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Public Debt and Borrowing. Are Governments Disciplined by Financial Markets?

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Zusammenfassung / Abstract

With the announcement to intervene on the financial markets in case of need to keep the Eurozone intact, the ECB has attenuated the pressure of the markets on the endangered peripheral countries of the Eurozone. Critics argue that by eliminating the market's disciplining interest mechanism, governments in the crisis countries will not carry out reforms and consolidate their budgets. Based on data for the European Union, 2SLS models are tested to investigate if governments react to rising interest rates or deteriorating borrowing conditions. The results are threefold: First, governments do react to rising bond yields on the secondary market by raising their primary surpluses. Second, they also do so when they feel the rising interest rates in their budgets. Third, governments react to changing borrowing conditions but contrary to the expected direction. In case of deteriorating conditions they lower primary surpluses. This is a result of the dominating influence of falling growth rates. These differentiated findings show that the market discipline mechanism only works to a certain extent. For most countries market forces did not suffice to reach sustainable public debt situations. To restore the no-bail-out-rule could be another disciplining mechanism to reach financial sustainability.

JEL-Klassifikation / JEL-Classification: H60

Schlagworte / Keywords: Market Discipline Hypothesis; Public Deficits; Public Debt; Sovereign Bond Yields; Eurozone; Public Debt Crisis

1. Introduction

During the ongoing crisis in the euro area, several uncommon political measures were taken in order to overcome the crisis. One of these measures was the announcement by Mario Draghi, President of the European Central Bank (ECB), on July 26, 2012 to do "whatever it takes" to save the euro. The common interpretation of this announcement was that the ECB is ready to intervene on financial markets to lower loan costs for member countries. The announcement had immediate effects: The government bond yields for the peripheral crisis countries dropped perceptibly whereas the bond yields for the stable countries like Germany or Luxemburg remained low. Until now, the bond yields have not risen again although the problems which caused the crisis are far from being solved, especially not the problems of loss of competitiveness and the high public (and partially private) debt situations.

Although Draghi's announcement showed the hoped for immediate effect it was strongly criticized, especially in Germany. It was argued that without the market's pressure, governments will show less ambition in consolidating their budget.[1] If the market mechanism was still in place markets would force governments to consolidate because they have to fear the "interest whip"[2] which would make it more expensive to finance their political projects (Mayer 2012: 110ff.; Sinn 2014: 71ff.).

In the economic literature, this subject is discussed under the notion of Market Discipline Hypothesis (MDH). It has primarily been discussed by Bishop et al. (1989), Frenkel and Goldstein (1991) and Lane (1993). The MDH consists of two halves. The first half is whether financial markets react to rising public debt. The second half – under the assumption that markets react with rising premiums – is the argument that governments react to rising interest rates by correcting their fiscal policy.

There is already some literature concerning the first half of the MDH. Bayoumi et al. (1995) show that U. S. state governments face higher premiums when their debts rise. On a municipal level, Capeci (1994) finds evidence for the same reaction of credit markets facing high municipal debt. Bulut (2012) shows that this is also true for developing countries: Countries with high structural deficits have to compensate default risks with higher interest rates. Alesina et al. (1992) show that in the OECD the differential between public and private interest rates is positively correlated with the

[1] Draghi also announced that the intervention of the ECB would be contingent on certain conditions. But then critics fear that Draghi's constraints will play no role if the crisis reappears dramatically and that the ECB would intervene even if governments showed no effort to consolidate their budgets.

[2] This notion can be used to illustrate the disciplining effect of higher interest rates: It suggests that, just like cart horses are pushed to pull harder when they feel the whip hitting them, governments are pushed to consolidate their budgets once they perceive the higher interest rates imposed by financial markets.

outstanding debt and its growth. In countries with sustainable debt quota this effect cannot be confirmed. Ardagna et al. (2007) confirm these results: In OECD countries with above-average debt levels, long-term interest rates are negatively affected: A one percent increase of the primary deficit quota leads to a cumulative increase of 1.5% after ten years. According to Laubach (2003), this is also true for the projected deficit debt quotas and expected interest rates in the U. S.

For the second half of the MDH, there is strikingly little empirical literature and in addition it is contradictory. For a panel of OECD countries Heinemann and Winschel (2001) find asymmetric reactions of governments facing changing borrowing conditions (defined here as the difference between real interest and real growth rates): While there is a clear reaction of rising primary surpluses in times of deteriorating borrowing conditions, the reaction in times of improving conditions is less pronounced. The reaction in case of deteriorating conditions after all is slow and not strong enough to achieve a sustainable debt situation. Bulut (2012) confirms the disciplining effect of credit markets on governments of developing countries. Kula (2004) on the other side finds no reaction of public borrowers. The MDH is rejected in regard to U. S. federal states between 1973 and 1998. Still, she admits that there might be a disciplinary effect if governments are in danger of being cut off from credit markets.

This paper takes up the question of the second half of the MDH. Based on an unbalanced panel of the European Union (EU) countries, it examines whether there is a correlation between rising interest rates (defined as deteriorating borrowing *costs*) or deteriorating borrowing *conditions* (defined in this article as difference between bond yields and the nominal growth rate) and primary surpluses. Based on theoretical considerations, hypotheses for the empirical testing are derived. By using two stage least square regressions, fitted values for the interest rates are estimated based on instrumental variables. On the second stage, they are regressed against a number of macro-economic and political variables.

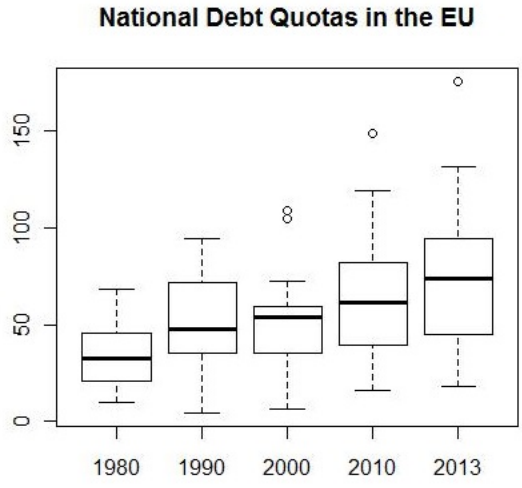
The results show that critics have good reasons to doubt the success of Draghi's unconventional measure: Governments do react to changing bond yields on the secondary market by raising primary surpluses. They do also react to rising effective interest payments by raising the primary surplus. But governments seem not to react in the expected way to changing borrowing conditions. Thereby, Bulut's (2012) results are confirmed for the EU countries, whereas Kula's (2004) results are clearly contradicted. Heinemann and Winschel's (2001) results are not clearly contradicted because they used other variables. But the results of this article seem to put their results into question.

This article is organized as follows: In the second chapter theoretical considerations and testing hypotheses are put forward. The empirical testing and its results are presented in chapter three. Concluding remarks and policy implications complete the article in chapter four.

2. Theoretical Considerations and Hypotheses

After the Second World War, most countries were able to get rid of their high debt quotas thanks to high growth rates. But already in the 70s, the debt quotas began to rise again. In the economic literature, different factors are put forward to explain this fact. But no factor is discussed without controversy. Now that governments have accumulated large debt quotas, the question of a possible sovereign default arises. For most parts of economic history, sovereign defaults were an integral part of it. But since the Second World War, the industrialized countries showed no default. With the Greek default in 2012, these unpleasant chapters had their comeback. Although the Greek default was an exception until now, it cannot be denied that most industrialized countries have a severe public debt problem.

Figure 1

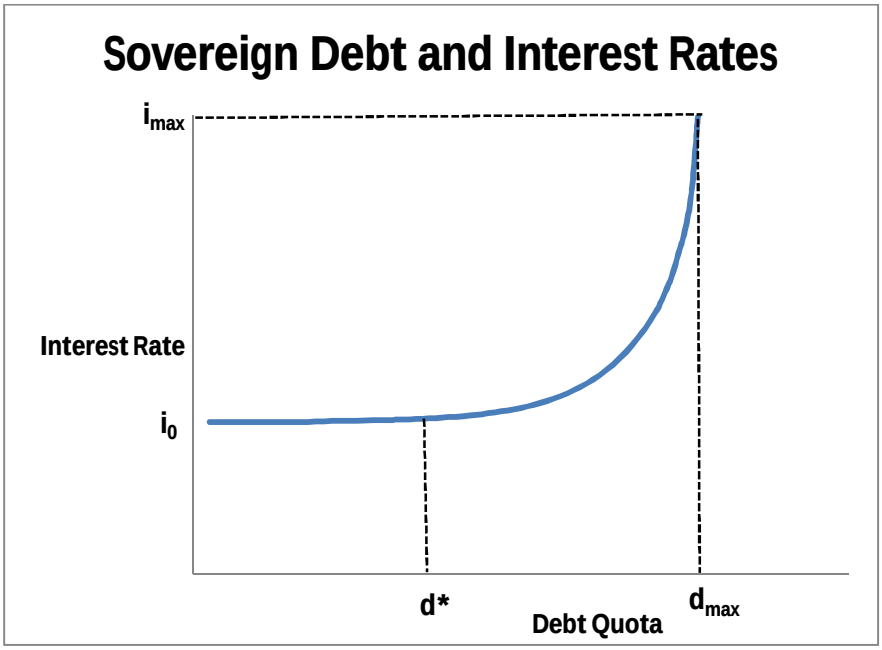


Starting from the theory of probabilistic voting[3], we can assume that government tries to maximize its expected votes. To reach this goal, it can set the budget structure in order to gain a majority whose utility is higher under the government than it would be under the opposition. If the voters underlie to a certain degree to fiscal illusion[4], this budget structure can also comprise a deficit element. With the heavily indebted industrialized countries, it must be expected that sooner or later

[3] See Mueller (2003: 249ff.) for an overview.
[4] See Afflatet (2013: 52ff.) for an overview.

the debt quota crosses a critical barrier ($d_0 > d^*$) from which on capital markets will not consider government bonds as safe havens but will claim higher risk premiums ($i_1 > i_0$).

Figure 2



In this situation, a government has the choice either to adapt its primary surplus or to continue its path of a non-sustainable debt situation. One argument for the latter is that that governments typically have short time-horizons (Lane 1993: 70ff.). But if they did continue to follow the path of unrestrained borrowing financial markets would react very quickly – and they did so for example in the case of Greece – and force governments to pay high interest rates which could not be afforded by the governments any more.[5] It would have to default[6]. As consequences the national economy would suffer a sharp depression due to missing investments, the primary budget would suddenly have to be adjusted and the reelection probability of the incumbent party would be approaching to zero.[7]

[5] This situation resembles one with multiple equilibria and a self-fulfilling prophecy. As long as there are no disturbing news, the original interest level can be held at a "good equilibrium" even once the critical and variable (compare the examples of Spain and Japan) borderline is crossed. But if market participants begin to lose confidence, disturbances can arise which push the bond yields quickly upwards to a "bad equilibrium" which confirms the fear of investors (Pagano 2010).

[6] A sovereign default usually simply takes place when a government *decides* not to meet its liabilities any more. It could always cut expenditures for other purposes and redirect it to the bond holders to pay interests and to replace old debts. But at a certain moment, governments do not summon up enough political will any more for an adaption of their budgets. Instead they prefer to default (Reinhart and Rogoff 2010b: 103ff.).

[7] In the Eurozone, a sovereign default would also lead to an exit of the affected country from the Eurozone because the ECB could not accept sovereign bonds as securities anymore. The domestic banks would thereby

Such a devastating outcome of a default would be anticipated by the national government.[8] It would start to give in to the financial markets and try to adapt its primary budget. The result would be higher taxes and/or lower government expenditure.

> **Hypothesis I:** As the danger of a default can suddenly occur to a government, it can be expected that governments are disciplined by rising interest rates and try to consolidate their budgets.

The outcome of a budget adaption would simply follow the rule that the marginal political costs of a cut in expenditures would be equal to the marginal costs of an increase in taxes (Heinemann and Winschel 2001). Such political costs can be interpreted as vote losses. These vote losses derive from the fact that government would have to deviate from its original budget calculus with which it would have maximized its expected votes. As voters are supposed to underlie to a certain degree to fiscal illusion, the opposing party could promise not to consolidate the budget (or at least to a smaller degree). The probability for the government to be reelected would diminish, while the chances of the opposition would rise. A budget consolidation would thus be linked to high political costs[9] which would depend on the degree of consolidation and the degree of fiscal illusion of the voters.

> **Hypothesis II:** Governments face a trade-off. To avoid a quick default they must consolidate their budgets which means that their chances to be reelected diminish. Thus, governments would try to give in to a certain degree to financial markets to eradicate the danger of a default but they will also try to preserve their chances to be reelected.

Another possibility – besides rising risk premiums – which can lead to a default is a slowing down of growth rates. This can be explained with the equation which explains the changing of the debt quota ($d = \frac{D}{Y}$) (Blanchard et al. 1990):

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be cut off the money market. In case of an exit of the peripheral countries, their new currency would certainly depreciate vis-à-vis the euro. But the accumulated debt would furthermore have to be served in euro which would make it more difficult to repay it if there is not a major economic upturn due to the devaluation of a new currency.

[8] Considering that there has been no sovereign default among the industrialized countries during the last 70 years, this option appears more realistic than an option including a default. The Greek case remains an exception because it was thoroughly prepared and remained institutionally embedded.

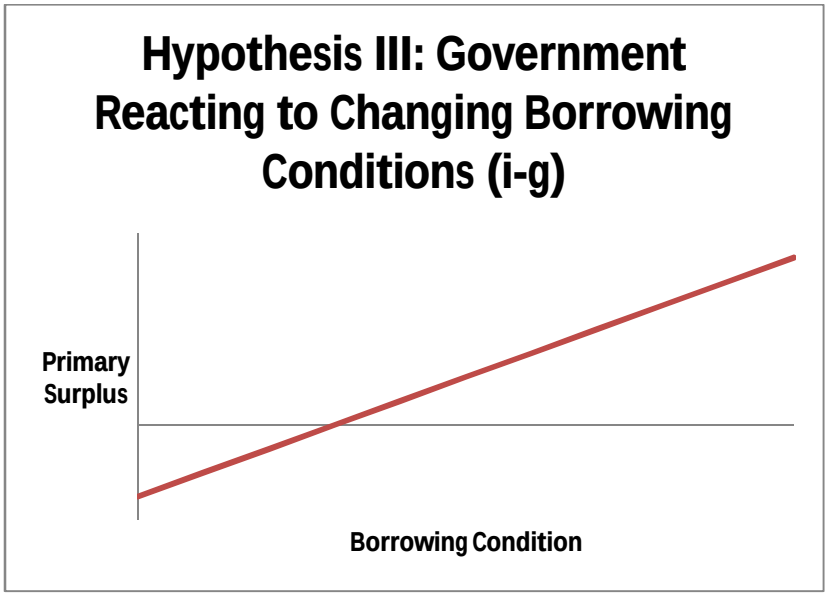
[9] The result of high political costs of consolidation is in line with the literature of budget consolidation which discusses this phenomenon under the keyword "war of attrition" (Bliss and Nalebluff 1984; Alesina and Drazen 1991; Mueller 1983). The empirical literature proves the political costs of budget consolidation to be high indeed (Alesina et al. 1998 and 2010; Afflatet 2013). Ponticelli and Voth (2010) show based on historical records that expenditure cutbacks are clearly linked with social unrest which is manifested in riots, demonstrations or assassinations.

$$\frac{\delta d_t}{\delta t_t} = (i_t - g_t)d_t - s_t$$

The key element of the sustainability equation is the borrowing condition, the difference between the interest rate a government has to pay on its debt (i) and the economic growth (g). To avoid the risk of a default, government has to raise its primary budget (s) when the differential falls.

> **Hypothesis III:** Governments raise their primary surpluses in case of deteriorating borrowing conditions.

Figure 3



These three hypotheses will be tested in the following chapter.

3. Empirical Testing

In this chapter, the components of the empirical testing and its results are presented.

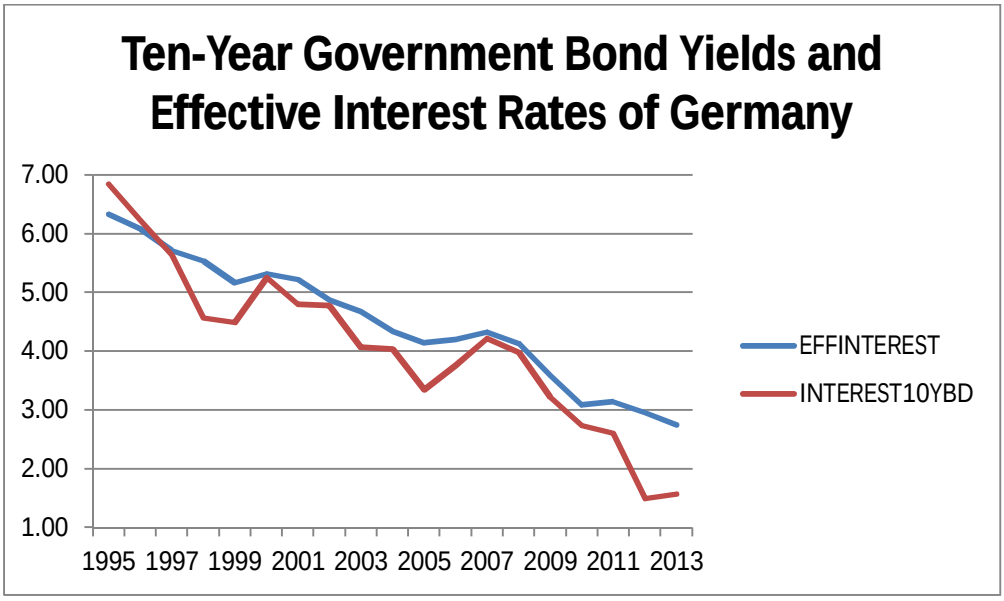
3.1. Data

To constitute the first part of a panel for the countries of the EU the following data furnished by Eurostat were used:

- the yields for ten year bonds on the secondary market ($Y10$): Rising bond yields on the secondary market can be considered as "temperature chart" for the healthiness of public finances. Even if governments do not feel the effects of rising bond yields on the secondary

market immediately it can be expected that sooner or later interest rates on the primary markets will also rise. This is illustrated by the following figure;

Figure 4



- the harmonized consumer price index (π): Interest rates depend on the consumer price index (as a measurement of inflation) because the inflation rate has to be subtracted from the nominal interest rate to obtain the real interest rate;
- the debt quota (d): Countries with higher debt quota are expected to pay higher interest rates because the risk of default should typically be positively correlated with the debt quota;
- the unemployment rate (u): It reflects economic down- and upturns. In case of downturns, primary surpluses would decrease as governments would have to spend more on unemployment benefits and it would receive less social security contributions;
- the current account balance quota (ca): A current account surplus is expected to have a positive effect on public deficits;
- the real growth rate (g_{real});
- the real effective exchange rate (e): It reflects the competitiveness of an economy (and as inverse the purchase power). Countries with rising real exchange rates are expected to show lower surpluses as their current account situation is expected to deteriorate. Because it is difficult to measure the equilibrium of the real exchange rate vis-à-vis the trading partners it is indexed for the year 2005.

To include the sovereign's ratings which play a crucial role on financial markets, the ratings of Fitch[10] were also involved in different manners. The only variable that showed a significant effect on bond yields and interest rates was the dummy that differed between investment and non-investment grades (FI).

Besides these data, others were calculated or used as dummies, such as:

- the primary surplus quota[11] (s) which is calculated based on Eurostat data for the deficits and the interest payments[12];
- the effective interest rate governments pay for the accumulated debt (i_{eff}), calculated based on Eurostat data for public interest expenditures and the accumulated debt;
- the borrowing conditions ($Y10 - g$), calculated as the difference between the bond yields on the secondary market and the nominal growth rate;
- a dummy for member countries of the Eurozone (MC): The years before the public debt crisis showed that financial markets did not believe in the no-bailout-article and asked for lower premiums from member countries (Feldstein 2005);
- a dummy for election years (E): This dummy is set on 1 for years in which national parliamentary elections took place and on 0 for all other years. The literature of political business cycles suggests that deficits in election years fall higher than in years without elections because governments use deficits to finance political benefactions to increase the probability of being reelected;
- a dummy for a debt quota exceeding 90% of the GDP ($d90$): The dummy is set on 1 for countries and years in which the overall public debt exceeds 90% of the GDP. Reinhart and Rogoff (2010a) and Kumar and Woo (2010) showed that governments face lower growth rates once they cross this barrier. The thereby deteriorating sustainability situation makes debt repaying more difficult;
- a dummy for the Stability and Growth Pact (SGP): This dummy is set on 1 for Eurozone member countries of the first wave until 2003, the year in which the sanction of Germany, France and Italy was suspended (Afflatet 2013: 104ff.). Future "deficit sinners" could then

[10] Fitch was chosen because the ratings and their history are easily disposable.
[11] Eurostat does not publish data about the primary deficit any more. Eurostat recently deleted all data about the primary surplus when the discussion arose whether the Greek primary surplus quota in 2013 added up to 0.8% as asserted by the European Commission which excluded several one-time effects or whether it added up to 8.7% as published by Eurostat according to the official definition.
[12] Note that the deficit usually is indicated as a negative number. Thus, interest payments have to be added to obtain the primary deficit which reflects the public revenue minus interest payments: $s = t - (g - i) \rightarrow s = t - g + i$

hope for exemption from punishment. This way a political disciplining mechanism was shut off. That is why it is set on 0 for all other countries and years.

With these data, an unbalanced panel was generated. *A priori*, for the time between 1995 and 2013 all 28 countries of the EU were included. In several cases, not all necessary data for a country were available. In these cases, the year with the missing value was not considered in the regression analysis for the respective country.

3.2. Testing Model

To examine government's reaction to changing borrowing costs and conditions, three models will be presented. For two of them, it will be crucial to take the problem of endogeneity into account (Winker 2010: 182ff.). This problem will be solved by using two-stage least-squares models (2SLS).[13]

On the first stage, the instrumental variables which are supposed not to have a direct influence on the dependent variable (Angrist and Pischke 2009: 113ff.) will be regressed on the interest variable (ten year government bond yields respectively effective interest rate for the general public sector and the central state[14]; i):

$$i_{i,t} = \beta_0 + \beta_{MC} * MC_{i,t} + \beta_\pi * \pi_{i,t} + \beta_{FI} * FI_{i,t} + \beta_d * d_{i,t} + \varepsilon_{i,t}$$

The estimated fitted values (marked with a hat) of the first stage are used for the second stage. Macro-economic and political variables shall be used as control variables to make sure that they show no distorting impact on the dependent variable. This way, the estimators of the coefficients in the regression are corrected.

$$s_{i,t} = \beta_0 + \beta_i * \hat{\imath}_{i,t} + \beta_{g_{real}} * g_{real}{}_{i,t} + \beta_u * u_{i,t}$$

$$+\beta_e * e_{i,t} + \beta_{ca} * ca_{i,t} + \beta_E * E_{i,t} + \beta_{SGP} * SGP_{i,t} + \varepsilon_{i,t}$$

A separate instrumental variable regression taking into account the first stage indicates the correct standard errors, t- and p-values.

[13] The used method will thereby resemble the methods used by the other authors who worked on the second half of the MDH.

[14] Especially the political variables are expected to have a bigger influence for this regression. After all, if national parliamentary elections affect public budgets, it could only affect the central state's budget because the federal states and municipalities are not concerned by national elections.

For the third model, borrowing conditions are chosen as independent variable. As the independent variable ($Y10 - g$) is a linear combination of two other variables, it should be expected that in this case the problem of endogeneity is less severe (Heinemann and Winschel 2001: 3). Hence, contrary to the first models in this case a simple regression is run.[15]

$$s_{i,t} = \beta_0 + \beta_{Y10-g} * (Y10 - g)_{i,t} + \beta_u * u_{i,t} + \beta_e * e_{i,t}$$

$$+\beta_{ca} * ca_{i,t} + \beta_E * E_{i,t} + \beta_{SGP} * SGP_{i,t} + \varepsilon_{i,t}$$

3.3. Testing Results

The testing results are presented in the table below[16].

	Model			
	Bond Yields	**Effective Interest Rate (Public Sector)**	**Effective Interest Rate (Central State)**	**Borrowing Conditions**
Intercept	-3.94 (-0.981)	-2.91 (-1.508)	-7.67 (-3.100)**	1.12 (0.59)
Y10	0.48 (2.607)**			
ieff		0.45 (1.913).	0.87 (2.948)**	
Y10-g				-0.17 (-6.993)***
g	0.41 (8.415)***	0.37 (6.966)***	0.23 (2.520)*	
u	-0.28 (-6.409)**	-0.24 (-6.535)***	-0.12 (-3.000)**	-0.21 (-5.197)***
e	0.03 (0.742)	0.02 (1.327)	0.03 (2.226)*	0.01 (0.279)
ca	0.20 (6.909)***	0.18 (7.054)***	0.11 (3.459)***	0.17 (6.277)***
E	-0.51 (-1.737).	-0.54 (-1.547)	-0.44 (-0.715)	-0.66 (-1.860).
SGP	2.44 (4.093)***	2.46 (3.510)***	3.22 (2.680)**	2.88 (6.855)***
N	386	386	241	386
R-squared	0.36	0.44	0.30	0.36

[15] The results do not substantially change when the two stage method is applied for this case, too. Except that the R^2 value falls shorter than in the case of the one stage regression.

[16] Coefficients, t-values (in parentheses) and significance level are indicated.

All macroeconomic variables – apart from the real exchange rate (e) which only shows significance in the test for the central state –show significance in the four tests. High growth, low unemployment and a current account surplus are positively correlated with the primary budget surplus. This is in line with the expectations: A positive macroeconomic development has a positive influence on the annual debt situation.

Mixed results are obtained for the political variables[17]. The dummy for the election years (E) on the one side always has the expected negative algebraic sign but the null can only be rejected at the 10% level in two cases.[18] Overall, the null of no influence of election years on the primary surplus cannot be rejected. On the other side, the dummy for the SGP shows significance in all four tests. This leads to the conclusion that the primary surpluses fell shorter in the years after 2003 when the Pact was overridden by Germany, France and Italy.

All interest variables show significance in the four models. For the bond yields and the effective interest rates of the central states, the null must be rejected at the 1% level. For the effective interest rate of the general public sector, it can only be rejected at the 10% level but with a p-value of 0.056 it only slightly misses the 5% level. Hypothesis I can thereby be accepted.

The regressions show not only that governments do seem to react to the perception of risen interest rates. From an empirical point of view they also show why most governments do not reach a sustainable debt situation. For this purpose, primary surpluses would have to be raised to a somewhat higher degree than the rise in interest rates. The rise in the primary surplus would have to be as high as the rise in the interest rate (given that the growth rate remains stable) *plus* a mark-up if the reaction takes place after a rise in the debt quota. Though, the empirical picture shows that the reaction of government falls clearly smaller than necessary for a debt stabilizing primary surplus. For the general public sector the coefficient is 0.45, for the central state it is 0.87. In both cases, the reaction to rising interest rates does not suffice the condition of long-term debt sustainability. Hypothesis II which states that due to the high political costs of budget consolidation, government will try to limit the budget adaption to a minimum can be accepted.

[17] As another political variable, the political classification of the leading party within the government was considered. But contrary to parts of the literature on debt and the government's orientation, no significant difference considering their deficit policy could be observed between left, right or centrist led governments.

[18] In case of the central state, the significance level is clearly missed, while it is higher for the general public sector. This is not what would have been expected. Multicollinearity as explanation can be excluded as the factor for the election year and unemployment is 0.01 and 0.08 for the election year and nominal growth. The question must remain unanswered why elections for the national parliament seem to have a bigger but not significant influence on the general than on the central state's public surplus.

For the fourth dependent variable, the borrowing conditions, the test also shows significance at the 0.1% level. But the algebraic sign is negative. In case of deteriorating borrowing conditions when governments would have to raise primary surpluses to reach a sustainable debt situation, they do the exact opposite. Hypothesis III must be rejected.

The statistical explanation should be the following: The variable of interest represents a linear combination of two variables which both have an impact on the primary surplus. Higher bond yields lead to rising primary surpluses and so do growth rates. If the resulting linear combination shows a negative impact on growth rates, this must lead to the conclusion that the effect of the growth rate predominates. A simple correlation analysis between the data for the primary surplus and the bond yields on the one hand and nominal growth rates on the other hand confirm this view: While the correlation coefficient for the bond yields is -0.19, it is 0.28 for the growth rates.

One reason why governments lower primary surpluses in case of deteriorating sustainability conditions could be that they do so in order to equalize falling growth rates. The governments would follow the classical Keynesian deficit spending and would try to stabilize demand. From a Keynesian point of view this result might seem encouraging. But two points should be taken into account[19]:

- First, there is a vast discussion among economists about the true height of the multiplicator effect. The entire discussion cannot be reproduced. At this point it shall be highlighted that a considerable amount of empirical works leads to the results that the multiplicator is far from being as high as it is suggested in the textbooks and also by certain Keynesian economists (Afonso et al. 2010; Cwik and Wieland 2011). There are even economists who find encouraging results for Anti-Keynesian effects. In these cases budget consolidations can lead to stronger growth – contrary to the Keynesian view (Giavazzi and Pagano 1990 and 1996; Perotti 1999; Alesina and Ardagna 2009). The cited authors emphasize that certain conditions have to be fulfilled. One of these conditions is that a change in fiscal policy should be perceptible and lasting enough. From this point of view, governments should react to borrowing conditions in a determined manner and adapt their primary surpluses to reach sustainable debt situations. Based on these results, Sinn and Potrafke (2012) emphasize the necessity of budget consolidation in the peripheral countries of the Eurozone: Lasting growth can only be reached if an economy grows based on savings, not on loans.
- Second, if governments lower primary surpluses in case of deteriorating borrowing conditions this contributes to the obvious fact that many industrial countries do not reach

[19] See for a discussion on this point Afflatet (2013: 88ff.).

sustainable debt situations. The explanation is that if they take no measures to consolidate their budgets in a recession they will probably not do so in an economic upturn either because they might fear that their attempt to consolidate could put the upturn into danger. And once a boom is reached, they typically prefer to distribute the higher tax revenues instead of beginning to economize. From a political point of view there never seems to be a good point of time to consolidate the budget.

4. Concluding Remarks and Policy Implications

The final result of the regressions presented above is that governments do indeed react to rising borrowing costs by raising primary surpluses. But they do not react to a sufficient degree to reach a sustainable debt situation. In cases of deteriorating borrowing conditions, e. g. in the case of falling growth rates, primary surpluses are actually reduced. The conclusion that can be drawn from these results is that governments are disciplined *to a certain degree* by financial markets.

This confirms the theoretical considerations presented above: Political costs of deviating from the politically wished budget structure are high. Thus, governments try to prevent drastic budget consolidations. That is why no sustainable debt situation is reached: The degree to which budgets would have to be consolidated to reach debt sustainability is much higher than governments are ready to commit themselves to. Market pressure seems not to be effectual enough to force governments to reach sustainable debt situations.

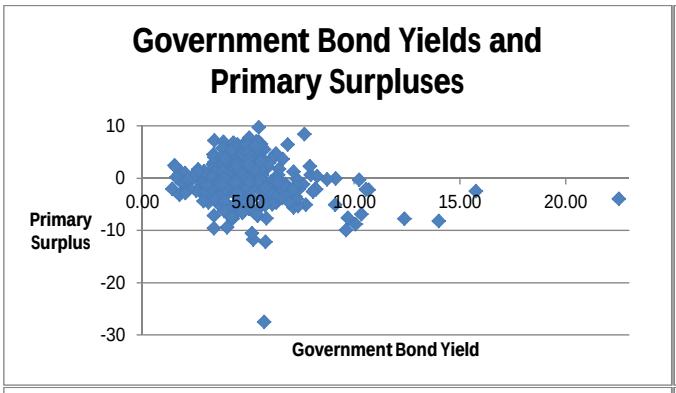
The nearby explanation is that governments do not consolidate budgets because they fear the voters' reaction (although the literature is not clear about the effective voters' reaction (Stalder 1997; Alesina et al. 1998; Alesina et al. 2010; Afflatet 2013)). Besides the market mechanism, the fear of a complete cut-off from financial markets seems to be the only remaining determinant which could have an effect on governments in order for them to consolidate their budgets.

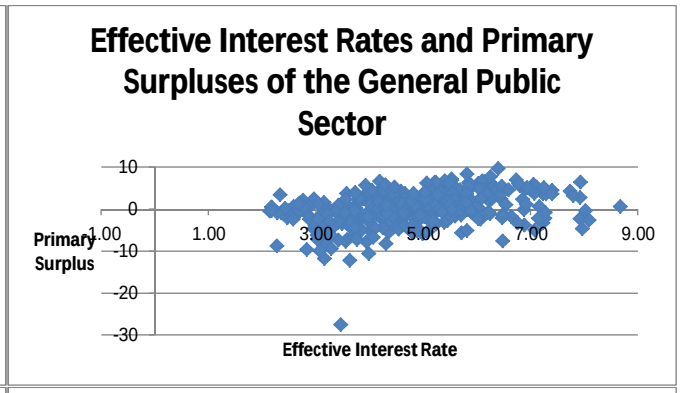
One possibility to discipline governments in the actual crisis could be to restore the threat of a possible bankruptcy as it was implicitly installed within the Maastricht Treaty. The healing effects of a credible no-bailout-rule can be observed with the historic example of the U. S. After their foundation, the central state with its secretary of finance, Alexander Hamilton, socialized the debts of the federal states. The socialization of debt led to a new increase of public debt as consequence of the common which was created by socializing the public debt. In 1842, several federal states were threatened by bankruptcy. But the central state did not save the federal states because such a measure would have overpassed its capabilities, it would not have stopped the tendency of the federal states to run excessive deficits and there was simply no justification for another bail-out. As a consequence, nine

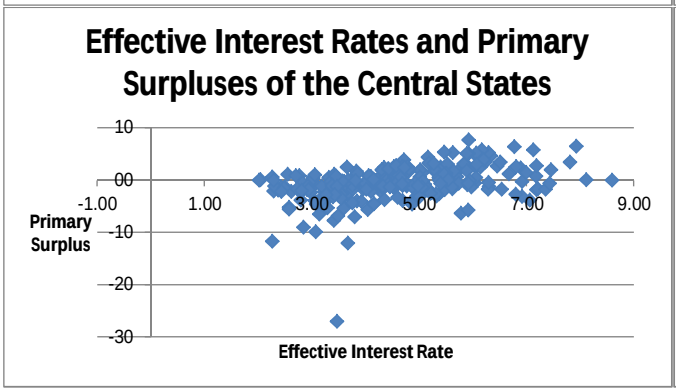
states had to default and the reputation of the central state as borrower was damaged, too. In the 1970s, the central state did not save the state of New York either (Bollmann 2012, Sargent 2012, Bertola et al. 2013). Today, most of the federal states – with some frightening counter-examples as California or Illinois – show low official debt quota (Sinn 2014: 109ff.; Afflatet 2013: 124ff.) and all except Vermont have strict budget rules. The Eurozone could draw some conclusions from this example and restore the no-bailout-rule in the long-run. Of course this would mean a lot of harm to the first country to suffer such a fate. But the daunting effect of such an outcome could equalize the short-term costs and it could be the only possibility to restore a credible commitment for stable public finances within the Eurozone.

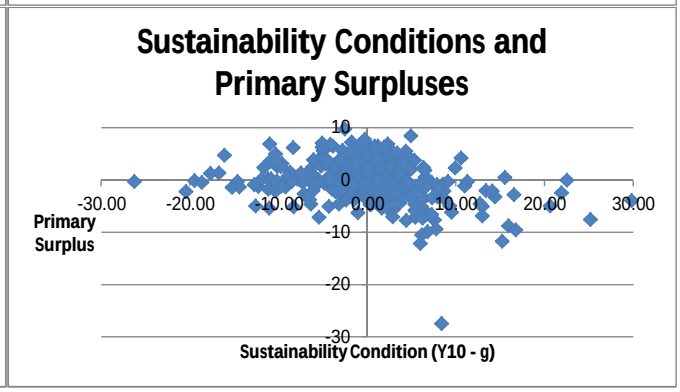
Now that the public debt crisis in the Eurozone lasts for four years, it is sure that governments are not willing to follow this suggestion. And the ECB does not step back from its announcement. The disciplining mechanism of the market remains shut off. In this situation, the possibility that the political mechanisms are not strong enough to restore discipline and that the Eurozone will not solve the crisis the "clean" way with austerity and real depreciation has to be taken into account: The leaders of the currency union could recur to the options which were chosen in the past in order to solve debt overhangs. Reinhart and Rogoff (2013) show that all countries (not only development countries) used debt restructuring, financial repression and/or a higher inflation as methods to solve debt problems. Unfortunately, the collateral damages of these options, especially of the second and the third, will be huge.

5. Graphics


Government Bond Yields and Primary Surpluses
Primary Surplus
10
0
-10
-20
-30
0.00
5.00
10.00
15.00
20.00
Government Bond Yield


Effective Interest Rates and Primary Surpluses of the General Public Sector
Primary Surplus
10
0
-10
-20
-30
-1.00
1.00
3.00
5.00
7.00
9.00
Effective Interest Rate


Effective Interest Rates and Primary Surpluses of the Central States
Primary Surplus
10
00
-10
-20
-30
-1.00
1.00
3.00
5.00
7.00
9.00
Effective Interest Rate


Sustainability Conditions and Primary Surpluses
Primary Surplus
10
0
-10
-20
-30
-30.00
-20.00
-10.00
0.00
10.00
20.00
30.00
Sustainability Condition (Y10 - g)

6. Literature

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