

Fiscal policy events and interest rate swap spreads: Evidence from the EU

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Abstract

This paper assesses the importance given in capital markets to the credibility of the European fiscal framework. We evaluate to which extent relevant fiscal policy events taking place in 2002 produced a reaction in the long-term bond segment of European capital markets. Firstly, we identify the relevant fiscal policy events. Secondly, we estimate the impact of these fiscal events on interest rate swap spreads in 13 EU member states. According to our results the reaction of swap spreads, when significant, has been mostly around five basis points or less.

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1. Introduction

The process of European integration that culminated in the European Monetary Union was based on the belief that fiscal discipline is necessary for a functioning monetary union. Since the monetary union would allow members to free-ride on the common monetary policy by running excessive deficits and increasing debt ratios, a European fiscal policy framework was adopted setting deficit and debt limits for EU member states and installing an elaborated surveillance procedure.

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The main thrust of the European fiscal framework, coupled with no bailout and no monetary financing clauses, is to ensure the sustainability of public finances since high or rapidly increasing debt levels in one member state could have several externalities on others. Due to the monetary union, government securities would be more perfect substitutes and large supply of government securities could raise the costs of borrowing for other governments. Moreover, unsustainable public finances could raise pressure on the central bank to monetize these liabilities. Finally, high debt levels in the extreme could lead to default – partially or fully, either on interest payments or on the principal – with repercussions in the banking sector. The ECB could be forced to step in and similarly monetize government debt, if this would spark a financial crisis.

The different implications of high government debt and unsustainable public finances should be reflected in prices for government securities. The existence and implementation of the European fiscal framework should therefore have a twofold effect. First, the credibility of the European fiscal framework and its ability to deter “excessive” deficits and debt in the perception of market participants generally affect future risks associated with liabilities of all member states. Second, the surveillance process could reveal information to market participants when valuing individual government liabilities. Either due to the perception of the credibility of the framework or the information content of the surveillance procedure, these budgetary institutions should affect the risk component included in government bond yields.

The fiscal events that occurred in 2002 challenged the credibility of the European fiscal framework. They present therefore a first opportunity to assess how capital markets react when the Stability and Growth Pact (SGP) is put under stress. We address this issue by analysing whether the long-term bond segment reacts to the worsening of fiscal positions in some countries and/or criticism levelled against the European fiscal rules.

The euro interest rate swap spread seems to be a good indicator of the relative risk of private versus government long-term bonds versus the private inter-bank market. We only find a significant reaction in the interest rate swap spread to a few policy events. This is compatible with the results of a review of investment bank newsletters and notes, which shows that market participants closely observe and contribute to the debate on the SGP, but they do not share a unanimous view on specific aspects of institutional credibility and the optimal implementation. In those cases where a market reaction could be detected, it is sizeable and interestingly pointed into different directions. The results suggest that the overall debate on the Pact in autumn has actually created some uncertainty about its future, and that any action against member states was eventually assessed as “a credibility yielding event”, rather than information revealing higher country risks. We do not find any persistent impact of policy events on the level of spreads.

The remainder of the paper is organised as follows: Section 2 presents the relevant fiscal policy events of 2002. Section 3 addresses the measurement of default risk and briefly describes the main developments of yields in 2002. Section 4 describes the analytical framework and discusses the several results of the parametric analysis. Section 5 concludes the paper.

2. Relevant fiscal policy events of 2002

In 2002 the SGP was put to a test. Due to the economic slowdown and lack of fiscal consolidation in previous years, some countries still had not achieved a medium-term position close to balance or in surplus, and several countries came very close to or even breached the 3% deficit to GDP limit for excessive deficits set in the Maastricht Treaty. Thus two developments, closely intertwined, prevailed during the year 2002. First, the procedures specified in the SGP and in the Maastricht Treaty became relevant and had to be implemented for the first time for Portugal and for Germany.

Table 1
Chronology of fiscal policy events in 2002

Emphasis on country specific surveillance	
17 January	Rumours of early warning for Portugal and Germany
30 January	Recommendation of early warning by the EC to Portugal and Germany
12 February	ECOFIN does not launch the procedure against Portugal and Germany
20 June	ECOFIN accommodates the deviation of France from consolidations plans by making achievement of target conditional on growth rates
26 June	Portuguese Prime Minister reveals deficit for 2001 was above 3% limit
8 July	Italy proposes tax reductions that will delay close to balance position
26 July	Portuguese government officially reports a deficit of 4.1% in 2001 to the EC
Discussion on the SGP	
24 September	EC announces new strategy on balanced budgets
30 September	France announces balanced position only for 2007
8 October	Eurogroup: all countries commit to start consolidation immediately, except France
9 October	Eurogroup: early warning for France is discussed
16 October	EC adopts an EDP against Portugal
17 October	President of the EC declares that a rigid implementation of the SGP is “stupid”
Strengthening of the credibility of the SGP	
24 October	ECB press statement in favour of the SGP
5 November	Council declares that Portugal has an excessive deficit
13 November	EC adopts an EDP against Germany
27 November	Commission issues a communication addressing some of the criticisms and implementation problems of the SGP

Note: The following abbreviations are used in the table—European Commission (EC), European Central Bank (ECB), European Economic and Financial Affairs Council (ECOFIN), Excessive Deficit Procedure (EDP).

Secondly, as governments felt the restraint from the SGP and as the implementation process proceeded, a debate emerged on the implementation of the Pact and the criteria defined therein. The public debate and the implementation of the surveillance procedures are marked by certain key events, which should have figured into the public perception of the credibility of the Pact or revealed some information on the state of public finances in member states.

An overview of those events is given in [Table 1](#) while a more detailed discussion is provided in [Afonso and Strauch \(2004\)](#).

From the table, two main results are important for the subsequent analysis. First, there were three different periods of policy events in 2002. The first half of the year was dominated by the implementation of the surveillance procedure concentrated on Portugal and Germany. Later on in the summer, the discussion on the overall framework gained momentum, which culminated in the comments of the President of the EC on 17 October terming a strict application of the Pact ‘stupid’. In autumn and winter 2002, the European Commission became again the agenda setter and there was a strengthening of the SGP.

Second, it seems important to distinguish two types of events in our sample: actions or decisions related to the implementation of the surveillance procedures, “type 1” fiscal events; and other announcements of policy targets and discussions on the European institutional framework, “type 2” fiscal events. The first type of event is similar to a credit rating action, i.e. it relates to an individual country. The informed public or other market participants are often able to anticipate such decisions or actions. In contrast, the second type of events, such as the communication by the Commission, may not have been known in advance since it is not part of a regular procedure.

A second difference is that these political statements often have the entire euro area or all EU member states as a reference point.

3. Measurement of default risk and developments of yields

The main concern of this paper is the credibility of the SGP. The credibility of the Pact ultimately refers to its ability to prevent unsustainable fiscal policies that could eventually lead to the risk of default, financial crisis and possible central bank bailout.

Looking at government bond yields as such does not allow us to identify the existence of a default risk premium since bond yields also reflect expectations about different monetary policy reactions. There are various ways to control for this and capture default risk. Looking at credit default swap rates, the spreads between euro denominated bonds issued by governments and international organisations, and interest rate swap spreads, are among the most common that can be found in the literature.¹ The first two measures carry among others the difficulty that the financial market instruments do not exist for all countries or that they are relatively illiquid. Changes in spreads could then capture trading activity and market liquidity rather than a genuine default risk. For these reasons, we will look primarily at interest rate swap spreads, defined as the difference between the 10-year interest rate swap and the 10-year benchmark government bond yield.

The market for 10-year benchmark bonds (or the closest available maturity) is the most liquid segment for sovereign debt. The euro interest rate swap market, moreover, is one of the largest and most liquid financial markets in the world.² It was among the first financial markets to become integrated following European monetary union and quickly gained benchmark status. An important characteristic of this market is the robustness of liquidity. Although our main interest is the default risk, this presents only one channel through which fiscal policies can affect long-term yields. Naturally, there are other channels operating through monetary–fiscal interaction.

For the EU countries represented in Fig. 1, the yields dropped from an interval of 4.9–5.2% in the beginning of 2002 to around 4.2–4.4% at the end of the year, roughly a decrease between 72 and 82 basis points (bp). Comparing the development of yields in the EU with the one recorded for the US, it is obvious that the decline in the long-term interest rates was more significant in the US, around 132 bp (see Appendix A for descriptive statistics on government bond yields). This means that the positive yield differential between the US and the EU benchmark (we take Germany here) of 18 bp at the beginning of the year shifted to a differential of –36 bp at the end of the year.³ From these curves it is obvious that yield developments were mostly driven by interest rate policies.

¹ See Section 4 for references.

² According to data from Remola and Wooldridge (2003), in terms of notional principal outstanding, over-the-counter markets for euro and US dollar denominated interest rate derivatives are the largest financial markets in the world. The euro interest rate swap market has actually roughly the same size as the dollar market: the notional stock of euro denominated interest rate swaps and forwards totalled €26.3 trillion at end-June 2002; the stock of US dollar-denominated contracts was slightly smaller, at €26.2 trillion. The euro denominated interest rate swaps market seems to be particularly liquid in the short-term segment (see ECB (2001)).

³ The Federal Reserve cut its key interest rate by 50 basis points in November 2002 to 1.75% (there was a cumulative cut of 475 basis points in 2001). In December 2002 the ECB also reduced its minimum bid rate on the main refinancing operations by 50 basis points point to 2.75% (in 2001 there was a cumulative 125 basis points cut).

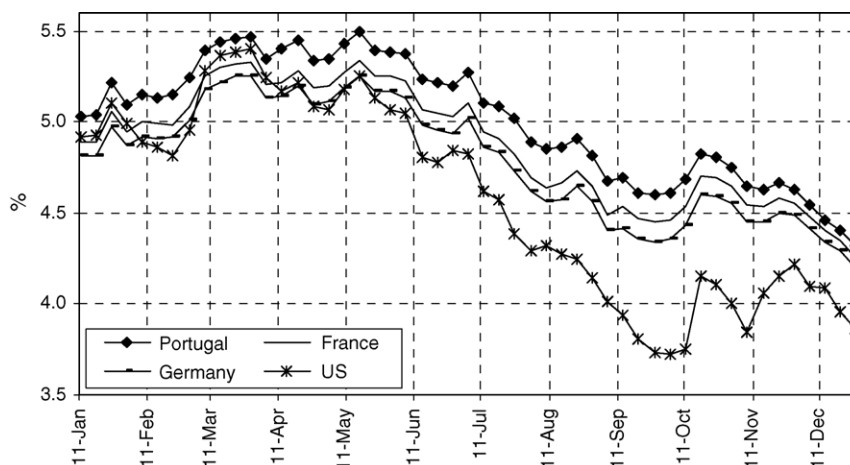


Fig. 1. Yields on 10-year government bonds for France, Germany, Portugal and the US, 2002 (weekly data). *Source:* Reuters.

4. Financial market data

There are several studies, which try to empirically assess the impact of the fiscal and political factors on government bond risk premium.⁴ These studies mostly trace longer-term developments and use data at a monthly or even lower frequency for a cross-section of countries or bond issues. However, the purpose of our study is to analyse the impact of specific fiscal policy events, and how the information content inherent in these events is reflected in bond yields.

Extracting the information content of the aforementioned events can be achieved with different approaches. For a rating action study, one would look at the evolution of yields over a longer-time horizon before and after the action takes place and data at daily or lower frequency may suffice. To extract the surprise element from an announcement or event, one should use data as close as possible to the incidence of the announcement to see the immediate market reaction to this particular information. Therefore, announcement studies often use higher, intra-day frequencies.

Using high frequency data and looking at very short time windows, however, is not suitable for our fiscal policy events. Official data releases, for example, often follow a pre-specified calendar and markets participants are prepared to absorb that information. By comparison, when the Commission releases a communication, the precise timing of the event may be difficult to determine, since some information may have leaked before the official announcement. Moreover, the document is only made available on the Internet with a lag. In addition, the dissemination process may take longer since market participants are not always alert in advance, and the assessment of the event may be more complicated than, for example, more straightforward corporate news. Under these circumstances, using intra-day data seems not suitable.⁵

The closest to our analysis are the studies by Favero et al. (1997) and Codogno et al. (2003). They analyse, among others, developments of government bond yields vis-à-vis the German

⁴ See, for example, Alesina et al. (1992), Lemmen and Goodhart (1999), Lønning (2000), and Bernoth et al. (2004).

⁵ See Ehrmann and Fratzscher (2002) for a similar argument with respect to macroeconomic announcements and the use of daily data.

benchmark from 1992 onwards. The above description of events makes clear that this is not an appropriate approach for our study since the German bond yield and the risk premium reflected therein is endogenous to the impact of policy events. Therefore, we cannot use a risk measure based on the relative performance of European sovereigns.

4.1. Model specification

Taking into account the stylised facts described in the previous section, we now formally assess the specific effect on interest rate swap spreads of the selected fiscal policy events. In our model specification, we try to explain the swap spread of the relevant country in a quite parsimonious way. We use the interest rate swap spread in the US, a measure of bond market liquidity, a measure of the stock market risk/volatility, the slope of the yield curve in the US and fiscal policy events as determinants of interest rate swap spreads.⁶ For a given country we define the swap spread, S , as

$$S_t = \text{swap}_t - \text{yield}_t, \quad (1)$$

where swap is the 10-year rate reported for the inter-bank swap market, and yield is the 10-year government bond yield. The swap spread is then modelled as

$$S_t = \alpha_1 + \alpha_2 S_{t-1} + \alpha_3 S_t^{\text{US}} + \alpha_4 S_{t-1}^{\text{US}} + \alpha_5 Y_t^{\text{ba}} + \alpha_6 \text{STOX}_{t-1} + \alpha_7 \text{SLP}_t + \sum_{j=1}^n \delta_j \text{dum_ddmm}_j, \quad (2)$$

where S^{US} is the interest rate swap spread for the US, Y^{ba} the bid–ask spread for the 10-year government bonds, STOX the average implied volatility of put and call options on the Eurostoxx index, SLP the slope of the US yield curve, and dum_ddmm are dummies used as proxies for the fiscal policy events.

As a measure of the international factors that might have an impact on the determination of the long-term European swap spreads, we use the long-term interest rate swap spread for the US. This takes into account the leading role of the US economy and its capital markets in the world. Furthermore, we assume that the US interest rate swap spread does not react to changes in the European interest rate swap spread. One would expect the long-term US swap spread to increase as a sign of a fall of government bond yields vis-à-vis the swap market, if there is a raise in the demand for US government debt. Assuming the existence of spillover effects to the European government bond market, there might also be a raise in the demand for European long-term bonds. This leads to rising prices, declining 10-year government bond yields, and the concomitant increase of European interest rate swap spreads. A decrease of European interest rate swap spreads might occur if the increase in the demand for US government bonds implies a substitution of demand for European government bonds, i.e. less demand for sovereign European debt.

Liquidity is an important element in spread valuation. Our liquidity measure is the bid–ask spread for each 10-year benchmark government bond. An increase in the bid–ask spread implies a larger distance between offer and demand orders, therefore less liquidity for the benchmark

⁶ The selection of variables has been inspired by Codogno et al. (2003).

bond market segment. This in turn might raise the short-term relative risk of government bonds vis-à-vis the swap rates and tighten the swap spread. Therefore, one should expect a negative relation between the bid–ask spread and the swap spread.⁷

Concerning the effects of stock market volatility on interest rate swap spreads, we selected the average implied volatility of the put and call options on the Eurostoxx equity index. The Eurostoxx index better reflects the European investment opportunities, which is the relevant reference point given the degree of market integration in the bond market than individual country indices. Moreover, this choice avoids some problems of comparability in the derivative market for different national stock indices. For instance, if there is an increase of the average volatility of puts and calls, implying that the equity segment might be temporarily experiencing a riskier period, then some demand for securities can shift towards less riskier segments, namely long-term government bonds. This movement will raise prices and decrease the yield-to-maturity of 10-year government bonds, increasing therefore the corresponding swap spread. Consequently, we expect a positive relation between the measure of equity risk and the interest rate swap spread.

The slope of the yield curve is computed as the difference between the 10-year government bond yields and the 3-month interest rates. Future growth expectations, related to a steeper slope of the yield curve, may indeed reduce the relative risk of private versus government bonds. Therefore, one might expect that the decrease in the relative risk of private bonds vis-à-vis government bonds reduces the swap spread.

For the fiscal policy events reported in [Table 1](#), we created dummy variables that take the value one for the date of the event and assume the value zero for the rest of the year. Generally, we expect policy events related to a more lenient implementation of the Stability and Growth Pact (type 1 events) to have a negative impact on the swap spread of the country involved, since they would point to a risk for the long-run sustainability of the country's public finances. Policy events related to the overall framework (type 2 events) should have a positive or negative impact across countries, depending on whether they put into question or confirm the stringency of the framework. Since the first type of events may have been anticipated by market participants and should have a more lasting impact, we use rolling time windows for these dummy variables, as explained in more detail in [Section 4.3](#). The magnitude of the impact is hard to determine *ex ante*. Under current conditions without any immediate threat of a solvency crisis or a country becoming illiquid, however, expecting a change in spreads that goes beyond the currently prevailing yield spread across EU countries would be unrealistic. It presents rather the maximum of impact that should be expected, since it would imply that the spread between two EU countries reflects only the default premium and no liquidity or other concerns. In 2002, the spread was below 30 bp for euro area countries.

4.2. *Estimation results and discussion*

Our data sample covers the entire year 2002 including 253 daily observations.⁸ We estimate seemingly unrelated regressions for the specification given in (2) for 13 countries. Luxembourg

⁷ Most standard measures of market liquidity (trade size, trade impact, spread between more, and less liquid securities, etc.) require detailed information on individual trades, something that is outside the scope of this study. Therefore, we draw on a simpler measure such as bid–ask spreads to assess liquidity.

⁸ Our data sources are as follows: Reuters, for the 10-year government bond yields, 10-year interest rate swaps, 10-year government bond, and bid and ask prices. Bloomberg was the source for the stock market put and call volatility for EUROSTOXX, our STOX variable.

is not included due to missing data. The UK is excluded since unit root tests showed that the swap spread is non-stationary. For the same reason, the proxy for the stock market volatility (the STOX variable) and the yield curve inclination (the SLP variable) are used in first differences. The model specification to be estimated is

$$S_t = \alpha_1 + \alpha_2 S_{t-1} + \alpha_3 S_t^{\text{US}} + \alpha_4 S_{t-1}^{\text{US}} + \alpha_5 Y_t^{\text{ba}} + \alpha_6 \Delta \text{STOX}_{t-1} + \alpha_7 \Delta \text{SLP}_t + \sum_{j=1}^n \delta_j \text{dum_ddmm}_j. \quad (3)$$

Overall, the estimation results do not seem to differ substantially for the sample countries. In fact, most of the fiscal policy events turned out not to be statistically significant in explaining the swap spreads for the majority of countries. We report in [Table 2](#) the estimation results of specification (3) for the countries more directly involved in the described 2002 fiscal events: Portugal, Germany and France.

Swap spreads react to the US swap spread, and this holds for all countries. The bid–ask spread, the liquidity measure, seems to be only relevant for Germany, and is not statistically significant for Portugal or France. There is also evidence that equity market volatility is relevant in determining swap spreads in France, at least at the 10% significance level, but no such evidence exists for Germany or Portugal.

Regarding the fiscal policy events, all belonging to the first type, estimates indicate little relevance in terms of their explanatory power for swap spreads. However, one may perhaps notice a few interesting points. The rumours of the early warning for Portugal and Germany on 17 January (see `dum_1701`) seem to have actually decreased the swap spread for Portugal in line with the rationale presented in [Section 3](#) (10% significance, see [Panel A of Table 2](#)). There is no evidence of similar effects for Germany, except maybe when the European Economic and Financial Affairs Council (ECOFIN) did not launch the Excessive Deficit Procedure (EDP) on 12 February (see `dum_1202`) there was also a decline of the German swap spread (at the 10% level).

Concerning the event that occurred on 5 November, when the Council declares that Portugal has an excessive deficit, there is statistically significant evidence of an increase in swap spreads both for Portugal and Germany (see [Panel B of Table 2](#)).

A possible interpretation of that finding is that capital markets viewed the actual decision to adopt an EDP against Portugal not as new information on a riskier position of public finances in Portugal. Rather it might have been seen as an event signalling the credibility of the European fiscal framework as such, in the context of the general uncertainty created by the public debate, since rules were actually implemented. This view was also expressed in newsletters from investment banks. Alternatively it might also have reflected a reassurance that Portugal in the first case, but possibly Germany later on, would actually make more serious efforts to adjust their public finances. The coefficient for Portugal is slightly larger than for Germany. But the difference between the two coefficients is very small pointing, if anything, more to a “common credibility effect” rather than to the assessment of adjustments in the each country.

In [Table 3](#) we report estimation results for another set of events for the same three countries as above, as well as for Spain and for Greece.

Concerning the event of 17 October (see `dum_1710`), when the President of the EC mentioned that a rigid application of the SGP would be a “stupid” avenue, there is no evidence of significant reactions from the markets. Indeed, market participants may have interpreted the announcement as not raising the risk of the European long-term government bond benchmarks vis-

Table 2
Selected SUR estimates of Eq. (3) for Portugal, Germany and France (01/04/2002 to 12/31/2002)

	Panel A			Panel B		
	Portugal	Germany	France	Portugal	Germany	France
Constant	0.0070 (0.77)	0.0519 (5.62)***	0.0484 (5.65)***	0.0071 (0.77)	0.0511 (5.48)***	0.0476 (5.52)***
S_{t-1}	0.6057 (17.38)***	0.7608 (28.21)***	0.6771 (27.97)***	0.6001 (17.11)***	0.7611 (28.19)***	0.6764 (28.02)***
S_t^{US}	-0.0676 (-2.22)***	-0.0663 (-2.47)***	-0.0475 (-1.49)	-0.0777 (-2.55)***	-0.0727 (-2.70)***	-0.0524 (-1.66)*
S_{t-1}^{US}	0.0593 (1.84)**	0.0731 (2.56)***	0.0453 (1.35)	0.0687 (2.12)***	0.0795 (2.78)***	0.0511 (1.52)
Y_t^{ba}	-0.0053 (-0.0665)	-0.0003 (-1.73)*	-0.0132 (-0.86)	-0.0110 (-0.13)	-0.0003 (-1.76)*	-0.0121 (-0.78)
$\Delta STOX_t$	0.0007 (0.70)	0.0008 (0.99)	0.0015 (1.47)	0.0007 (0.67)	0.0010 (1.11)	0.0018 (1.73)*
ΔSLP_t	-0.0040 (-0.10)	-0.0674 (-1.84)*	-0.0091 (-0.21)	-0.0102 (-0.25)	-0.0690 (-1.88)*	-0.0138 (-0.32)
dum_1701	-0.0613 (-1.88)*	-0.0305 (-1.04)	0.0103 (0.30)			
dum_1202	-0.0389 (-1.20)	-0.0528 (-1.82)*	0.0136 (0.40)			
dum_2006				0.0075 (0.23)	0.0245 (0.84)	0.0200 (0.59)
dum_2607				-0.0078 (-0.24)	0.0217 (0.73)	0.0454 (1.31)
dum_0511				0.0635 (1.95)*	0.0554 (1.90)*	0.0411 (1.21)
dum_1311				0.0188 (0.57)	0.0062 (0.21)	0.0121 (0.35)
S.E. of regression	0.03	0.03	0.03	0.03	0.03	0.03
Adj. R^2	0.37	0.52	0.46	0.37	0.52	0.46
DW	1.94	1.97	1.96	1.93	1.96	1.93

Notes: Total system (balanced) observations 3211. (1) t -statistics in parentheses. (2) For the description and the date of the events, relating to the dummy variables, see Table 1. For instance, dum_1701 relates to the rumours of early warnings for Portugal and for Germany on 17 January.

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

Table 3
Selected SUR estimates of Eq. (3) for Portugal, Germany, France, Spain and Greece (10/04/2002 to 12/31/2002)

	Portugal	Germany	France	Spain	Greece
Constant	0.0075 (0.81)	0.0541 (5.77) ^{***}	0.0494 (5.71) ^{***}	0.0395 (4.53) ^{***}	−0.0111 (−0.99)
S_{t-1}	0.6037 (17.30) ^{***}	0.7534 (27.84) ^{***}	0.6734 (27.85) ^{***}	0.6876 (31.82) ^{***}	0.5693 (18.46) ^{***}
S_t^{US}	−0.0825 (−2.66) ^{***}	−0.0656 (−2.37) ^{**}	−0.0466 (−1.43)	0.0008 (0.03)	0.0266 (0.70)
S_{t-1}^{US}	0.0729 (2.24) ^{***}	0.0709 (2.44) ^{***}	0.0438 (1.29)	−0.0281 (−0.81)	−0.0547 (−1.37)
Y_t^{ba}	−0.0141 (−0.17)	−0.0003 (−1.73) [*]	−0.0124 (−0.80)	−0.0033 (−0.08)	−0.1588 (−1.98) ^{**}
$\Delta STOX_t$	0.0005 (0.51)	0.0007 (0.83)	0.0015 (1.44)	0.0004 (0.38)	0.0014 (1.14)
ΔSLP_t	−0.0163 (−0.39)	−0.059 (−1.57)	−0.0099 (−0.22)	0.0510 (1.13)	0.0998 (1.91) [*]
dum_2409	0.0030 (0.09)	0.0198 (0.67)	0.0100 (0.29)	0.0057 (0.16)	0.0304 (0.75)
dum_0810	0.0033 (0.10)	0.0089 (0.30)	0.0007 (0.02)	−0.0231 (−0.66)	−0.0077 (−0.19)
dum_1710	0.0087 (0.26)	−0.0061 (−0.20)	−0.0085 (−0.24)	0.0141 (0.39)	−0.0225 (−0.5400)
dum_2410	0.0274 (0.84)	0.0060 (0.20)	−0.0099 (−0.29)	0.0254 (0.73)	0.0326 (0.80)
dum_2711	0.0645 (1.97) ^{**}	−0.0101 (−0.34)	0.0061 (0.17)	0.0504 (1.44)	0.0836 (2.06) ^{**}
S.E. of regression	0.03	0.03	0.04	0.04	0.04
Adj. R^2	0.37	0.51	0.45	0.51	0.44
DW	1.92	1.99	1.95	1.96	1.97

Notes: Total system (balanced) observations 3211. (1) t -statistics in parentheses. (2) For the description and the date of the events, relating to the dummy variables, see Table 1. For instance, dum_2711 relates to the attempt by the EC to accommodate some of the criticism expressed by government officials against the Pact.

^{*} Significant at the 10% level.

^{**} Significant at the 5% level.

^{***} Significant at the 1% level.

à-vis the 10-year interest rate swaps and, consequently, no relevant changes occurred in the swap spreads.

Regarding the event of 27 November, when the EC tried to accommodate some of the criticism expressed by the government officials against the Pact, there is some evidence of swap spread increases for Portugal and Greece. This can be interpreted as capital markets assigning a lower relative level of risk to those countries' sovereign debt vis-à-vis the swap interest rates. Interestingly, these countries are precisely the ones with the lowest GDP per capita of the EU.⁹ Therefore, the fact that markets might perceive some loosening in the EC attitude could have led to a decrease in the relative risk level vis-à-vis private debt of countries with a lower credit rating. Alternatively, the result could again be interpreted as reflecting a credibility effect related to the European fiscal framework, as our review of investment bank documents indicates (see Afonso and Strauch (2004)). Market participants might have seen this as re-invigorating the Stability and Growth Pact.

Different interpretations can be given to the lack of significance of other policy events. Market participants could have simply neglected these events. However, our review of newsletters from four investment banks showed that all events were reported and mostly commented in these publications. Thus, market participants indeed put some attention to the events although they may not have revised their investment strategy based on this information. Alternatively, market participants may hold different views on how to assess policy events, and the corresponding reactions cancelled out. Banks indeed developed opposing policy lines on the necessary stringency or flexibility of the fiscal framework in the course of the year, as becomes evident from their publications. Our results do not allow us to distinguish between these interpretations, which would require trading data from individual investors. The only assessment that can be made is that the reaction to the events, if any, was not sufficiently unanimous to produce any sizeable result. In cases where the reaction of swap spreads turned out to be significant, the impact has been mostly 5 bp or less, but not exceeding 10 bp, according to our estimates. This is still sizeable given the maximum spread between government bond yields on average of around 30 bp for euro area countries in recent years.¹⁰

4.3. *Testing anticipation and persistence*

As discussed at the beginning of this section, 'type 1' events resemble some characteristics of credit rating action. They may have been anticipated and they could be expected to have a lasting impact on spreads. Therefore, we use now forward and backward moving windows of dummy variables, extending to several days before and after the event, in our regressions. This should allow us to assess if interest rate swaps react to fiscal policy events with leads and how they change thereafter.¹¹

⁹ For instance, Afonso (2003) reports that sovereign rating is highly correlated with GDP per capita. Indeed, with the exception of Spain, rated triple A in 2002 by Moody's (but not by S&P), Portugal and Greece's government debt had lower ratings than the EU15 average. Aside from Portugal and Greece, Spain is the only country for which the estimated coefficient for this event attains statistical significance (14%) close to standard levels.

¹⁰ Even if swap spreads are stationary, we also replicated the above estimates with changes in bond yields, in order to see if liquidity premium could be assumed constant over the time span. However, this exercise did not produce any conclusive results.

¹¹ Steiner and Heinke (2001) compute excess returns with rolling forward and backward windows, although the analytical implementation is different from ours.

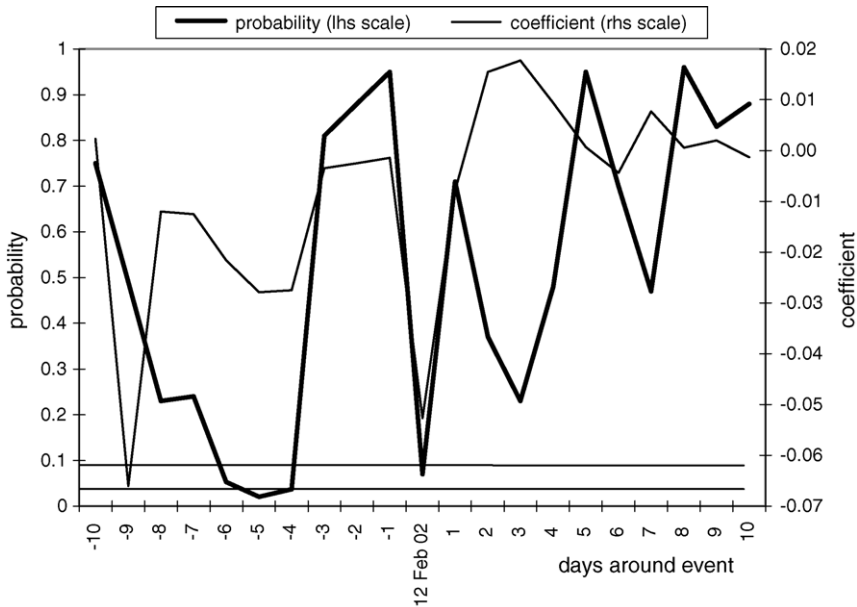


Fig. 2. Statistical significance of the dummy coefficient on the “failed” early warning (12 February 2002) on German interest rate swap spreads. *Note:* The two horizontal bars denote the 10 and 5% significance levels, respectively.

Specifically, we use a backward window iteratively increasing up to 10 days before the date of the fiscal policy event and a forward window up to 10 days after the date of the event. Coding a dummy variable for these different intervals before and after the event with one (and zero otherwise)¹² captures the shifting mean swap spreads over this time period. This implies that one has to estimate 20 additional SUR systems for each relevant policy event.

As an example of the results obtained from these additional estimations, we present in Fig. 2 the estimates for the coefficient of the dummy variable used to capture the effect of the early warning decision on 12 February on German swap spreads.

Concerning the fiscal policy event of 12 February 2002 the estimates indicate an anticipating behaviour in capital markets during the 4–5 days before the event (notice that $t-2$ and $t-3$ was a weekend). This behaviour was clearer for Germany than for Portugal and the estimated coefficients are always negative in line with the results reported in Table 2. Additionally, one should notice that the absolute value of the estimated coefficient for the case of Germany was around 0.022/0.023 in day $t-4$, $t-5$ and $t-6$ and it was a bit higher, 0.053, on the day of the event itself. A similar point can be made for Portugal, with a slightly higher absolute coefficient for the dummy on the day of the event, 0.0387, than in day $t-4$ and $t-5$ (0.021/0.025).

We computed similar SUR estimations for the fiscal policy even when the Council declared that Portugal had an excessive deficit, on 5 November 2002 (results are depicted in Afonso and Strauch (2003)). In this case the statistical significance of the estimated coefficient for the dummy variable is slightly increasing 2 days before the event. The absolute value of the estimated coefficient for the dummy variable again is higher at the date of the event, 0.064, than in day $t-1$ and $t-2$ before (0.035/0.038).

¹² See Appendix B for the assignment of values to the dummy variables.

We also performed this estimation strategy of backward/forward windows for other fiscal policy events. The exercise did not produce any further informative results and estimates are therefore not reported. Based on this analysis, fiscal policy events seem to bring additional information for the pricing of long-term bonds in capital markets mainly at the date of the event, and there is little indication for anticipation effects.

5. Conclusion

In 2002, the Stability and Growth Pact was put to a test due to the implementation of the surveillance process and the discussion about the framework itself in the context of the economic slowdown. This study evaluates to which extent policy events taking place in the course of 2002 produced a reaction in the long-term bond segment of European capital markets. In our parametric analysis, we do not find a clear capital market reaction for most events. Since we do not have data on individual trades, our results do not allow us to distinguish whether the lack of reaction was due to neglect or opposing assessments by market participants.

Nevertheless, we find some effects of political events and discussions on the swap spread. Interestingly, they point in different directions in the first quarter of 2002 and in the last quarter. The credibility of the framework as such may have been negatively affected by the public debate. The rumours of the early warning for Portugal and Germany on 17 January did seem to actually have decreased the swap spread for Portugal pointing to increasing concerns about fiscal developments. By contrast, for the event of 5 November, when the Council declared that Portugal as an excessive deficit, there is some statistical evidence of an increase in the swap spreads both for Portugal and Germany, which indicates a possible confidence effect. Finally one has to restate once more that the reaction of swap spreads, when significant, has been sizeable – mostly 5 basis points or less, but not exceeding 10 basis points – according to our estimates.

The failure to find a significant impact in most cases has not been an anticipation effect, since procedural events are generally not associated with a fall of spreads beforehand. Moreover, we could not detect any persistence of the market reaction in terms of a continuous upward or downward shift of the swap spread after an event. One could have expected such a reaction if the credibility of the European institutional framework would have been seriously threatened and market participants would have predicted a serious misalignment of public finances in the future.¹³

Summarising, the main finding of our paper is the lack of a persistent and systematic reaction of the default risk premium to the identified fiscal policy events, even if some specific events had a significant, temporary impact on swap spreads. This is of interest since the Stability and Growth Pact went through its first cycle of implementation with a Council decision to keep procedures against Germany and France in abeyance in November 2003. After the decision the Pact was essentially declared dead by many observers. The fact that even this did not cause any sizeable market reaction might be taken as an indication that policy events related to the Pact are indeed losing any information content for capital markets. However, this could change again when the fiscal situation in EU countries becomes more precarious.

¹³ This was also the view supported by a EC report (see EC (2003)).

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Appendix A. Descriptive statistics

Table A.1
Descriptive statistics for 10 years daily government bond yields (2002)

	Mean (%)	Median (%)	Maximum (%)	Minimum (%)	Standard Deviation	Skewness	Kurtosis
AT	4.941	5.008	5.445	4.244	0.345	-0.225	1.690
BE	4.980	5.051	5.480	4.304	0.341	-0.231	1.662
DE	4.775	4.825	5.256	4.175	0.319	-0.145	1.648
DK	5.053	5.073	5.502	4.443	0.283	-0.140	1.813
FI	4.957	5.010	5.475	4.276	0.330	-0.238	1.781
FR	4.862	4.902	5.339	4.237	0.318	-0.147	1.669
ES	4.928	4.994	5.433	4.252	0.342	-0.188	1.645
GB	4.855	4.891	5.334	4.360	0.293	-0.021	1.662
GR	5.103	5.203	5.602	4.429	0.342	-0.272	1.679
IE	4.994	5.003	5.505	4.280	0.332	-0.164	1.772
IT	5.018	5.072	5.511	4.407	0.328	-0.204	1.665
NL	4.886	4.935	5.389	4.204	0.345	-0.195	1.672
PT	5.002	5.059	5.489	4.315	0.333	-0.272	1.782
SE	5.300	5.286	5.770	4.685	0.282	0.008	1.869
US	4.603	4.799	5.426	3.567	0.534	-0.261	1.624

Source: Reuters.

Table A.2
Descriptive statistics for 10 years daily interest rate swaps (2002)

	Mean	Median	Maximum	Minimum	S.D	Skewness	Kurtosis
DK	5.230	5.290	5.760	4.520	0.344	-0.155	1.766
EU	5.014	5.070	5.480	4.365	0.317	-0.218	1.704
GB	5.239	5.305	5.650	4.770	0.272	-0.165	1.564
SE	5.542	5.525	6.020	4.930	0.288	-0.027	1.865
US	5.150	5.263	6.080	4.210	0.583	-0.124	1.524

Source: Reuters.

Appendix B. Dummy values for “window” analysis

Table B.1
 Example of value assignment to the dummy variables in the “window” estimates

SUR	...	$t-11$	$t-10$	$t-9$	$t-8$	$t-7$	$t-6$	$t-5$	$t-4$	$t-3$	$t-2$	$t-1$	$t+0$	$t+1$	$t+2$	$t+3$	$t+4$	$t+5$	$t+6$	$t+7$	$t+8$	$t+9$	$t+10$	$t+11$...
1	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
⋮																									
9	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0
⋮																									
20	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0

Note: $t+0$ is the date of the event.

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