve) approach uses the average bond yield between 2000 and 2007 as a benchmark, assuming that all deviations from such a yield can be attributed to the crisis. The second approach relaxes this assumption and takes into account that some deviations from this normal value may be explained by the general macroeconomic environment in Germany. Hence, we calculate the counterfactual risk-free interest rate using a simple monetary policy rule (Taylor rule) for Germany. Both approaches yield very similar results.

3.1 Benchmark: German bond yields

German bond yields from the introduction of the Euro until 2007 were quite stable (Figure 1). In that figure (as in the following), we use three different maturity bands: short-term bonds with a maturity of up to one year; medium-term bonds with maturities between one and five years, and long-term bonds with maturities of more than five years. Table 1 reports the average yield from 2000 to 2007 and the yields for the subsequent years until 2015. The yields between 2000 and 2007 (differing by maturity) can be interpreted as equilibrium yields for Germany in the absence of a crisis situation. Yields for all maturities fell to levels close to zero during the Great Financial Crisis and never recovered to their normal level afterwards despite the fact that the German economy fully recovered in 2009 and 2010. In this naïve approach, any difference between observed and "normal" bond yields between 2010 and mid 2015 can therefore be attributed to the European debt crisis (which from 2010 onwards was mostly driven by events in Greece). That is, the Greek crisis created circumstances in which Germany was not only present as a safe haven, but actively sought as such by fleeing investors. Hence, as our first set of counterfactual interest rates, we therefore use the normal average yields observed between 2000 and 2007 on secondary markets.

3.2 A German yield curve derived from a counterfactual monetary policy rule

We are interested in the development of the German government bond yields for the counterfactual case that there had been no European debt crisis. Our second approach to this problem involves deriving hypothetical German policy rates by estimating three variants of central bank policy rules in the style of Taylor (1993), which assumes central bank decisions on interest rate are a function of two factors: the deviation of inflation from an inflation target and the deviation of output from potential

[1] On the other hand, positive news from Greece increased yields on German benchmark bond yields on average, see Appendix. However, the direct effect of positive news was on average smaller, consistent with event studies on the effects of good and bad news (Afonso, Furceri and Gomes, 2012).

output. With the estimated German policy rates we then calculate the counterfactual German bond yields by assuming the slope of the yield curve to be exogenous.

For the policy rule estimation, we use quarterly data from 1980Q1 to 2015Q2. We obtain real output, the consumer price index, the FIBOR (one month, average of the month, 1990Q1-1998Q4) and the Euribor (one month, average of the month, 1999Q1-2015Q2) from the German Bundesbank statistics. We construct potential gross domestic product [GDP] by applying the Hodrick-Prescott filter to the GDP series. The inflation series is constructed by taking the quarterly average of year on year percentage change of the monthly inflation index. The policy rate is constructed by merging the FIBOR and the Euribor rate. We assume the real interest rate to be two percent as to approximate the long-run growth rate of the German economy during the estimation period. As in Clarida et al. (1998), the inflation target is assumed to be 1.9 throughout the estimation. We estimate the following policy rule:

$$i_t = \alpha\, i_{t-1} + (1-\alpha)(\delta r + \pi^* + \beta(\pi_t - \pi^*) + \gamma(y_t - y^*))$$

where i_t is the main measure for the conduct of monetary policy, π^* is the inflation target of the central bank, r is the long-run real interest rate , π_t is the inflation rate, y_t is the real output and y^* is the potential output. We include interest rate smoothing into our specification. Thereby, we take into account that central bankers might prefer to change the policy rate in small steps. For the estimation procedure, we follow Clarida et al. (1998) and use GMM (Generalized Method of Moments) estimation. We construct three variants of counterfactual German policy rates. The first two are estimations of the above specification for two subsamples 1990Q1 until 1998Q4 and 1990Q1 until 2007Q1. For the third variant, we simulate the rule specified above assuming the parameters of Taylor (1993) for $\beta = 1.5$ and $= 0.5$. The parameters of the first two estimations are in line with the literature. For the estimation of the subsample covering 1990 to 1998, we have $\alpha = 0.71\ (0.084)$, $\beta = 1.57(0.2468)$ and $\gamma = 0.93\ (0.5072)$ (standard deviations in brackets). For the second subsample from 1990 to 2007, we find $\alpha = 0.74\ (0.084)$, $\beta = 1.62\ (0.2468)$, $\gamma = 0.83\ (0.5072)$.

Previous to the introduction of the European Monetary Union (EMU), the German Bundesbank officially followed monetary aggregate targeting, which implies changes to the interest rate when money growth deviates from its target value. Empirical evidence given by Bernanke (1997) showed, however, that at least the Bundesbank acted in favour of inflation targeting and that the interest rate policy of the Bundesbank can be well approximated by Taylor-type rules. With the introduction of the EMU, the European Central Bank took over interest rate settings for the whole currency union, targeting union's average inflation deviations and average output gaps. In particular, interest rates are meant to be set to maintain actual EMU-wide inflation below but close to two percent and as to stabilize the business cycle. In reaction to the double dip recession, ECB's monetary policy has dominantly been expansive. This implies that the interest rate set by the ECB has been low as compared to an interest rate that would have been set by a central bank that bases its monetary policy decisions solely on economic developments in Germany. Thus we find that the counterfactual interest rate in all the scenarios described above is well above the actual policy rate set by the ECB.

Figure 2 displays the three counterfactual policy rates of Germany and the actual realizations of the Euribor from the first quarter in 2000 until the second quarter of 2015. First notice that the dynamic forecasts of both estimated Taylor rules as well as the original Taylor rule variant closely follow the development of the Euribor from 2000 until the first quarter of 2007. Secondly, the differences between the estimated policy rates and the Euribor rise from the first quarter of 2007 to the first quarter of 2009 as well as from the first quarter of 2010 onwards and start to decline slightly after 2012. Especially the counterfactual interest rate obtained from a Taylor rule based on pre-Euro data

gives credit to the assertion that the policy of the ECB was actually not much different from the one the Bundesbank would have chosen until 2007. The main reason for this similarity is the large weight of the German economy, combined with a comparably low concern of misalignments in the Euro area (Knedlik and von Schweinitz, 2012). When misalignments started to become apparent during the 2008/2009 financial crisis and subsequent sovereign debt crises, the ECB opted for a more accommodative monetary policy than would have been appropriate for Germany alone.

Figure 3 depicts the differences between each of the estimated policy rates and the Euribor, respectively. The differences peak on the heights of the financial and the sovereign debt crisis. Differences are small until about 2007 (around 50 basis points, BP) and rise particularly during the European debt crisis. We use these estimated policy rates for Germany to calculate the counterfactual bond yields for the long-, medium- and short-run maturity by subtracting the Euribor from the yields series and adding our estimated policy rates. The counterfactual and the actual yields are depicted in Figures 4 to 6. The counterfactuals indicate that in the absence of crisis, German government bonds yields would have been substantially higher.

4 The gains from the safe-haven effect

We use information on actual bond auctions by the German government in order to calculate the overall gain to the budget. Table 2 presents the structure of public sector debt issuances from 2007 to today. The variation in bond issuances of the German general government over time reflects the high government deficit during the Great Financial Crisis, and the slow consolidation of budgets from 2011 onwards. The auctioned amounts are obtained from the reports of the Federal Financing Agency on all auctions of newly issued bonds (including increased principal on outstanding bonds) of the central government. However, the auctions from the Federal Financing Agency are not the only source of debt funding of the general German government. They do not include (a) debt by states or municipalities or (b) alternative debt financing sources like direct credit from banks. Therefore, auctions for different maturity bands are only between 45% and 75% of total gross borrowing by the German state. Hence, the estimates on interest saving of the German government are necessarily only a lower bound on total gains from the Greek debt crisis.

Germany issued between 300 (2007) and 676 million Euros (2010) each year. This is the relevant amount for our calculations, because interest savings will only accrue on newly issued debt, not on outstanding debt. Frequent rollovers allow Germany to "cash in" on reduced government bond yields.

With this information in hand, we can proceed to calculate the annual interest savings that accrued to the German budget from the crisis. The difference between observed and the counterfactual interest rates provided in the previous section gives, for every point in time and every maturity group, a yield spread. If these yield spreads (observed minus counterfactual) are multiplied with newly issued debt, we obtain gains from the favorable interest environment. However, these gains do not only materialize in the year of issuance, but in all subsequent years until maturity (assuming normal coupon bonds). Assume a bond of size one billion with a maturity of ten years that is auctioned off in 2011 for an interest rate which is 4% below its counterfactual due to uncertainty on financial markets. Then the German state saves 4% of one billion (40 millions) in interest payments every year until 2020. For the

purposes of this analysis, we have limited ourselves to the gains that already accrued, and do not include any future gains.[2]

In the following, we assume that all German government bonds pay interest every year.[3] That is, we use the maturity of bonds in order to distribute interest gains for bonds issued between 2010 and today over the years following the issuance until 2015. Adding gains originating and materializing between 2010 and 2015 over different maturity bands allows us to get a feeling of total savings from bond auctions over this period, as shown in Figure 7. Using this conservative approach, we find savings in the ballpark of 100 billion Euros, irrespective on how we specify the counterfactual. This should be viewed as a lower bound of the benefits accruing to the German government from the debt crisis. These gains are larger than the total Greek debt owed to Germany, (estimated by most accounts at 90 billion Euros, including exposure from a still to be negotiated program). That is, even in event that Greece defaulted on all its debt, the German central government alone would have benefited from the Greek crisis. The gains from other credit financing of the general government (another 25% to 55% of total newly issued debt) are not even accounted for in this context.

The gains from different counterfactual scenarios are remarkably similar, ranging from 93 billion for the normal yields scenario to 126 billion from the pre-Euro Taylor-rule scenario. The fact that very different assumptions yield quite similar results provides a high degree of robustness.

Concerning the future, we expect Germany to continue profiting from the current situation. If the situation calmed down suddenly, Germany would no longer be able to issue debt at depressed rates. However, sizeable amounts of medium- and long-term bonds issued in the past years are still far away from maturity, extending the period of German profits for some time to come.

[2] Even in case interest rates return immediately to their long-term average, there are still substantial future gains from the long-term bonds issued under the low interest environment. Rough estimates would suggest that these gains could as much as double the estimates on interest savings given below.

[3] This assumption is somewhat conservative, since zero coupon bonds (where gains materialize in the first year in total) constitute around 1/3 of all newly issued bonds.

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Figures

Figure 1:
German government bond yields, average for different maturity bands

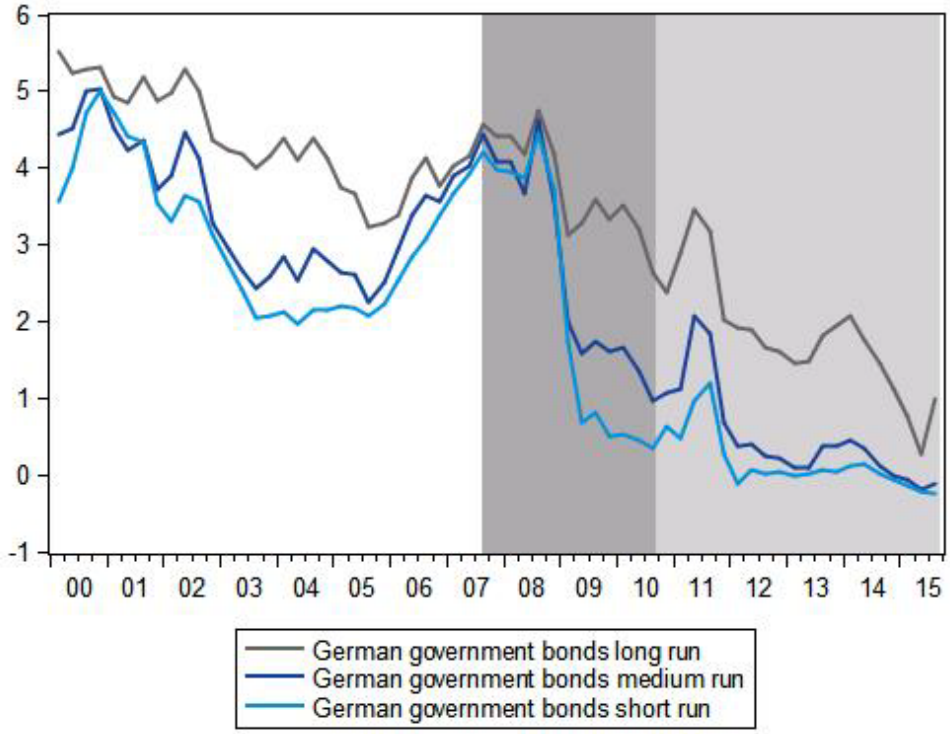
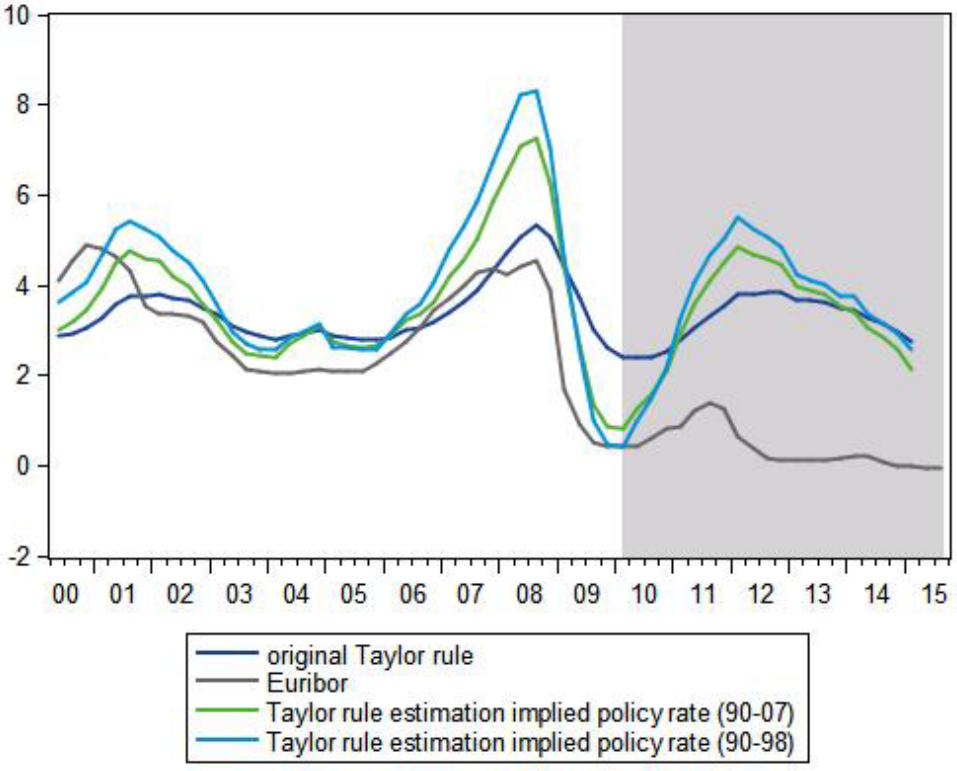


Figure 2:
Dynamic forecasts of estimated and actual policy rates for Germany from 1990 to 2015



Note: The gray area (2010-2015) displays the period of interest, in this and the following figures.

Figure 3:
Difference of simulated policy rules and the Euribor

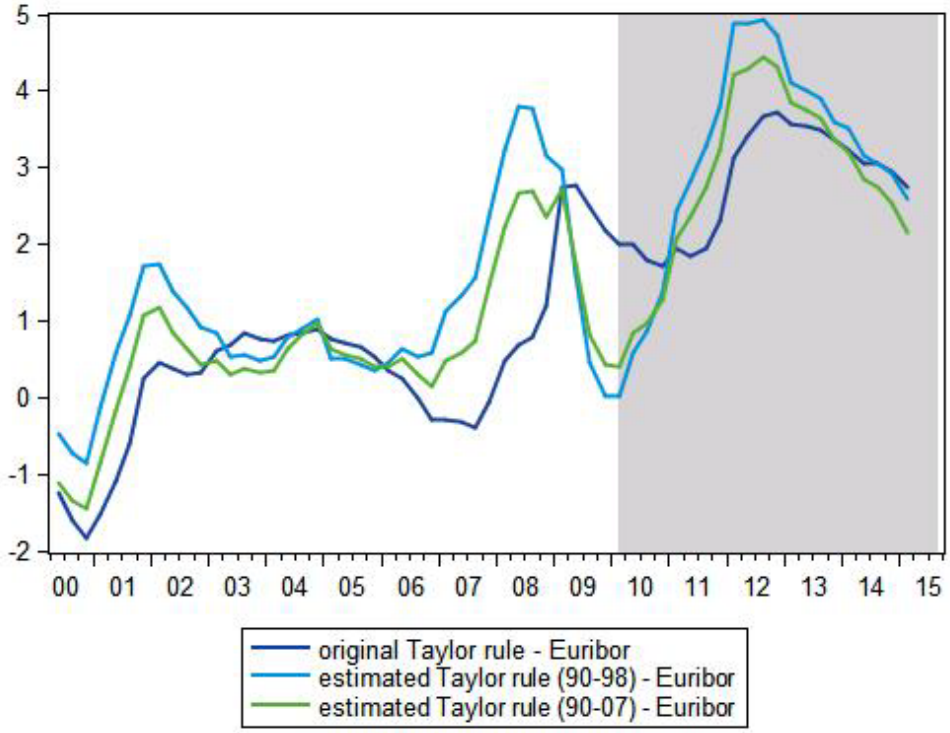


Figure 4:
Actual and counterfactual bond yields (long-term, more than five years)

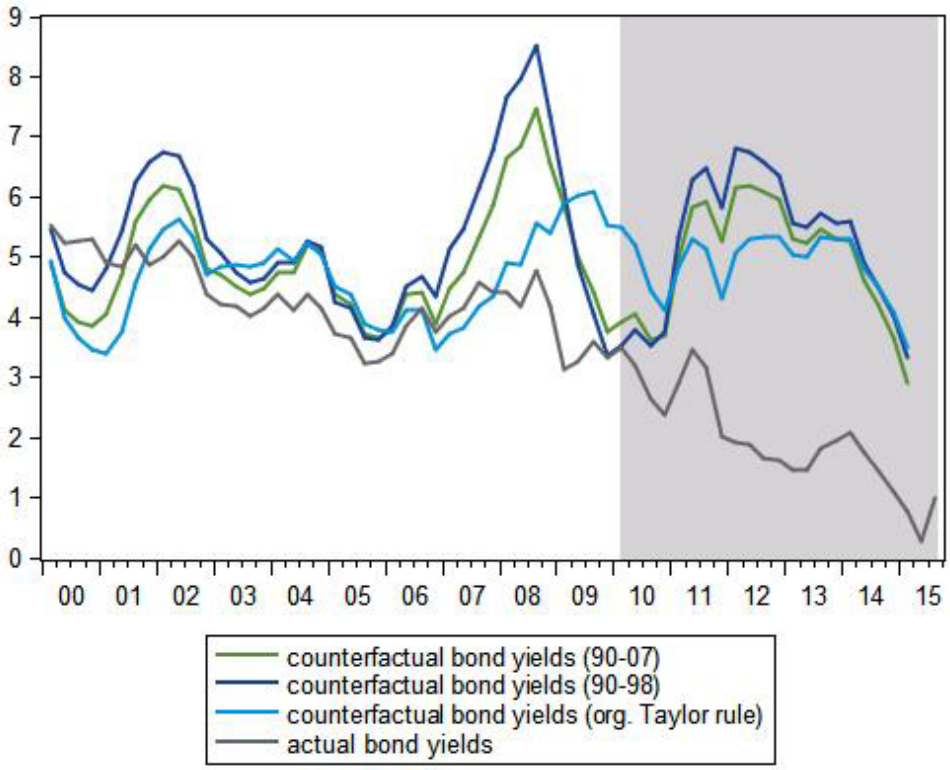


Figure 5:
Actual and counterfactual bond yields (medium-term, 1-5 years)

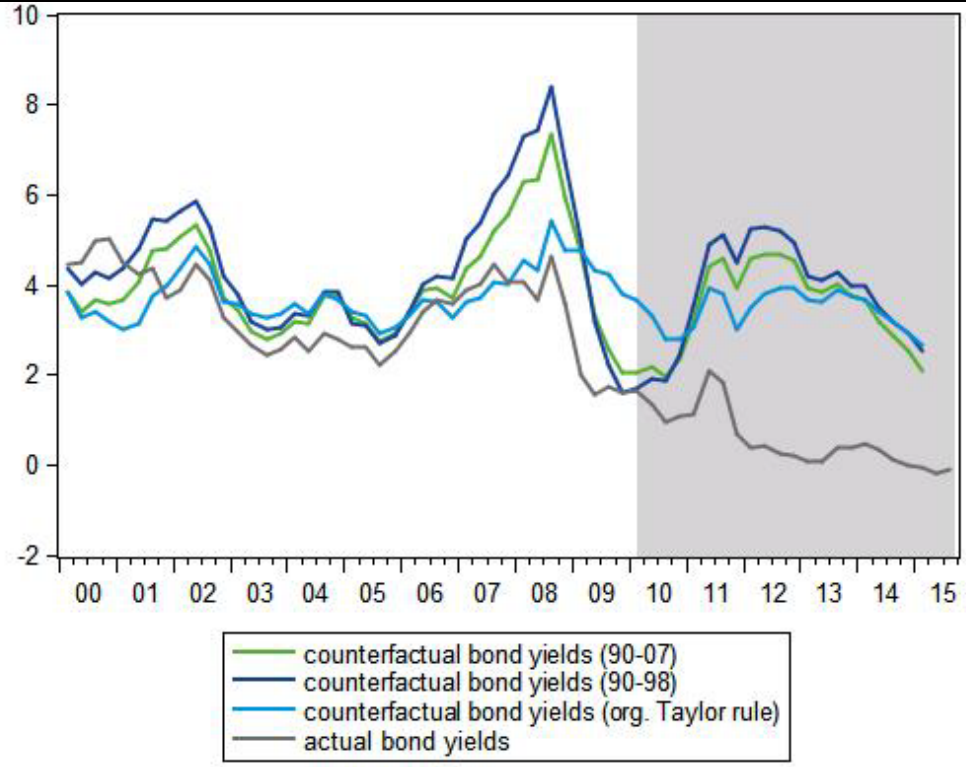


Figure 6:
Actual and counterfactual bond yields (short-term, up to 1 year)

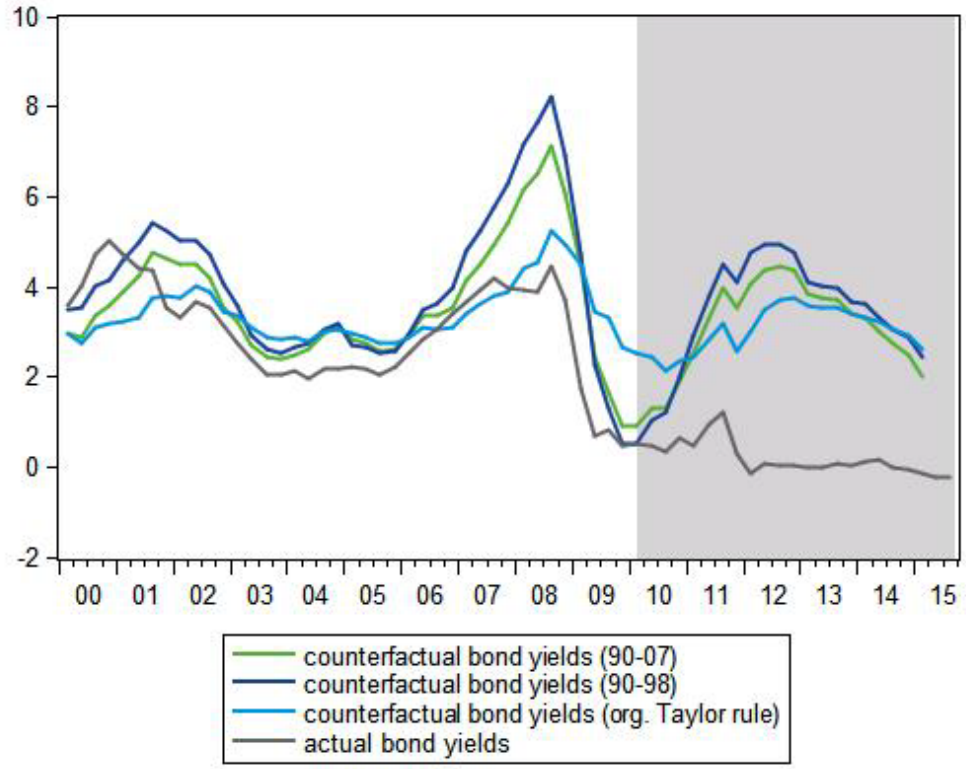
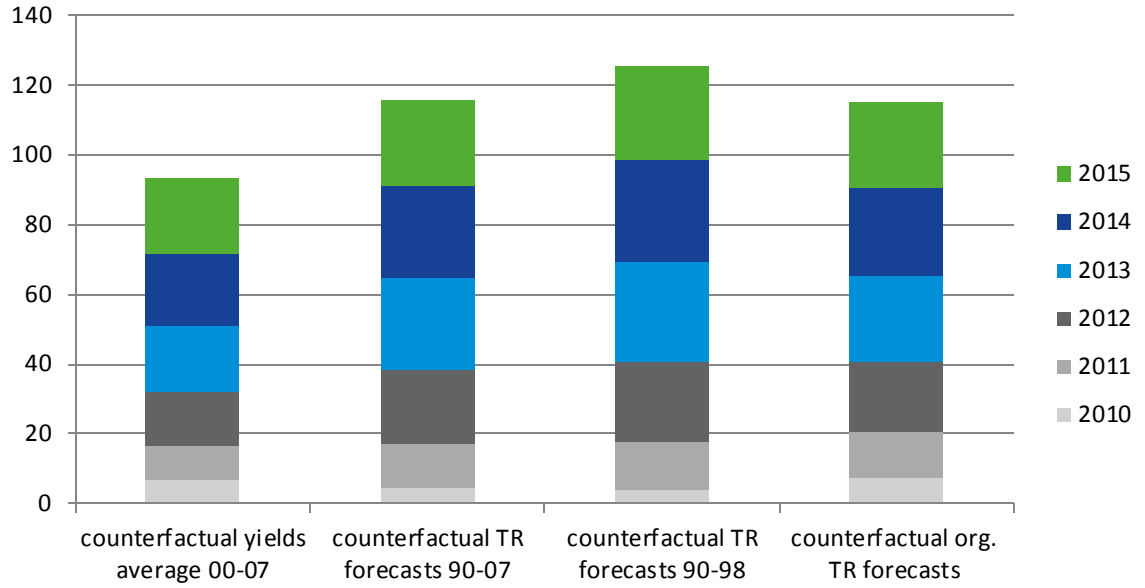


Figure 7:
Savings for different scenarios by year of issuance



Tables

Table 1:
Observed German government bond, 2000-2007 and yearly averages from 2008-2015

year\maturity	up to 1 year	1 to 5 years	more than 5 years
ave. 2000-2007	3.19%	3.54%	4.4%
2008	3.54%	3.54%	4.13%
2009	0.68%	1.68%	3.43%
2010	0.45%	1.13%	2.82%
2011	0.66%	1.33%	2.77%
2012	0.03%	0.22%	1.63%
2013	0.05%	0.3%	1.77%
2014	0.06%	0.23%	1.6%
2015	-0.2%	-0.13%	0.68%

Table 2:
Newly auctioned debt of the German central government, million Euros

	total debt	gross borrowing	<= 1 year	1 to 5 years	>5 years
2007	1518814	297331	72000	92000	51000
2008	1526166	311029	75000	97000	51000
2009	1591040	445067	176000	100000	58000
2010	1950922	676418	116000	128000	79000
2011	1970299	635603	94000	119000	70000
2012	2000224	610894	80000	109000	75000
2013	1966555	474397	74000	115000	68000
2014			40000	104000	68000
2015 (Jan-July)			29500	58000	35500

Sources: German statistical office and Federal Financing Agency (Finanzagentur der Bundes GmbH).

Appendix

List of all news (good and bad) in Greece and their impact on German bund yields, January 2014 – July 2015

date	event	good news	bad news	yield change bonds Germany
01.10.2014	Greek government to seek confidence vote in parliament, inner government disputes	0	1	-0.040
06.10.2014	Greek government forecast GDP growth (2,9%) for next year	1	0	-0.022
08.10.2014	Greece issues new short term (6 month) government bonds (€1,14 bn)	1	0	-0.002
13.10.2014	Samaras wins confidence vote and Greece proceeds with further austerity. Greece's finance minister, Gikas Hardouvelis, argued in talks with the IMF boss, Christine Lagarde, that Athens can do without further loans from the Washington-based lender of last resort.	1	0	0.001
15.10.2014	political instability: Syriza on the rise in polls, Fitch report came out saying the "large amounts of unreserved problem loans leave the four major banks' balance sheets vulnerable to developments in an improving but still very weak economy. Early exit plans seem to worry market participants.	0	1	-0.073
17.10.2014	Samaras wants to negotiate new precautionary credit line to protect country from market turmoil	1	0	0.042
23.10.2014	Greek's Alpha Bank has passed ECB's stress test	1	0	0.027
27.10.2014	ECB stress test: three large Greek banks fail, but have already taken the necessary measures, Greek government salutes results	1	0	-0.013
30.10.2014	The IMF said Thursday that Greece is not ready to rely solely on commercial markets for financing.	0	1	-0.041
03.11.2014	Greece will need another rescue package in 2015, as EU leaders' meeting suggests.	0	1	0.013
06.11.2014	Euro group backs precautionary credit line	1	0	0.003
14.11.2014	Greece shows strong growth figure in the third quarter of 2014 (0.7%). Greece is out of the recession, but Italy is back in recession.	1	0	-0.010
18.11.2014	Greece at odds with creditors (IMF/EU): Greece wants to exit unpopular bailout program as Euro group is skeptical. IMF and EU inspectors disagree with Greece's projection of its budget gap for 2015.	0	1	0.003
26.11.2014	Greece fails to reach bailout agreement with creditors	0	1	-0.017
01.12.2014	Greece is considering bowing to external pressure and accepting a full role for the International Monetary Fund	1	0	0.027
02.12.2014	Samaras calls creditors demands "irrational and unjustifiable"	0	1	0.018
05.12.2014	Greece is considering bringing forward its presidential elections next year by more than a month	0	1	0.013
08.12.2014	Bailout extension will be given to Greece/Greek parliament passes budget. Samaras announces: parliamentary elections will move up(12/08/2014).	0	1	-0.066
10.12.2014	polls of institute „Alco" show that Syriza has taken the lead	0	1	-0.011
11.12.2014	Samaras: Victory of Syriza in the parliamentary elections will fuel „Grexit" rumors.	0	1	-0.001
16.12.2014	Troika report: IMF, EU, ECB demand further reforms	0	1	-0.025
17.12.2014	Presidential elections have failed in the first round	0	1	-0.013
18.12.2014	Bundestag/German parliament approves extension of the current rescue package	1	0	0.023
23.12.2014	A second round fails to elect a president.	0	1	-0.009

List of all news (good and bad) in Greece and their impact on German bund yields, January 2014 – July 2015

date	event	good news	bad news	yield change bonds Germany
29.12.2014	Third and final trial to vote for a president fails. IMF stops negotiations with Greece concerning emergency loans as long as there is no new government.	0	1	-0.043
07.01.2015	Merkel confident that Greece will remain in the Euro zone (prior to G7 summit).	1	0	0.018
12.01.2015	German government rejects Greece reparation claims.	0	1	0.000
13.01.2015	Coeuré: ECB is ready to purchase bonds (possible decision of the ECB council on 01/22)	1	0	-0.004
16.01.2015	For now, EBRD (European Bank for Rebuilding and Development) dismisses Greek request for financial support. US rating agency Fitch adapts prospect for GRE from stable to negative. Rating cut becomes more likely (decision in the evening of 01/16.)	0	1	-0.017
22.01.2015	Tsipras threatens creditors: negotiations will be tough	0	1	-0.065
23.01.2015	President of the Euro group Dijsselbloem indirectly warns the new Greek government (at the World Economic Forum in Davos)	0	1	-0.088
26.01.2015	EU Commission President Junker rules out haircut. Syriza wins parliamentary elections, early projections say (in the evening of 01/25/2015)	0	1	0.027
28.01.2015	Prior to the first meeting of the cabinet, it has become apparent that privatization reforms will be stopped. Cabinet leaves austerity behind: More public servants will be employed. Giannis Varoufakis, austerity critic, is new minister of finance. S&P threatens to cut rating.	0	1	-0.030
30.01.2015	Greek government slings out „Troika".	0	1	-0.044
02.02.2015	Varoufakis acknowledges that a real haircut might be politically impossible.	1	0	0.000
04.02.2015	ECB announces that it is possible that Greek bonds won't be excepted as collateral as of 02/11	0	1	0.020
06.02.2015	S&P cuts rating for Greece from B to B–. Moody's will probably cut rating for Greece, too.	0	1	-0.004
09.02.2015	Tsipras parliamentary speech (in the evening): „rescue packages and austerity measures have failed"	0	1	-0.020
11.02.2015	Euro group crisis summit: negotiations have failed – Varoufakis renounces support for public statement of the Euro group; ECB does not accept Greek bonds as collateral.	0	1	-0.012
13.02.2015	Varoufakis insists on haircut (claims "Troika uses CIA methods like water boarding")	0	1	0.024
16.02.2015	Meeting of Euro group ends without result.	0	1	-0.002
17.02.2015	DPA: New Greek government ready to apply for an extension of the current rescue package. This request would be a change in strategy.	1	0	0.023
20.02.2015	Euro group reaches agreement (in an extraordinary meeting): current rescue package will be extended by four month. Tsipras commits to austerity measures and to the continuation of reforms. Requirement: Tsipras/ government has to submit new reform proposal by 23. February.	1	0	-0.016
24.02.2015	EU Commission rates new reform list (that it has received in the night) as being sufficient; ECB and Euro group subscribe to this assessment (final assessment by the end of April)	1	0	0.008
27.02.2015	National parliaments vote in favour for the extension of the rescue package; Tsipras like Varoufakis before demands a haircut, dismisses the idea of a third rescue package in June.	1	0	0.022
06.03.2015	Greece repays IMF loan in time.	1	0	0.043
09.03.2015	Dijsselbloem says Greek reform proposal is far from being sufficient.	0	1	-0.090
11.03.2015	Greece starts talks the first time after it has thrown out the „Troika"; first reparation claims emerge.	1	0	-0.034

List of all news (good and bad) in Greece and their impact on German bund yields, January 2014 – July 2015

date	event	good news	bad news	yield change bonds Germany
12.03.2015	Greece wants to repay next IMF loan on Friday 13.03.	1	0	0.046
16.03.2015	Greece repays another IMF loan. If Greece leaves Eurozone, Spain and Italy would be next, says Greek Defense Minister.	1	0	0.019
18.03.2015	Talks between Greek government and Troika fail again.	0	1	-0.086
19.03.2015	Greek government admits that it has solvency issues.	0	1	-0.007
23.03.2015	EU Commission: Greece might run into solvency troubles in early April.	0	1	0.035
24.03.2015	Greek government wants to submit new reform proposals next Monday (03/30.)	1	0	0.014
27.03.2015	GRE threatens to stop the repayment of loans; Fitch cuts the rating of Greece by two grades to CCC.	0	1	-0.008
30.03.2015	Creditors are not satisfied with recent reform proposal.	0	1	0.005
31.03.2015	Tusk: „No deal prior to Easter"	0	1	-0.029
01.04.2015	Greece warns creditors that it might go bankrupt in a week.	0	1	-0.013
03.04.2015	IMF staff interrupts meeting with Greece, talks have been unproductive	0	1	0.000
07.04.2015	Varoufakis and IMF's managing director Lagarde have a meeting: Varouvakis promises to pay rate on 9. April. Political conflict: Greece wants € 279 bn in war reparations	0	1	0.004
09.04.2015	Greece repays loan to IMF at the deadline.	1	0	-0.009
14.04.2015	Number of newspapers: data annalists warn: Greece's cash buffers are "increasingly thin" (Robert Kuenzel – director of euro area economic research at Daiwa); IMF economic counselor Olivier Blanchard: financial and geopolitical risks cannot be ruled out	0	1	-0.017
15.04.2015	S&P cuts Greece's credit rating even further (from B– to CCC+; Barroso: "Risk of grexit is higher today".	0	1	-0.031
17.04.2015	ECB examines possible Greek IOU currency in case of default, sources say	0	1	-0.006
24.04.2015	Euro group warns Greece: "No more cash until Greece government completely agrees to the reform plan." Euro group clashes with Varoufakis.	0	1	-0.005
27.04.2015	Tsipras seems to give in. New reform list on the way.	1	0	0.007
29.04.2015	Deputy prime minister Yannis Dragasakis: 'minimum' deal with creditors expected early April; Moody's downgrades Greece rating one notch down from Caa1 to Caa2	0	1	0.121
01.05.2015	Top credit ratings say: no further rating cuts for Greece even if it defaults on its ECB and IMF payments.	1	0	0.000
04.05.2015	slight optimism as talks continue between "Brussels" Group and Greece government	1	0	0.090
05.05.2015	European Commission slashes growth forecast for Greece	0	1	0.064
07.05.2015	Greek finance minister says: Greece will pay IMF loan on time, as talks continue.	1	0	0.009
11.05.2015	Meeting with Euro group not successful. Greece, however, will repay its IMF loan (that would be due on Tuesday 12. May: €756)	1	0	0.054
14.05.2015	Varoufakis argues that returning to the Drachme would be a disaster.	1	0	-0.020
15.05.2015	In a report of the Greece journalist Michael Ignatiou: IMF's Poul Thomsen argues that Varoufakis is a distraction to talks. (Business Insider reports)	0	1	-0.060
18.05.2015	News have emerged that Greece was very close to default in the previous week. "A default event by Greece is inevitable," Carl B. Weinberg, chief economist at High Frequency Economics, wrote in a note published Monday. Varoufakis: New deal is close … maybe next week	0	1	0.009

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27.05.2015	Greece 'cannot afford IMF repayment' in June – secretary of the Interior Voutsis says – Tsipras corrects Voutsis: Greece will repay the IMF loan in time.	1	0	-0.007
28.05.2015	US warns G7 of the possible economic consequences if Greece misses its deadlines. Germany: "no signs for a breakthrough".	0	1	-0.011
02.06.2015	Voutsis: there will be a deal soon; Telephone conference between: Tsipras, Hollande and Merkel yield no specific results, but positive. Creditors (IMF; EU Commission and ECB) announce that they have settled their differences ... now it up to Greece	1	0	0.166
03.06.2015	Athens warned it might skip an IMF loan repayment due this week (due 5. June)	0	1	0.181
04.06.2015	Greek crisis meeting ends without a deal – as it happened (Greece and creditors)	0	1	-0.046
05.06.2015	Tsipras calls on creditors to withdraw 'unrealistic' plan in front of Greek parliament; Greece does not repay IMF loan (will bundle it)	0	1	0.018
08.06.2015	New reform plan offered by Greece does not impress creditors.	0	1	0.040
09.06.2015	Mood has darkened: "Juncker told fellow European commissioners on Tuesday that a new Tsipras meeting would be a "waste of time" and that it would be "better to meet with the Latin Americans", an EU source said.	0	1	0.064
10.06.2015	S&P's Ratings Services has downgraded Greece's credit rating to triple-C	0	1	0.036
11.06.2015	IMF: No progress made, deal is far off – "There are major differences between us in most key areas. There has been no progress in narrowing these differences recently," International Monetary Fund spokesman Gerry Rice	0	1	-0.091
16.06.2015	Merkel: still no progress; Greek Prime Minister Alexis Tsipras accused the creditors on Tuesday of trying to "humiliate" his nation	0	1	-0.023
18.06.2015	The Eurozone's finance minister meeting on June 18th: Euro group President Jeroen Dijesselbloem said no agreement was in sight. The proposals have called for firmer austerity measures to which Greek Prime Minister Alexis Tsipras called a "criminal responsibility".	0	1	-0.009
22.06.2015	Greece presents its new proposal. Fears that Greece will default on its debt and crash out of the Euro zone eased substantially Monday as negotiators reported progress in elevenh-hour talks after months of acrimonious deadlock.	1	0	0.126
24.06.2015	Significant divisions over measures Greece has to implement to receive much-needed bailout funds were complicating crisis talks here Monday, with finance ministers warning that a deal might have to wait until later this week.	0	1	-0.023
26.06.2015	EU, ECB and IMF ready to offer Athens €15.5bn in bailout funds – but Alexis Tsipras accuses lenders of blackmail	1	0	0.057
29.06.2015	Greece announces bailout referendum. Euro group prepares "Plan B"– precautionary measures concerning Greece's bankruptcy. Greek parliament decides to back bailout referendum. Prime Minister Tsipras has urged Greeks to reject the terms of an international aid deal in a July 5th referendum, dismissing warnings that a 'No' vote would drive Athens out of Europe's currency union. Tsipras says if Greek vote 'Yes', Syriza will resign. Greek banks close, capital controls in place. S&P downgrades Greece's rating even further (one notch down to CCC–). S&P: "grexit probability around 50 percent"	0	1	-0.118
30.06.2015	Fitch follows rating of S&P and downgrades Greece by one notch to CCC–	0	1	-0.032
01.07.2015	Greece formally defaulted on a $1.7 billion payment to the International Monetary Fund; Moody's now follows Fitch and S&P in their ratings (one notch down from Caa2 to Caa3)	0	1	0.053
06.07.2015	Greek referendum: the "NO" vote has a majority; Varoufakis resigns, ECB tightens collateral conditions for ELA	0	1	-0.023

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08.07.2015	Greece wants to come back to negotiate: A letter from the Greek government said Athens was willing to begin implementing tax and pension reforms as early as next week as part of a deal to secure desperately needed emergency loans from the European Stability Mechanism, a rescue fund set up to deal with Europe's long-running debt crisis.	1	0	0.047
09.07.2015	Greece capitulates to creditors: On nearly all points, the government of Prime Minister Alexis Tsipras agreed to the same harsh austerity measures that he had asked his own electorate to reject in a July 5 referendum.	1	0	0.046
13.07.2015	Greece's parliament voted early Saturday to accept economic reforms the government had rejected just a week ago. The Euro group has expressed skepticism Greece will implement the austerity measures it has proposed later that day. Germany's proposal for Greece to leave the Euro has portended a deep split between two key creditors of the indebted country. Greek banks likely remain closed in spite of new deal	1	0	-0.045
15.07.2015	The European Commission proposed to give Greece a €7bn (£4.92, $7.7bn) bridge loan to cover the country's financing needs in July using the European Financial Stability Mechanism (EFSM).	1	0	-0.071
16.07.2015	The government promised to reopen banks on Monday and gradually restore services. The ECB announced it was increasing emergency credit (ELA) to Greek banks, adding another 900 million euros ($980 million) in support over one week. EU has agreed to a €7bn, three month bridging loan for the country €7bn, three month bridging loan for the country.	1	0	0.020
17.07.2015	German parliament approves new bailout negotiations; Eurozone ready to start formal talks with Greece over €86bn bailout	1	0	-0.002

Sources: Google news data and Thomson Reuters benchmark yields, ten-year German bunds.

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