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# FISCAL CONSOLIDATION UNDER MARKET'S SCRUTINY: HOW DO FISCAL ANNOUNCEMENTS AFFECT BOND YIELDS

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$$\frac{1}{(m-1)!} p^{m-1} (1-p)^{n-m} = p \sum_{\ell=0}^{n-1} \frac{\ell+1}{n} \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p \frac{n-1}{n} \sum_{\ell=0}^{n-1} \left[ \frac{\ell}{n-1} + \frac{1}{n-1} \right] \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p^2 \frac{n-1}{n} +$$

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# Fiscal Consolidation under Market's Scrutiny: How Do Fiscal Announcements Affect Bond Yields

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## **Abstract:**

We estimate the short-run reactions of bond spreads of selected EU member states vis-à-vis the German bund on fiscal announcements from January 2000 till December 2019. To avoid selection bias, the announcements are scrapped from the Factiva database, and then, depending on their tone, they are classified as hawkish or dovish. We show that announcements of fiscal consolidation decrease the spreads—however, the full-sample result masks substantial time and country variation. The impact of fiscal consolidation is statistically significant, namely in the post-crisis period since the Draghi's “whatever it takes” speech, but not before the Great Recession or during the European Debt Crisis.

**JEL:** E62, G01, G12

**Keywords:** fiscal announcements, bond spreads, EU debt crisis, fiscal consolidation

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# 1. Introduction

The European debt crisis has shown that the credibility of government policies plays an important role in the availability and cost of public debt funding. Since financial markets are supposed to be forward-looking, expectations of future developments of the public debt shall affect the bond yield demanded. For that reason, the government officials, notably the prime ministers and the finance ministers, often announce fiscal plans to shape the expectations on the market. It is assumed that in a situation of adverse fiscal developments, a credible fiscal consolidation announcement should deofease the bond rates, ease the funding strain and facilitate the fiscal adjustment. However, during the debt crisis, the bond spreads of the EU member states vis-à-vis the German bund remained elevated until the M. Draghi's "whatever it takes" speech on 26<sup>th</sup> July 2012, despite numerous announcements of fiscal consolidation plans as if those announcements were ineffective.

Therefore, in this paper, we analyze the short-run market reactions to the announcements of fiscal consolidation plans by prime ministers and finance ministers of selected EU member states over the period 2000-2019, to assess the power of fiscal announcements to influence the markets. Our sample contains countries of the southern EU periphery (Greece, Italy, Portugal, Spain), Ireland, some of the new EU member states (Czech Republic, Hungary, Poland, Slovakia), and the EU core is represented by France and Netherlands. These countries faced not only periods in which financing via debt issuance was available and cheap, but also the period, of the European debt crisis of 2009-2012, in which the fiscal sustainability of some of them was put into question and their bond yields skyrocketed. To permit the analysis of the announcement effects, we construct a unique news dataset from a newswire database FACTIVA consisting of hawkish (committing) and dovish (reluctant) announcements about fiscal consolidation and explore their impact on government bond yield spreads against German bund. We aim is to estimate whether the markets have seen the austerity announcements as a signal of increased stability which should decrease the yield demanded.

There have been several attempts to estimate the impact of fiscal announcements in the EU already (De Jong, 2018; Falagiarda and Gregori, 2015; Beetsma et al., 2013). We contribute to this literature by four important aspects. First, our analysis is performed on a longer time period, which enables us to study different sub-periods before, during, and after the European debt crisis. Second, we analyze a larger panel of countries, including not only the EU periphery. Third, to avoid selection bias in the

collection of announcement dates, we adopted a semi-automatic approach to news selection from a database based on carefully chosen search terms. Therefore, we minimize the author's judgment whether or not a piece of news is considered an announcement. Finally, the news is labeled either as expressing a committing (hawkish) standpoint of the government towards fiscal austerity or capturing a reluctant (dovish) view about the need for fiscal consolidation, following Büchel (2013).

Our results reveal several important insights. First, on the full sample, the *hawkish* announcements decrease the bond spreads. Furthermore, markets are forward-looking since comments of relevant stakeholders are considered even though no legal action was done yet. Next, in a majority of cases, *dovish* signals contribute to increases in bond yields. Also, we show that the signals given by prime ministers are considered more important than those from the finance ministers.

However, the full sample results mask the time and country variation in the effects of the announcements. Most importantly, the significantly negative impact of fiscal consolidation announcements appears in the post-crisis period that follows after Draghi's "whatever it takes" speech. In other periods, the coefficients measuring the announcement impact often remain negative but insignificant. On top of that, the estimated effect of the announcements differs across countries as well, sometimes being negative, sometimes positive, as if the markets considered an announcement of fiscal consolidation as a bad piece of news about future growth, thus increasing the debt/GDP ratio.

The paper is structured as follows: section 2 provides a survey of related literature, while section 3 explains the construction of our dataset and the variables used. Section 4 presents the methodology and the results, while section 5 concludes.

## **2. Review of related literature**

There is sizeable empirical evidence that countries without sound public finance, i.e., with high public debt or substantial fiscal deficit, are likely to face higher risk premia in their bond yields, reflecting an increased risk of potential sovereign default (Maltritz and Molchanov, 2013; Poghosyan, 2014; Costantini, et al., 2014; Caggiano and Greco, 2012). However, it is not only the existing fiscal fundamentals but especially their outlook for the medium term - as captured by various signals and news on economic and policy developments potentially impacting the fiscal position - that determines the sovereign bond yield behavior (Boffelli and Urga, 2015; Kim et

al., 2015; Afonso, Gomes and Taamouti, 2014; Drago and Gallo, 2016; Afonso et al., 2019).

Countries benefiting from low costs of funding thanks to sound fiscal fundamentals may still be subject to yield shocks even if the outlook remains unchanged because of the possible change in market sentiment, re-assessment of countries' risks, and contagion effects. Gregori and Sacchi (2019) show how comments of European leaders about Grexit drove up the government bond yields of Italy, Spain, and Portugal. Similar findings have been found by Silvapulle et al. (2016), Ters and Urban (2018), and Smolik, Vacha, and Baxa (2019). De Grauwe (2012), De Grauwe and Ji (2013), and Saka, Fuertes, and Kalotychou (2015) analyze the interconnectedness problem and fragility of the euro area bond market during the European sovereign debt crisis 2011-2012 and provide evidence that the main cause was the unclear commitment of the ECB regarding the aid for over-indebted European countries. Kinateder and Wagner (2017) utilize multi-country panel data and find out that the unconventional monetary policy that the ECB has performed to avoid a euro area breakdown had a spread-decreasing effect.

Countries with high public debt and ongoing fiscal deficits that further deteriorate the outlook for fiscal sustainability would be forced to implement fiscal consolidation and pursue a path of fiscal austerity. However, this is often tricky as such fiscal adjustment could be self-defeating: the worsened fiscal situation is usually a consequence of an economic recession, and tightening fiscal policy to improve public finances may jeopardize economic recovery. A negative feedback loop may develop in which fiscal austerity further deepens the economic recession, with negligible or even negative impact on government debt to GDP and a further rise in bond yields, ultimately increasing the funding costs and thus worsening the fiscal balance despite the austerity measures (Gros and Maurer, 2012; Holland and Portes, 2012; Guajardo et al., 2014; Attinasi and Metelli, 2017; Lopes and Do Amaral, 2017; Botta, 2020) On the other hand, successful, well-paced austerity measures should in general lead to improvements in fiscal balance, a decrease in funding costs and, in turn, to a general decrease in the level of interest rates in the economy, stimulating domestic demand and helping the economy to get out of recession (the so-called "expansionary fiscal contraction" argument, see Kandil, 2001; Krugman, 2010; Corsetti et al., 2014; Giavazzi and Pagano, 1990).

Jadhav, Neelankavil and Andrews (2013) point out that further increases in public debt can stimulate the economy in the recessionary periods, however after a certain

level of the debt the marginal effect on growth declines and becomes negative. Thus, it depends on the sustainable level of public debt as perceived by financial markets whether fiscal consolidation is or is not needed, but that level is uncertain and can be subject to changes over the economic cycle. This may lead to two different outcomes regarding the signals of austerity measures issued by governments. The markets may find it unnecessary, thus staying indifferent or even increasing the risk premia if there is news on consolidation that may harm the economy. On the other hand, if the austerity is expected to strengthen the public finance and sends clear signals of government responsibility, the announcements of such plans would bring the bond yields down.

The strength of market reactions to government news about fiscal consolidation depends on the credibility of the government, i.e. to what extent markets believe that the announced measures will be really implemented and how effective they will be in improving fiscal fundamentals (Christensen, 1999; Falagiarda and Gregori, 2015; Afonso, Jalles, and Kazemi (2020). Moreover, the process leading to the final legal acts implementing the consolidation plan takes quite a long time, over which markets may adjust their pricing for the expected outcome based on available information.

Büchel (2013) analyzed the effects of speeches of important European representatives regarding the five euro area countries that were most impacted by market scrutiny during the European sovereign debt crisis (Greece, Italy, Ireland, Portugal, and Spain, GIIPS). He divides a large news dataset into “*dovish*” and “*hawkish*” statements. Utilizing EGARCH framework for the period between 2009 and 2011, he finds that the CDS spreads react more intensively to negative comments that indicate a limited commitment of ECB, EU, and EMU representatives to support the GIIPS countries and protect its creditors. Supporting comments yield a weaker pattern, on the other hand, they still decrease CDS spreads.

Beetsma et al. (2013) study the daily effects of the announcements using pooled OLS for groups of countries divided between i) GIIPS and ii) other. Contrary to previously presented papers, they employ another approach to the estimation since they use word count, amount of news, and other similar explanatory variables in their estimation. They find that more news on average raises the domestic interest spread of GIIPS countries since September 2009.

Falagiarda and Gregori (2015) studied the fiscal announcement effects on long-term bond spreads of Italy using daily data. Utilizing GARCH model, they divide 201

news into 3 administration periods (from 2009 to 2013) and find a significant effect only made by members of Monti's cabinet for both types: budget improvements and budget deteriorations. They retrieve the fiscal policy announcements from ECB Real Time Information System and classify them according to their signaling content about future budget developments to a dummy variable with a positive, negative and neutral sentiment. Control variables used consist of a volatility index, total stock market index, TED spread, and CDS of Greece. They suggest that the credibility gap of governments in power plays a role.

Similar research was done by De Jong (2018) for Dutch spreads although he focuses on direct changes and not on volatility effects. He finds that announcements indicating an improvement of the budget significantly lower the yield spreads in the Dutch case. His approach to news acquisition is however different since he filters retrieved announcements from Dutch newspapers heavily. From 10 000 initially gained news only 144 are kept for further analysis. They represent rather the negotiation process of consolidation packages rather than final agreements. Furthermore, he mentions that the results may be inflated because they were estimated throughout a period of high market sensitivity (2008-2014).

Using dynamic panel regressions, Bergman and Hutchison (2019) study several types of news for GIIPS: *i) ECB policy actions, ii) EU programs and iii) domestic austerity measures*. Using daily data on CDS spreads changes, they find "very little" (albeit negative) immediate impact on sovereign or bank CDS spreads of the announced domestic austerity measures. More significant results were found for the ECB policy actions.

### **3. Construction of the dataset**

To avoid selection bias in collecting the dates of fiscal announcements, we construct a news dataset for 11 European countries using the FACTIVA newswire database with a large period from 1 January 2000 to 31 December 2019, focusing on articles in which government representatives (finance minister or prime minister) expressed their view about a need (or lack of it) for fiscal consolidation. We use articles released by Reuters since we assume that they represent well the key news that impacts financial markets. Reuters is one of the leading news agencies in the world having its branches in all countries in our dataset, with timely news dispersed fast to financial market traders.



Terms that had to appear in the headlines of the articles are divided into three sets: *i) identification of the country*, *ii) identification of the representative*, and *iii) relevant fiscal term*. The first set for the identification of the country uses not only the title of the country or the corresponding adjective (e.g. Italy or Italian) but also the distinctive identification of inhabitants (e.g. Italians). The second set identifies the person the news is related to, and we aim at capturing all news expressed publicly by the finance minister (*FINMIN*) and the prime minister (PM). It includes not only the terms such as “*PM*” or “*FINMIN*” but primary all names of prime ministers and finance ministers who served throughout the analyzed period in each country. In addition, for France, given its semi-presidential nature, we include the term “*president*” and all respective names in our search, too. The third set is used to identify news related to fiscal issues. We used three key terms - *budget*, *fiscal*, and *debt* which cover all relevant articles. All parameters of each set are presented in Table 1. Based on this search we retrieved 2 663 news for all the 11 countries.

**Table 1: Wording types used for news search and combinations**

<b>First set: country identification</b>	
<b>EUROZONE</b>	
ES - Spain	(Spain or Spanish or Spaniards)
FR - France	(France or French or Frenchmen)
GR - Greece	(Greece or Greek or Greeks)
IE - Ireland	(Ireland or Irish)
IT - Italy	(Italy or Italian or Italians)
NL - Netherlands	(Netherlands or Dutch or Dutchmen or Netherlanders)
PT - Portugal	(Portugal or Portuguese)
SK - Slovakia	(Slovakia or Slovak or Slovaks)
<b>CEE</b>	
CZ - Czechia	(Czech Republic or Czechia or Czech or Czechs)
HU - Hungary	(Hungary or Hungarian or Hungarians)
PO - Poland	(Poland or Polish or Poles)
<b>Second set: representative identification</b>	
<b>EUROZONE</b>	
ES - Spain	PM, FINMIN, Aznar, Zapatero, Rajoy, Sánchez, Figaredo, Mira, Méndez, de Guindos, Jurado, Romero, Montero
FR - France	PM, FINMIN, PRESIDENT, Sautter, Fabius, Mer, Sarkozy, Gaymard, Breton, Borloo, Lagarde, Baroin, Moscovici, Sapin, Le Maire, Jospin, Raffarin, de Villepin, Fillon, Ayrault, Valls, Cazeneuve, Philippe, Castex, Chirac, Hollande, Macron
GR - Greece	PM, FINMIN, Simitis, Karamanlis, Papandreou, Papademos, Pikrammenos, Samaras, Tsipras, Thanou-Christophilou, Mitsotakis, Papantoniou, Christodoulakis, Alogoskoufis, Papathanasiou, Papakonstantinou, Venizelos, Sachinidis, Zanias, Stournaras, Hardouvelis, Varoufakis, Tsakalotos, Houliarakis, Staikouras
IE - Ireland	PM, FINMIN, Ahern, Cowen, Kenny, Varadkar, Martin, McCreevy,

	Cowen, Lenihan, Noonan, Donohoe
IT - Italy	PM, FINMIN, Amato, Berlusconi, Prodi, Monti, Letta, Renzi, Gentiloni, Conte, Draghi, Del Turco, Tremonti, Siniscalco, Padoa-Schioppa, Grilli, Saccomanni, Carlo, Padoan, Tria, Gualtieri, Franco
NL - Netherlands	PM, FINMIN, Kok, Balkenende, Rutte, Zalm, Hoogervorst, Bos, de Jager, Dijsselbloem, Hoekstra
PT - Portugal	PM, FINMIN, de Pina Moura, de Oliveira Martins, Ferreira Leite, Bagão Félix, de Campos e Cunha, dos Santos, Gaspar, de Albuquerque, de Freitas Centeno, de Freitas Centeno, Leão, Guterres, Barroso
SK - Slovakia	PM, FINMIN, Dzurinda, Fico, Radičová, Pellegrini, Matovič, Heger, Schmögnerová, Hajnovič, Mikloš, Počiatek, Kažimír, Kamenický
<b>CEE</b>	
CZ - Czechia	PM, FINMIN, Mertlík, Rusnok, Sobotka, Tlustý, Kalousek, Janota, Fischer, Babiš, Pilný, Schillerová, Zeman, Špidla, Gross, Paroubek, Topolánek, Fischer, Nečas, Rusnok
HU - Hungary	PM, FINMIN, Varga, László, Draskovics, Veres, Oszkó, Matolcsy, Németh, Antall, Boross, Horn, Orbán, Medgyessy, Gyurcsány, Bajnai
PO - Poland	PM, FINMIN, Buzek, Miller, Belka, Marcinkiewicz, Kaczyński, Tusk, Kopacz, Szydło, Morawiecki, Bauc, Wasilewska-Trenkner, Kołodko, Raczko, Gronicki, Lubińska, Gilowska, Wojciechowski, Kluza, Vincent-Rostowski, Szczurek, Szalamacha, Czerwińska, Banaś, Kwieciński, Kościński

### Third set: relevant fiscal term

Budget, debt, fiscal

The resulting dataset is manually checked and unrelated articles are removed. Next, we assign values of -1, 0 or 1 to each of them according to the austerity announcement they represent following (De Jong 2018): 1 stands for a hawkish announcement, 0 if the news is neutral, and -1 for a dovish announcement.

$$ANNOUNCEMENT_{i,t} \begin{cases} +1 \text{ HAWKISH suggests committing attitude to austerity} \\ 0 \text{ neutral or no announcement} \\ -1 \text{ DOVISH, showing passivity regarding austerity} \end{cases}$$

Since the style of actions and comments found is quite heterogeneous, we provide typical content of articles for each of the three announcements in Table 2.

**Table 2: Reasoning behind the value assignment for revealed announcement**

Hawkish announcement	- Cuts in budget supporting comment or action now or soon
	- Announcement of the future balanced budget
	- Callings for tighter budget
	- Declared support for outgoing austerity measures, sticking with the austerity plan
	- Announcement of “better than expected” results regarding the state budget
Neutral announcement	- Statement revealing indifference regarding the fiscal consolidations
	- Announcement of budget state in good times
Dovish announcement	- Proclamation of unnecessary to cut the fiscal deficit now or soon
	- Announcement of “worse than expected” results regarding state

Examples of articles are provided below:

**Hawkish**

- *Berlusconi says Italy to balance budget in 2003 (11.10.2001)*
- *Spain dedicated to fiscal reform, sacrifice must be spread-Rajoy (27.9.2012)*

**Neutral**

- *Conte says not getting "hung up" over decimal places in budget (20.09.2018)*
- *Spain's PM says will make 2019 budget proposal in January (5.12.2018)*

**Dovish**

- *Polish 2001 budget revision still unclear-FinMin. (5.1.2001)*
- *Hungary needs no more budget cuts in 2004-finmin. (26.5.2004)*

The next step was to decide to which day the announcement should be assigned. As news appear throughout the whole day, we assumed (where it was possible as not all articles had a timestamp of the release) that the effect may arise until 16:58 hours of the working day. News released after this threshold was counted for the next working day. This is also applied by Büchel (2013). News published during the weekend were moved to the next working day (Monday) as well.

In case there are multiple announcements in one day, we assigned the (1, 0, or -1) value based on which value was prevalent. Moreover, if the news was stated by PM, PM was assigned disregarding the number of occurrences on that day. With the above-mentioned filtering methods, we retrieved 1 424 news days for all the 11 countries considered. Table 3 presents the resulting news dataset concerning the countries to which it is applied, the announcement assigned, and the member of the government who was cited.

**Table 3: Fiscal announcements, 2000-2019, by country, tone, and government official**

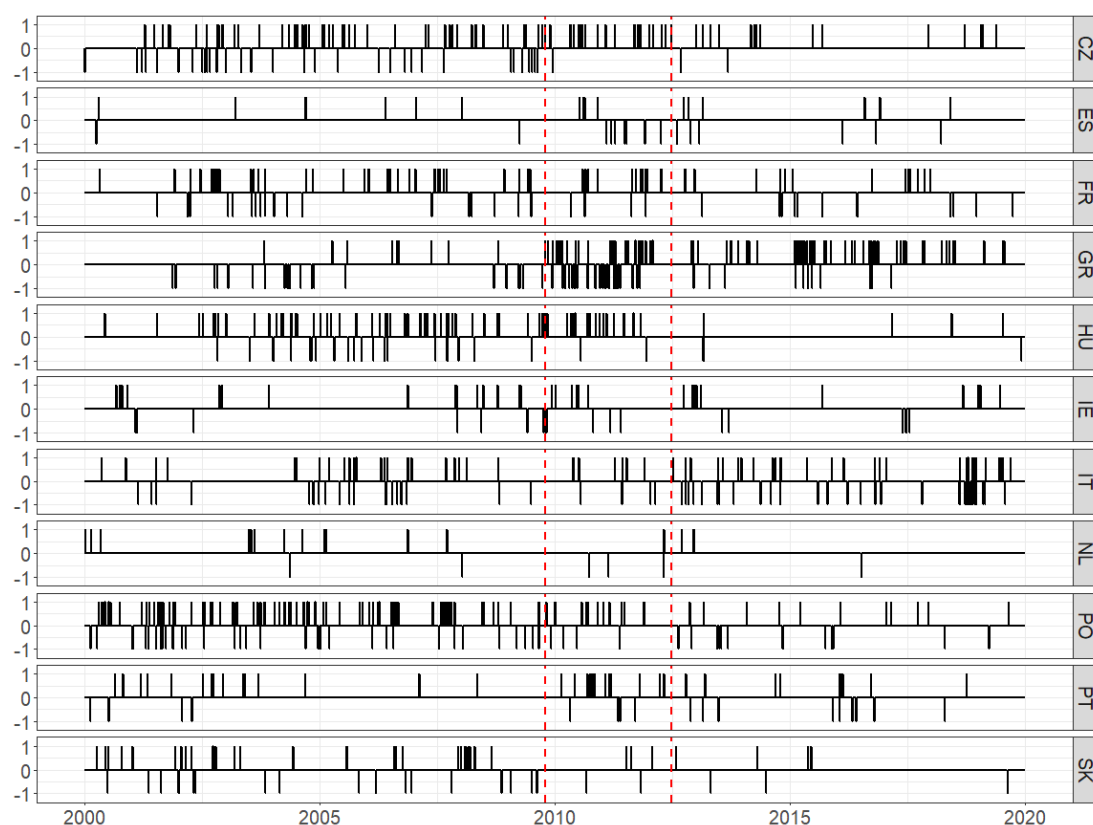
Country / Announcement	PM			FINMIN			Total
	DOVISH -1	NEUTRAL 0	HAWKISH 1	DOVISH -1	NEUTRAL 0	HAWKISH 1	
PO	12	13	39	45	82	96	287

Country / Announcement	PM			FINMIN			Total
	DOVISH	NEUTRAL	HAWKISH	DOVISH	NEUTRAL	HAWKISH	
CZ	7	10	17	31	19	74	158
ES	13	9	16	2		1	41
FR	23	10	35	12	7	33	120
GR	25	6	54	46	10	50	191
HU	11	29	53	16	25	31	165
IE	12	7	15	7	11	17	69
IT	46	42	59	20	16	19	202
NL	1	6	3	5	10	13	38
PT	11	10	24	7	2	15	69
SK	9	2	6	14	22	31	84
<b>Total</b>	<b>170</b>	<b>144</b>	<b>321</b>	<b>205</b>	<b>204</b>	<b>380</b>	<b>1424</b>

Source: Factiva, own computations

Figure 1 shows the distribution of the announcement throughout time for all the countries. We can see that communication about austerity has been frequent in some countries (such as Poland, Hungary or Italy) even before the sovereign debt crisis in Europe.

**Figure 1: Timeline of *ANNOUNCEMENT* variable with respect to time and country**



Note: i) Vertical lines depict days in which the *ANNOUNCEMENT* by prime and finance ministers appeared. *Hawkish* (*neutral*, *dovish*) views towards austerity and fiscal debt receive  $\{1,0,-1\}$  values. ii)

Dashed lines depict the split into periods used in the analysis. The first line from the left side refers to the Papakonstantinou’s announcement on 20 October 2009 and the second line from the left side to the Draghi’s “whatever it takes” announcement on 26 July 2012.

#### 4. Econometric model

The stance of government representatives towards fiscal austerity should be reflected in the bond pricing as it affects future government debt evolution and the related sovereign risk. To control for the movements in bond yields stemming from such as interest rates, inflation, and partially exchange rate risks, we follow the standards of the available literature and measure the effects of announcements on changes of bond yield spreads against the “risk-free” German bund, both with 10-year maturity and using daily data.<sup>1</sup> The benchmark bond yields used for the estimation are available in Annex.

The baseline estimated equation is of the following form:

$$\Delta SPREAD_{i,t}^{10y} = \alpha + \beta ANNOUNCEMENT_{i,t} + \delta_z X_{z,i,t} + RATING_{i,t} + \gamma \Delta SPREAD_{i,t-1}^{10y} \quad (1)$$

We expect a negative sign of the austerity announcement since government intentions to decrease the debt burden expressed in public should, in general, decrease the sovereign risk. We run the regressions for the whole pooled set of countries as well as by individual countries. The  $X_{z,i,t}$  represents a matrix of control variables that are used to filter out additional effects affecting the bond yields unrelated to the fiscal announcement shocks. Following Afonso et al. (2019), Falagiarda and Gregori (2015), De Jong (2018), and (Born, Müller, and Pfeifer 2020), we employ variables that control for general risk announcements in financial markets, financial market uncertainty, bond market liquidity, weekday effects, and a market view of the sovereign risk as captured by ratings.

Stock market indices carry important information about the general risk announcement. As stock markets fall, with risk aversion increasing, investors typically move from stocks to “safe” sovereign bonds, implying a negative

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<sup>1</sup> Alternatively, the swap spreads could be used (Afonso and Strauch, 2007), but the data would not be available for all our countries analyzed and the whole period used.

correlation between stock market indices and government bond prices (and thus a positive correlation between stock market indices and bond yields). However, given that we focus on European countries with different levels of sovereign risk (and taking into account that most of them are in the euro area), the role of safe bonds is actually played by German bund. Thus, in times of rising risk aversion, investors sell both stocks and (risky countries’) sovereign bonds, implying a negative correlation between stock market indices and bond spreads. Following Conrad and Zumbach (2016), we include the European (EURO STOXX) index in the pooled regression and the national blue-chip stock indices in the country-specific regressions (for list of national stock indices, see Appendix). To capture market uncertainty, we use the implied volatility index VSTOXX (Longstaff et al., 2011). Given the unavailability of such an indicator at the national level, the VSTOXX is used for both the pooled and the country regressions. To capture the effect of bond market liquidity, we include the bid-ask spread of each country’s bond yield benchmark. In all regressions, we also control for weekdays using dummy variables. Next, in some specifications, we decided to include a recursively calculated empirical cumulative distribution function (ECDF) as in (Born, Müller, and Pfeifer 2020) although our motivation is somewhat different. The variable is intended to control for a stress level, in which the market trades the sovereign bonds. In periods of increased spreads, larger changes may occur which are not necessarily caused by the announcements but purely due to the uncertainty. We catch this behavior by calculating for each day and each country the percentile based on ECDF which is updated each day for new bond yield. Formally, we calculate for each time  $t$  of country  $j$  and yield spread  $S$  the percentile given by  $F_t(S_{j,t})$ , where

$$F_t(S_{j,t}) = \frac{1}{t} \sum_{i=1}^t \mathbb{1}_{S_{j,i} \leq S_{j,t}} \quad (2)$$

$S_{j,i}$  is a set of observations for country  $j$  where  $S_{j,i}, \dots, S_{j,t}$  and  $\mathbb{1}$  is an indicator function.

The last variable used in our analysis is the rating change, which represents an independent entity’s assessment of the individual countries’ sovereign risk and thus captures a set of fundamentals related to the overall economic and fiscal situation. We include it primarily to receive a direct comparison of our results with concerning dummy variable of interest as they directly represent the credit state of given country. We collected data of announced changes including warnings by Standard & Poor’s

credit rating agency which seems to have greater focus on reputational credibility among market participants (Alsakka et al. 2014). The applied transformation of ratings is inspired by (Drago and Gallo 2016) as well as by (Ismailescu and Kazemi 2010). For There is a value assigned for each rating and rating warning shown in Table 4. In our approach, the variable receives a difference between the previous rating (including the rating warnings) and the newly assigned value on the day of a rating change. Table 4 provides numerical values assigned for each rating and rating warning. Moreover, (Drago and Gallo 2016) show that the market does not anticipate the announcement effects of rating changes et as they are significant only in days of their announcement. Thus, we do not employ more expansive announcement windows for the rating changes.

**Table 4: Numerical values assigned to S&P's ratings**

Numerical value	Rating typology	Numerical value	Rating typology	Numerical value	Rating typology
17	AAA	10	BBB+	1	CCC+
16	AA+	9	BBB	1	CCC
15	AA	8	BBB-	1	CCC-
14	AA-	7	BB+	0	CC
13	A+	6	BB	-1	SD
12	A	5	BB-	0	n/a
11	A-	4	B+		
		3	B		
		2	B-		
<b>Rating warnings</b>					
		<b>Numerical Value</b>	<b>Outlook</b>		
		0.5	Positive		
		0.25	Positive watch		
		0	Stable		
		-0.25	Negative watch		
		-0.5	Negative		

Furthermore, the effects of news should be larger when announced by prime ministers (or the president), since they hold higher position in the government than by finance ministers. Both positions may also carry different stances and roles in the government. Thus, in addition to running the regression using all news together, we also run it in a specification where announcements by prime ministers (PM ANNOUNCEMENT) and finance ministers (FINMIN ANNOUNCEMENT) are held separately, as presented in Eq. 3. Other variables are used in the same manner as in the previous specification.

$$\begin{aligned} \Delta SPREAD_{i,t}^{10y} = & \alpha + \beta_1 PM\ ANNOUNCEMENT_{i,t} \\ & + \beta_2 FINMIN\ ANNOUNCEMENT_{i,t} + \delta_z X_{z,i,t} + RATING_{i,t} \\ & + \gamma \Delta SPREAD_{i,t-1}^{10y} \end{aligned} \quad (3)$$

## 5. Results

With the specifications described in Eq. 1 and Eq. 3, we start our analysis<sup>2</sup> using the full sample of all countries in the dataset and all periods (pooled regression). In all regressions, the Newey-West procedure for covariance matrix estimation was used. Thus, presented covariance matrices are fully robust also to serial correlation (Henningsen and Henningsen 2019), although we were able to control it out with used variables and their respective lags even without the usage of dynamic panel data modeling. After presenting the pooled results, we provide country-specific evidence.

### a. Pooled sample

Results of the baseline regression in various alternative specifications are provided in Table 5. The dummy variable *ANNOUNCEMENT*, which captures the news of government representatives in general (without differentiating whether they come from FINMIN or PM), is negative and significant. In general, markets find announcements by governmental representatives credible, easing the funding strain of the government. This contradicts to some level the current literature since e.g. Falagiarda and Gregori (2015) found the significant negative effects only during the Monti's cabinet.

Other control variables also show the expected behavior: lower liquidity increases the yield spread, as well as the decreases of stock market indices, and the increased

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<sup>2</sup> Regressions were estimated using R *plm* package by (Croissant and Millo 2008). Outputs were created with a help of the package *stargazer* by (Hlavac 2018).



implied volatility capturing uncertainty. Next, the variable *STRESS* constructed as the recursive empirical cumulative distribution function for each yield spread in the dataset shows correct patterns. If the market dives the yields up relative to their historical values, spreads tend to increase significantly. The inclusion does not justify using fixed effects approach according to Hausman test. Moreover, we find that the PM announcements (PM ANNOUNCEMENT) are more relevant than by finance ministers (FINMIN ANNOUNCEMENT) although in both cases, they are not significant on the standard p-value rate.

**Table 5: Regression results for period 2000-2019**

<i>Dependent variable: <math>\Delta</math> YIELD SPREAD 10Y</i>						
	1	2	3	4	5	6
ANNOUNCEMENT	-1.422** (0.017)	-1.497** (0.016)	-1.401** (0.037)			
PM ANNOUNCEMENT				-1.827* (0.053)	-1.534 (0.133)	-1.555 (0.140)
FINMIN ANNOUNCEMENT				0.089 (0.834)	0.097 (0.810)	0.047 (0.912)
RATING	-1.479 (0.276)	-2.106 (0.224)	-1.985 (0.259)	-1.502 (0.269)	-2.128 (0.219)	-2.003 (0.255)
$\Delta$ YIELD SPREAD 10Y (T-1)	0.027 (0.270)	0.049** (0.011)	0.051*** (0.010)	0.027 (0.265)	0.050** (0.011)	0.051*** (0.010)
BIDASK		0.804*** (0.002)	0.829*** (0.002)		0.804*** (0.002)	0.829*** (0.002)
STRESS			0.604*** (0.001)			0.624*** (0.0005)
VSTOXX	0.130*** (0.000)	0.107*** (0.000)	0.103*** (0.000)	0.130*** (0.000)	0.107*** (0.000)	0.103*** (0.000)
NATSTOCK	-1.316*** (0.000)	-1.363*** (0.000)	-1.490*** (0.000)	-1.317*** (0.000)	-1.364*** (0.000)	-1.491*** (0.000)
Constant	-0.207 (0.360)	-0.178 (0.351)	-0.471*** (0.005)	-0.191 (0.401)	-0.166 (0.386)	-0.468*** (0.005)
Weekday dummy	YES	YES	YES	YES	YES	YES
Observations	56,256	53,895	49,811	56,256	53,895	49,811
R <sup>2</sup>	0.028	0.221	0.228	0.028	0.220	0.228
Adjusted R <sup>2</sup>	0.028	0.220	0.228	0.028	0.220	0.228
F Statistic	178.92***	1,524.78***	1,337.27***	161.01***	1,385.54***	1,225.55***

*Note: i)* Table presents resulting coefficients for each variable and respective p-values which are in brackets. *ii)* *Announcement* variable represents view of finance and prime ministers regarding austerity and fiscal consolidations. The negative coefficient indicates a decrease of yield spread after hawkish (committing) comment and the positive to dovish (reluctant) attitude expressed towards austerity. *iii)* *Rating* variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. *iv)* \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

Next, we are interested in whether the reaction of bond spreads to announcements differs across various periods. We split our sample into three periods – a pre-crisis period (up to 20 Oct 2009), the crisis period (between 21 Oct 2009 and 26 July 2012), and the post-crisis period (from 27 July 2012 on).

For the first break, we chose the day of Greek finance minister Papakonstantinou announcement regarding “higher budget deficit than expected” (20 October 2009). The second break is chosen for the famous “whatever it takes” announcement by Mario Draghi (26 July 2012). The decision for this date consists of two arguments: *i*) the announcement led to a decrease of bond market uncertainty which led to slow but persistent decrease of yield spreads and *ii*) the immediate positive effect was found in some analyses (e.g. Jäger and Grigoriadis, 2017). Using this breakdown, we also get a relatively acceptable number of events for the last post-crisis period.

Since the control variables are well-behaving, we provide only the results regarding the variables of our interest in Table 6. The complete results are available in the Annex. The *ANNOUNCEMENT* variable is decreasing in all chosen periods and robust against the model specification. Moreover, during the post-crisis period, the signs hold negatively significant, too. It seems that the communication of governmental representatives is rather incorporated into the pricings; however, this evidence is not conclusive apart of the post-crisis period on the standard levels of significancy. The results show that there is an evolution in the market’s perceptions towards proclamations of governmental representatives.

**Table 6: Regression results for the selected periods, all countries**

		<i>Dependent variable: <math>\Delta</math> YIELD SPREAD 10Y</i>					
		1	2	3	4	5	6
<b>PRE-CRIS</b>	ANNOUNCEMENT	-0.045 (0.873)	-0.167 (0.557)	-0.158 (0.556)			
	PM ANNOUNCEMENT				-0.194 (0.659)	-0.275 (0.558)	-0.038 (0.933)
	FINMIN ANNOUNCEMENT				0.540* (0.096)	0.590* (0.069)	0.374 (0.238)
	RATING	0.351 (0.840)	1.019 (0.596)	1.413 (0.465)	0.344 (0.843)	1.002 (0.602)	1.404 (0.467)
<b>CRISIS</b>	ANNOUNCEMENT	-2.576 (0.281)	-1.380 (0.583)	-1.263 (0.616)			
	PM ANNOUNCEMENT				-4.537 (0.177)	-2.783 (0.460)	-2.927 (0.439)
	FINMIN ANNOUNCEMENT				-0.443	-0.144	0.037

	RATING	-0.208 (0.910)	-1.137 (0.605)	-0.946 (0.669)	(0.806) -0.177 (0.923)	(0.925) -1.118 (0.612)	(0.981) -0.919 (0.678)
POST-CRISIS	ANNOUNCEMENT	-2.652** (0.011)	-2.684** (0.011)	-2.679** (0.011)			
	PM ANNOUNCEMENT				-1.966 (0.128)	-1.910 (0.141)	-1.896 (0.141)
	FINMIN ANNOUNCEMENT				-1.543 (0.151)	-1.507 (0.153)	-1.499 (0.156)
	RATING	-3.240 (0.186)	-3.399 (0.220)	-3.406 (0.218)	-3.314 (0.176)	-3.472 (0.210)	-3.476 (0.210)

*Note: i) Table presents resulting coefficients for each variable and respective p-values which are in brackets. ii) Announcement variable represents view of finance and prime ministers regarding austerity and fiscal consolidations. The negative coefficient indicates a decrease of yield spread after hawkish (committing) comment and the positive to dovish (reluctant) attitude expressed towards austerity. iii) Rating variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. iv) \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.*

In the pre-crisis period, the effects are basically zero, and then start to rise. This, however, may be partially caused by higher volatility. The reason behind the zero effects in the pre-crisis period is primarily the communication by finance ministers, since their announcements of fiscal consolidation increase the bond rates while the prime minister' announcements decrease them. This might mirror different market perception of both types of announcements. While the prime minister announcements is regarded as credible signal to improve sustainability of public finance, the announcement of the finance minister signal lower growth and perhaps rising indebtedness in the future if the growth rate of the economy decreases.

The rating changes show similar patterns as our prime variables of interest. There is only one puzzling result, the positive coefficients in the pre-crisis period. In the other ones, however, they are well-behaving, especially in the post-crisis period, in which they show to be significant on the level of  $p=0.2$ . This may be due to non-linear effects of increases/decreases of ratings.

Next, we test whether the specification of hawkish (positive), neutral, and dovish (negative) signals from the prime and finance ministers together is correctly done and the assigned values behave according our expectations set in the section 2.1. To do so, we divide the dummy variable *ANNOUNCEMENT* into hawkish and dovish statements, which are then used as dummies. The neutral news are used as the base together with the days in which no announcement was made.

The results are presented in Table 7. We find significant effects of hawkish announcements. Thus, markets do react on comments, but rather to the hawkish one. The dovish signals have the expected sign, however large standard errors prevent to be considered as significant on the standard scale. Still, on the level of one standard deviation, they are in line of our expectations.

**Table 7: Regression results hawkish and dovish divisions**

<i>Dependent variable: <math>\Delta</math> YIELD SPREAD 10Y</i>			
	1	2	3
HAWKISH	-1.817** (0.035)	-1.921** (0.030)	-1.858* (0.052)
DOVISH	0.689 (0.275)	0.712 (0.292)	0.547 (0.450)
RATING	-1.484 (0.275)	-2.110 (0.223)	-1.989 (0.259)
$\Delta$ YIELD SPREAD 10Y (T-1)	0.027 (0.271)	0.049** (0.012)	0.051*** (0.010)
BIDASK		0.804*** (0.002)	0.829*** (0.002)
STRESS			0.610*** (0.001)
VSTOXX	0.130*** (0.000)	0.107*** (0.000)	0.103*** (0.000)
NATSTOCK	-1.317*** (0.000)	-1.364*** (0.000)	-1.490*** (0.000)
Constant	-0.195 (0.391)	-0.165 (0.385)	-0.461*** (0.006)
Weekday dummy	YES	YES	YES
Observations	56,256	53,895	49,811
R <sup>2</sup>	0.028	0.221	0.228
Adjusted R <sup>2</sup>	0.028	0.220	0.228
F Statistic	161.183***	1,386.375***	1,226.039***

*Note: i)* Table presents resulting coefficients for each variable and respective p-values which are in brackets. *ii)* *Hawkish* variable represents a committing position of finance and prime ministers regarding austerity and fiscal consolidations and *Dovish* the reluctant one. The negative (positive) coefficient indicates a decrease (increase) of yield spread after a signal. *iii)* *Rating* variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. *iv)* \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

## b. Results by country

To tackle the poolability problem in our baseline equation, we re-estimate the model for each country available on the whole timespan. To present the results, we provide two tables. Table 8 summarizes the effects with the *ANNOUNCEMENT* variable, and Table 9 the division between PM and FINMIN signals.

The RATING variable provides in both setups in the majority the expected decreasing coefficient, but not a significant one. This result still has an important policy implication. Although the governments may hesitate with their responses

towards fiscal debt, decisions of credit rating agencies must be taken seriously, since negative (positive) outlooks and changes of credit rate have negative (positive) significant effects on the cost of financing. Thus, governments should communicate closely with rating agencies to take action even before their final decision is taken. Still, there are countries in which an increase in the rating causes an additional increase in bond yield spread. This is the case of Slovakia and Hungary, which coincidentally were not (at least for a part of the time) the members of EMU, and thus there may be some FX risk effects since the underlying bond yield is the German one.

The majority of *ANNOUNCEMENT* coefficients (6) is negative, although only the Greek representatives affected their yields significantly. Contrary to (De Jong 2018) the communication of Netherland's representatives is significant at only 89%. Interestingly, Portugal and Spain do get a positive sign. The reasoning behind that could be direct to the heavy spillovers into their yield curves during the debt crisis. Furthermore, for three out of the six countries, the signs of the *ANNOUNCEMENT* variable are negative on the level of one standard deviation. The communication effects thus also depend on the country in which the announcements are made; however, it seems that they rather decrease the spreads when positive communication about the sounding budget is made. In this setup, control variables are behaving according to our expectations again. There are some exceptions, mainly regarding the European and national stock indices. In some cases, they get inverted and significant signs. In general, however, the models are well-behaving.

**Table 8: Results with *Announcement* variable for period 2000-2019 for each country**

Dependent variable: $\Delta$ YIELD SPREAD 10Y											
	GR	IT	IE	PT	ES	FR	NL	SK	HU	CZ	PO
	1	2	3	4	5	6	7	8	9	10	11
APPETITE	-6.249*	-0.182	-0.524	0.372	0.109	0.048	-1.101	2.568	-1.498	-0.209	0.038
	(0.066)	(0.735)	(0.548)	(0.863)	(0.950)	(0.854)	(0.193)	(0.131)	(0.195)	(0.682)	(0.942)
RATING	-1.132	-3.023***	-5.652	-2.859	-3.530*	-5.690*	-0.205	5.173	3.495	-3.101***	-0.414
	(0.808)	(0.002)	(0.274)	(0.109)	(0.085)	(0.084)	(0.629)	(0.298)	(0.103)	(0.0003)	(0.818)
$\Delta$ YIELD SPREAD 10Y (T-1)	0.058**	0.064***	0.125***	0.103***	0.063**	-0.109***	-0.205***	-0.300***	0.064**	-0.093***	-0.092**
	(0.030)	(0.005)	(0.004)	(0.003)	(0.017)	(0.002)	(0.000)	(0.000)	(0.045)	(0.00002)	(0.018)
BIDASK	0.936***	0.030	0.427***	0.741***	0.176	-0.046	0.017	0.055	-0.010	0.193***	0.323***
	(0.002)	(0.587)	(0.00000)	(0.000)	(0.180)	(0.104)	(0.512)	(0.182)	(0.944)	(0.00000)	(0.00000)
STRESS	0.832	0.355	0.570	0.476	0.299	0.437***	0.406***	0.833***	1.160**	0.803***	1.413***
	(0.579)	(0.124)	(0.187)	(0.357)	(0.227)	(0.001)	(0.0002)	(0.0005)	(0.026)	(0.002)	(0.0002)
VSTOXX	0.302***	-0.007	0.162***	0.077**	0.022	0.042***	0.033***	0.204***	0.241***	0.105***	0.186***
	(0.005)	(0.821)	(0.00000)	(0.047)	(0.475)	(0.002)	(0.0002)	(0.000)	(0.000)	(0.00000)	(0.000)
NATSTOCK	-3.051***	-2.059***	-0.525***	-2.623***	-1.673***	-0.240***	-0.003	0.061	-1.951***	-0.681***	-1.268***
	(0.00000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.004)	(0.946)	(0.582)	(0.000)	(0.000)	(0.000)
Constant	-3.046**	-0.050	-0.469	-0.095	-0.081	-0.149	-0.127*	-0.219	-0.990**	-0.087	-0.825***
	(0.036)	(0.815)	(0.158)	(0.826)	(0.711)	(0.143)	(0.091)	(0.393)	(0.011)	(0.623)	(0.002)
Weekday dummy	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,696	4,696	4,696	4,696	4,696	4,696	4,696	3,283	4,264	4,696	4,696
R <sup>2</sup>	0.300	0.215	0.107	0.238	0.145	0.057	0.059	0.130	0.111	0.085	0.139
Adjusted R <sup>2</sup>	0.298	0.214	0.105	0.237	0.143	0.054	0.057	0.127	0.109	0.083	0.137
F Statistic	182.556***	116.950***	50.994***	133.277***	72.477***	25.541***	26.938***	44.405***	48.322***	39.525***	68.487***

Note: *i)* Table presents resulting coefficients for each variable and respective p-values which are in brackets. *ii)* *Announcement* variable represents view of finance and prime ministers regarding austerity and fiscal consolidations. The negative coefficient indicates a decrease of yield spread after hawkish (committing) comment and the positive to dovish (reluctant) attitude expressed towards austerity. *iii)* *Rating* variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. *iv)* \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.

## 6. Conclusions

This paper aimed to discover whether the communication regarding austerity measures and views on a balanced budget of prime and finance ministers do affect the sovereign bonds yields and thus whether markets price in their viewpoints even though it is not a legal action as approval of parliament. Furthermore, we were interested in whether the signals originating from prime ministers are more important than those from finance ministers.

To do so, we constructed a unique news dataset that consists of prime and finance ministers' actions and views regarding the state budget for 11 European countries. Furthermore, we aimed to lower the selection bias of news in the dataset because the results of previous works may yield inflated coefficients since authors usually pick only a few critical news. Thus, we relied on careful wording selection of Reuters articles available in the FACTIVA database.

We employed an estimation utilizing daily data to capture the surprise effects in their glance. Contrary to existing literature, our analysis was performed over a long period

from the beginning of 2000 to the end of 2019. This enabled us to study different periods of the financial and business cycle and whether there were any changes in perceptions regarding the communication. To provide a straightforward benchmark for announcement variables, we also included rating changes into our analysis.

Our analysis started with the baseline estimation. The results suggest that the communication of governmental representatives is in general taken into account. Moreover, the distributions of respective coefficients reveal that the market perceives the signals differently based on who initiates them. While the finance ministers' announcements have close to zero effects, prime ministers may on average decrease (increase) the yield spread with *hawkish* (*dovish*) proclamations.

Next, we re-estimated the model on three different periods to find out whether significant changes in perceptions towards the comments of prime and finance ministers occurred on the market. Surprisingly, the average effect of the signal is low and decreases (increases) the yield spread when *dovish* (*hawkish*) signal appears during the pre-crisis period for finance ministers. Similarly, insignificant rating increases increase the spread further. We believe that this is due to the fact that the market was not paying much attention to the state of governmental budgets and rating changes. In the following periods, however, the effects are again in line with the expectations, and thus the balanced budget committing announcements are viewed positively and reluctant negatively despite the coefficients being significant only on one standard deviation. Communication was found to be significant at 5% level in the post-crisis period.

To determine whether the *hawkish* and *dovish* announcements themselves are relevant, we further estimated the dummy variables separately. *Hawkish* announcements are followed by the market throughout the whole period analyzed. They significantly contribute to lowering the yield spreads, and thus, markets perceive austerity and a balanced budget as positive actions affecting the credit risk. Furthermore, markets are forward-looking since comments of relevant stakeholders are rather considered even though no legal action has been taken yet. Contrary, *dovish* signals are found to be not necessarily important; however, in the majority of cases, they contribute to increases of bond yields.

Our results show, however, puzzling results in the last part of our estimations in which we tried to find the effects on individual countries. Although in the majority of results, the average effect behaves according to the expectations, in some countries,

the communication leads to opposite results in which the *hawkish* announcement leads to a further increase of the yield spread. Thus, for Portugal and Spain, further research regarding governmental communication should be done to reveal the motives of the market.

## References

- Afonso, António, Pedro Gomes, and Abderrahim Taamouti. 2014. "Sovereign Credit Ratings, Market Volatility, and Financial Gains." *Computational Statistics and Data Analysis* 76 (August): 20–33. <https://doi.org/10.1016/j.csda.2013.09.028>.
- Afonso, António, João Tovar Jalles, and Mina Kazemi. 2019. "The Effects of Macroeconomic , Fiscal and Monetary Policy Announcements on Sovereign Bond Spreads : An Event Study from the EMU." *EconPol Working Paper*. [https://ideas.repec.org/p/ces/econwp/\\_22.html](https://ideas.repec.org/p/ces/econwp/_22.html).
- . 2020. "The Effects of Macroeconomic, Fiscal and Monetary Policy Announcements on Sovereign Bond Spreads." *International Review of Law and Economics* 63 (September): 105924. <https://doi.org/10.1016/J.IRLE.2020.105924>.
- Alsakka, Rasha, Owain ap Gwilym, and Tuyet Nhung Vu. 2014. "The Sovereign-Bank Rating Channel and Rating Agencies' Downgrades during the European Debt Crisis." *Journal of International Money and Finance* 49 (PB): 235–57. <https://doi.org/10.1016/j.jimonfin.2014.03.012>.
- Attinasi, Maria Grazia, and Luca Metelli. 2017. "Is Fiscal Consolidation Self-Defeating? A Panel-VAR Analysis for the Euro Area Countries." *Journal of International Money and Finance* 74 (June): 147–64. <https://doi.org/10.1016/J.JIMONFIN.2017.03.009>.
- Beetsma, Roel, Massimo Giuliadori, Frank De Jong, and Daniel Widijanto. 2013. "Spread the News: The Impact of News on the European Sovereign Bond Markets during the Crisis." *Journal of International Money and Finance* 34 (April): 83–101. <https://doi.org/10.1016/J.JIMONFIN.2012.11.005>.
- Bergman, U. Michael, and Michael M. Hutchison. 2019. "European Policy and Markets: Did Policy Initiatives Stem the Sovereign Debt Crisis in the Euro Area?" *European Journal of Political Economy* 57 (March): 3–21. <https://doi.org/10.1016/J.EJPOLECO.2018.06.003>.
- Blanchard, Olivier J., and Daniel Leigh. 2014. "Learning about Fiscal Multipliers from Growth Forecast Errors." *IMF Economic Review* 62(2): 179–212.
- Boffelli, Simona, and Giovanni Urga. 2015. "Macroannouncements, Bond Auctions and Rating Actions in the European Government Bond Spreads." *Journal of International Money and Finance* 53 (May): 148–73. <https://doi.org/10.1016/J.JIMONFIN.2015.01.004>.
- Born, Benjamin, Gernot J. Müller, and Johannes Pfeifer. 2020. "Does Austerity Pay Off?" *Review of Economics and Statistics* 102 (2): 323–38. [https://doi.org/10.1162/rest\\_a\\_00844](https://doi.org/10.1162/rest_a_00844).
- Botta, Alberto. 2020. "The Short- and Long-Run Inconsistency of the Expansionary Austerity Theory: A Post-Keynesian/Evolutionist Critique." *Journal of Evolutionary Economics* 30 (1): 143–77. <https://doi.org/10.1007/s00191-018-0567-3>.
- Büchel, Konstantin. 2013. "Do Words Matter? The Impact of Communication on the PIIGS' CDS and Bond Yield Spreads during Europe's Sovereign Debt Crisis." *European Journal of Political Economy* 32 (December): 412–31. <https://doi.org/10.1016/J.EJPOLECO.2013.08.004>.
- Caggiano, Giovanni, and Luciano Greco. 2012. "Fiscal and Financial Determinants of Eurozone Sovereign Spreads." *Economics Letters* 117 (3): 774–76.



- <https://doi.org/10.1016/J.ECONLET.2012.08.041>.
- Christensen, Michael. 1999. "Credibility of Policy Announcements Under Asymmetric Information." *Journal of Policy Modeling* 21 (6): 747–51. [https://doi.org/10.1016/S0161-8938\(97\)00095-1](https://doi.org/10.1016/S0161-8938(97)00095-1).
- Conrad, Christian, and Klaus Ulrich Zumbach. 2016. "The Effect of Political Communication on European Financial Markets during the Sovereign Debt Crisis." *Journal of Empirical Finance* 39 (December): 209–14. <https://doi.org/10.1016/j.jempfin.2016.01.018>.
- Corsetti, Giancarlo, Keith Kuester, André Meier, and Gernot J. Müller. 2014. "Sovereign Risk and Belief-Driven Fluctuations in the Euro Area." *Journal of Monetary Economics* 61 (1): 53–73. <https://doi.org/10.1016/j.jmoneco.2013.11.001>.
- Costantini, Mauro, Matteo Fragetta, and Giovanni Melina. 2014. "Determinants of Sovereign Bond Yield Spreads in the EMU: An Optimal Currency Area Perspective." *European Economic Review* 70 (August): 337–49. <https://doi.org/10.1016/J.EUROECOREV.2014.06.004>.
- Croissant, Yves, and Giovanni Millo. 2008. "Panel Data Econometrics in {R}: The {plm} Package." *Journal of Statistical Software* 27 (2): 1–43. <https://doi.org/10.18637/jss.v027.i02>.
- Drago, Danilo, and Raffaele Gallo. 2016. "The Impact and the Spillover Effect of a Sovereign Rating Announcement on the Euro Area CDS Market." *Journal of International Money and Finance* 67 (October): 264–86. <https://doi.org/10.1016/j.jimonfin.2016.06.004>.
- Falagiarda, Matteo, and Wildmer Daniel Gregori. 2015. *The Impact of Fiscal Policy Announcements by the Italian Government on the Sovereign Spread: A Comparative Analysis. European Journal of Political Economy*. Vol. 39. <https://doi.org/10.1016/j.ejpoleco.2015.07.002>.
- Giavazzi, Francesco, and Marco Pagano. 1990. "Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries\*." *NBER Macroeconomics Annual* 5: 75–122. <http://www.journals.uchicago.edu/t-and-c>.
- Grauwe, Paul De. 2012. "The Governance of a Fragile Eurozone." *Contributions to Economics*. Vol. 15. Bamberg: University of St. Gallen, School of Economics and Political Science, Institute of Economics (FGN-HSG). <https://ideas.repec.org/p/usg/wajohr/2012.html>.
- Grauwe, Paul De, and Yuemei Ji. 2013. "Self-Fulfilling Crises in the Eurozone: An Empirical Test." *Journal of International Money and Finance* 34 (April): 15–36. <https://doi.org/10.1016/j.jimonfin.2012.11.003>.
- Gregori, Wildmer Daniel, and Agnese Sacchi. 2019. "Has the Grexit News Affected Euro Area Financial Markets?" *The North American Journal of Economics and Finance* 49 (July): 71–84. <https://doi.org/10.1016/J.NAJEF.2019.04.007>.
- Gros, Daniel, and Rainer Maurer. 2012. "Can Austerity Be Self-Defeating?" *Intereconomics* 2012 47:3 47 (3): 175–84. <https://doi.org/10.1007/S10272-012-0418-7>.
- Guajardo, Jaime, Daniel Leigh, and Andrea Pescatori. 2014. "Expansionary Austerity? International Evidence." *Journal of the European Economic Association* 12 (4): 949–68. <https://doi.org/10.1111/jeea.12083>.
- Henningsen, Arne, and Géraldine Henningsen. 2019. "Analysis of Panel Data Using R." In *Panel Data Econometrics*, 345–96. Elsevier. <https://doi.org/10.1016/b978-0-12-814367-4.00012-5>.
- Hlavac, Marek. 2018. "Stargazer: Well-Formatted Regression and Summary Statistics Tables." Bratislava, Slovakia. <https://cran.r-project.org/package=stargazer>.
- Holland, Dawn, and Jonathan Portes. 2012. "Self-Defeating Austerity?" *National Institute Economic Review* 222 (1): F4–10. <https://doi.org/10.1177/002795011222200109>.
- Ismailescu, Iuliana, and Hossein Kazemi. 2010. "The Reaction of Emerging Market Credit Default Swap Spreads to Sovereign Credit Rating Changes." *Journal of Banking and Finance* 34 (12): 2861–73. <https://doi.org/10.1016/j.jbankfin.2010.05.014>.
- Jadhav, Arvind, James P. Neelankavil, and David Andrews. 2013. "Determinants of GDP Growth and

- the Impact of Austerity.” *Journal of Applied Business & Economics* 15 (1): 15–28. <http://eds.a.ebscohost.com/eds/detail/detail?vid=23&sid=acaa21d6-ae40-4200-b3b8-58872096c337%40sessionmgr4006&bdata=JkF1dGhUeXB1PWlwLHNNoaWlmc210ZT11ZHMtbGl2ZSZyY29wZT1zaXRl#AN=94428593&db=edo>.
- Jäger, Jannik, and Theodor Grigoriadis. 2017. “The Effectiveness of the ECB’s Unconventional Monetary Policy: Comparative Evidence from Crisis and Non-Crisis Euro-Area Countries.” *Journal of International Money and Finance* 78 (November): 21–43. <https://doi.org/10.1016/J.JIMONFIN.2017.07.021>.
- Jong, Jasper De. 2018. “The Effect of Fiscal Announcements on Interest Spreads: Evidence from the Netherlands.” 584. Amsterdam. [https://www.dnb.nl/en/binaries/Working paper No 584\\_tcm47-372965.pdf](https://www.dnb.nl/en/binaries/Working%20paper%20No%20584_tcm47-372965.pdf).
- Kandil, Magda. 2001. “Asymmetry in the Effects of US Government Spending Shocks: Evidence and Implications.” *Quarterly Review of Economics and Finance* 41 (2): 137–65. [https://doi.org/10.1016/S1062-9769\(00\)00066-1](https://doi.org/10.1016/S1062-9769(00)00066-1).
- Kim, Suk Joong, Leith Salem, and Eliza Wu. 2015. “The Role of Macroeconomic News in Sovereign CDS Markets: Domestic and Spillover News Effects from the U.S., the Eurozone and China.” *Journal of Financial Stability* 18 (June): 208–24. <https://doi.org/10.1016/j.jfs.2015.04.008>.
- Kinateder, Harald, and Niklas Wagner. 2017. “Quantitative Easing and the Pricing of EMU Sovereign Debt.” *The Quarterly Review of Economics and Finance* 66 (November): 1–12. <https://doi.org/10.1016/J.QREF.2017.04.013>.
- Krugman, Paul, “Self-Defeating Austerity,” *New York Times*, July 7, 2010. <https://krugman.blogs.nytimes.com/2010/07/07/self-defeating-austerity/>.
- Longstaff, Francis A, Jun Pan, Lasse H Pedersen, and Kenneth J Singleton. 2011. “How Sovereign Is Sovereign Credit Risk?” *American Economic Journal: Macroeconomics* 3: 75–103. <https://doi.org/10.1257/mac.3.2.75>.
- Lopes, João Carlos, and João Ferreira Do Amaral. 2017. “Self-Defeating Austerity? Assessing the Impact of a Fiscal Consolidation on Unemployment.” *The Economic and Labour Relations Review* 28 (1): 77–90. <https://doi.org/10.1177/1035304616689658>.
- Maltritz, Dominik, and Alexander Molchanov. 2013. “Analyzing Determinants of Bond Yield Spreads with Bayesian Model Averaging.” *Journal of Banking & Finance* 37 (12): 5275–84. <https://doi.org/10.1016/J.JBANKFIN.2013.07.007>.
- Poghosyan, Tigran. 2014. “Long-Run and Short-Run Determinants of Sovereign Bond Yields in Advanced Economies.” *Economic Systems* 38 (1): 100–114. <https://doi.org/10.1016/J.ECOSYS.2013.07.008>.
- Saka, Orkun, Ana Maria Fuertes, and Elena Kalotychou. 2015. “ECB Policy and Eurozone Fragility: Was de Grauwe Right?” *Journal of International Money and Finance* 54 (June): 168–85. <https://doi.org/10.1016/j.jimonfin.2015.03.002>.
- Silvapulle, Param, Jean Pierre Fenech, Alice Thomas, and Rob Brooks. 2016. “Determinants of Sovereign Bond Yield Spreads and Contagion in the Peripheral EU Countries.” *Economic Modelling* 58 (November): 83–92. <https://doi.org/10.1016/J.ECONMOD.2016.05.015>.
- Smolik, Filip, Lukas Vacha, and Jaromir Baxa. 2019. “Time-Scale Analysis of Sovereign Bonds Market Co-Movement in the EU.” *International Review of Economics & Finance* 64: 32. <https://doi.org/10.2139/ssrn.2616878>.
- Ters, Kristyna, and Jörg Urban. 2018. “Intraday Dynamics of Credit Risk Contagion before and during the Euro Area Sovereign Debt Crisis: Evidence from Central Europe.” *International Review of Economics & Finance* 54 (March): 123–42. <https://doi.org/10.1016/J.IREF.2017.08.002>.

## Annex

**Table A1: List of used government bonds**

Country	Data source: Datastream		Data source: Thomson Reuters Eikon	
	First available date	Mnemonic	First available date	RIC
CZ	10.04.2000	TRCZ10T	10.05.2000	CZ10YT=RR
DE	31.12.1999	TRBD10T	31.12.1999	DE10YT=RR
ES	31.12.1999	TRES10T	31.12.1999	ES10YT=RR
FR	31.12.1999	TRFR10T	31.12.1999	FR10YT=RR
GR	31.12.1999	TRGR10T	31.12.1999	GR10YT=RR
HU	31.12.1999	TRHN10T	26.08.2003	HU10YT=RR
IE	31.12.1999	TRIE10T	02.01.2003	IE10YT=RR
IT	31.12.1999	TRIT10T	04.12.2001	IT10YT=RR
NL	31.12.1999	TRNL10T	31.12.1999	NL10YT=RR
PO	31.12.1999	TRPO10T	31.12.1999	PL10YT=RR
PT	31.12.1999	TRPT10T	31.12.1999	PT10YT=RR
SK	06.01.2004	TRSK10T	31.05.2007	SK10YT=RR

Source: Datastream, Thomson Reuters Eikon

**Table A2: List of used equity stock market indices and implied volatility index**

Country	Name	First available date	Data source	Mnemonic / RIC
FR	FRANCE CAC 40	31.12.1999	Datastream	FRCAC40
IT	FTSE MIB INDEX	31.12.1999	Datastream	FTSEMIB
GR	FTSE/ATHEX LARGE CAP	31.12.1999	Datastream	FTASE20
ES	IBEX 35	31.12.1999	Datastream	IBEX35I
IE	ISEQ ALL SHARE INDEX	31.12.1999	Datastream	ISEQUIT
NL	AEX INDEX (AEX)	31.12.1999	Datastream	AMSTEOE
HU	BUDAPEST (BUX)	31.12.1999	Datastream	BUXINDX
PT	PORTUGAL PSI-20	31.12.1999	Datastream	POPSI20
CZ	PRAGUE SE PX	31.12.1999	Datastream	CZPXID
SK	SLOVAKIA SAX 16	31.12.1999	Datastream	SXSAX16
PL	WARSAW GENERAL INDEX	31.12.1999	Datastream	POLWIGI
	V2TX	03.01.2000	Thomson Reuters Eikon	V2TX
	STOXXE	03.01.2000	Thomson Reuters Eikon	STOXXE

Source: Datastream, Thomson Reuters Eikon

**Table A3: Regression results for pre-crisis period for all countries**

<i>Dependent variable: <math>\Delta</math> YIELD SPREAD 10Y</i>						
	1	2	3	4	5	6
ANNOUNCEMENT						
ENT	-0.045 (0.873)	-0.167 (0.557)	-0.158 (0.556)			
PM						
ANNOUNCEMENT						
ENT				-0.194 (0.659)	-0.275 (0.558)	-0.038 (0.933)
FINMIN						
ANNOUNCEMENT						
ENT				0.540* (0.096)	0.590* (0.069)	0.374 (0.238)
RATING	0.351 (0.840)	1.019 (0.596)	1.413 (0.465)	0.344 (0.843)	1.002 (0.602)	1.404 (0.467)
$\Delta$ YIELD SPREAD 10Y (T-1)	-0.077*** (0.002)	-0.070*** (0.010)	-0.053* (0.089)	-0.077*** (0.002)	-0.070*** (0.010)	-0.053* (0.089)
BIDASK		0.091 (0.107)	-0.077 (0.302)		0.090 (0.108)	-0.077 (0.303)
STRESS			0.782*** (0.00000)			0.786*** (0.00000)
VSTOXX	0.060*** (0.00000)	0.056*** (0.00001)	0.056*** (0.00002)	0.060*** (0.00000)	0.056*** (0.00001)	0.056*** (0.00002)
NATSTOCK	-0.380*** (0.000)	-0.373*** (0.000)	-0.405*** (0.000)	-0.380*** (0.000)	-0.373*** (0.000)	-0.405*** (0.000)
Constant	-0.073 (0.322)	-0.077 (0.311)	-0.348*** (0.0002)	-0.081 (0.276)	-0.085 (0.262)	-0.357*** (0.0001)
Weekday dummy	YES	YES	YES	YES	YES	YES
Observations	26,986	24,625	20,541	26,986	24,625	20,541
R <sup>2</sup>	0.024	0.026	0.026	0.024	0.027	0.026
Adjusted R <sup>2</sup>	0.024	0.026	0.026	0.024	0.026	0.026
F Statistic	73.491***	66.867***	50.422***	66.573***	61.229***	46.325***

*Note: i) Table presents resulting coefficients for each variable and respective p-values which are in brackets. ii) Announcement variable represents view of finance and prime ministers regarding austerity and fiscal consolidations. The negative coefficient indicates a decrease of yield spread after hawkish (committing) comment and the positive to dovish (reluctant) attitude expressed towards austerity. iii) Rating variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. iv) \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.*

**Table A4: Regression results for crisis period for all countries**

<i>Dependent variable: <math>\Delta</math> YIELD SPREAD 10Y</i>						
	1	2	3	4	5	6
ANNOUNCEMENT						
ENT	-2.576 (0.281)	-1.380 (0.583)	-1.263 (0.616)			
PM						
ANNOUNCEMENT						
ENT				-4.537 (0.177)	-2.783 (0.460)	-2.927 (0.439)
FINMIN						
ANNOUNCEMENT						
ENT				-0.443 (0.806)	-0.144 (0.925)	0.037 (0.981)
RATING	-0.208 (0.910)	-1.137 (0.605)	-0.946 (0.669)	-0.177 (0.923)	-1.118 (0.612)	-0.919 (0.678)
$\Delta$ YIELD SPREAD 10Y (T-1)	0.020 (0.528)	0.052* (0.052)	0.052* (0.054)	0.021 (0.518)	0.053* (0.051)	0.052* (0.052)
BIDASK		0.961*** (0.002)	0.961*** (0.002)		0.961*** (0.002)	0.961*** (0.002)
STRESS			4.855*** (0.003)			5.045*** (0.003)
VSTOXX	0.437*** (0.0002)	0.312*** (0.00002)	0.314*** (0.00002)	0.435*** (0.0002)	0.312*** (0.00002)	0.313*** (0.00002)
NATSTOCK	-2.218*** (0.003)	-2.545*** (0.00001)	-2.528*** (0.00001)	-2.231*** (0.003)	-2.552*** (0.00001)	-2.534*** (0.00001)
Constant	-0.463 (0.762)	-0.503 (0.677)	-4.926*** (0.0002)	-0.397 (0.798)	-0.464 (0.705)	-5.062*** (0.0003)
Weekday dummy	YES	YES	YES	YES	YES	YES
Observations	7,689	7,689	7,689	7,689	7,689	7,689
R <sup>2</sup>	0.032	0.333	0.333	0.032	0.333	0.333
Adjusted R <sup>2</sup>	0.030	0.332	0.332	0.030	0.332	0.332
F Statistic	27.780***	382.473***	348.082***	25.135***	347.779***	319.175***

*Note: i) Table presents resulting coefficients for each variable and respective p-values which are in brackets. ii) Announcement variable represents view of finance and prime ministers regarding austerity and fiscal consolidations. The negative coefficient indicates a decrease of yield spread after hawkish (committing) comment and the positive to dovish (reluctant) attitude expressed towards austerity. iii) Rating variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. iv) \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.*

**Table A5: Regression results for after-crisis period for all countries**

<i>Dependent variable: <math>\Delta</math> YIELD SPREAD 10Y</i>						
	1	2	3	4	5	6
ANNOUNCEMENT						
ENT	-2.652** (0.011)	-2.684** (0.011)	-2.679** (0.011)			
PM						
ANNOUNCEMENT						
ENT				-1.966 (0.128)	-1.910 (0.141)	-1.896 (0.141)
FINMIN						
ANNOUNCEMENT						
ENT				-1.543 (0.151)	-1.507 (0.153)	-1.499 (0.156)
RATING	-3.240 (0.186)	-3.399 (0.220)	-3.406 (0.218)	-3.314 (0.176)	-3.472 (0.210)	-3.476 (0.210)
$\Delta$ YIELD SPREAD 10Y (T-1)	0.082** (0.011)	0.082** (0.012)	0.082** (0.012)	0.082** (0.011)	0.083** (0.011)	0.083** (0.011)
BIDASK		0.288*** (0.003)	0.288*** (0.003)		0.287*** (0.003)	0.287*** (0.003)
STRESS			-0.124 (0.641)			-0.085 (0.743)
VSTOXX	0.049** (0.015)	0.047** (0.020)	0.047** (0.020)	0.049** (0.015)	0.046** (0.021)	0.046** (0.021)
NATSTOCK	-2.542*** (0.000)	-2.513*** (0.000)	-2.513*** (0.000)	-2.543*** (0.000)	-2.514*** (0.000)	-2.514*** (0.000)
Constant	-0.123 (0.484)	-0.125 (0.473)	-0.053 (0.745)	-0.090 (0.606)	-0.093 (0.590)	-0.044 (0.787)
Weekday dummy	YES	YES	YES	YES	YES	YES
Observations	21,559	21,559	21,559	21,559	21,559	21,559
R <sup>2</sup>	0.103	0.117	0.117	0.103	0.117	0.117
Adjusted R <sup>2</sup>	0.103	0.117	0.117	0.102	0.116	0.116
F Statistic	275.287***	286.065***	260.072***	246.820***	259.052***	237.464***

*Note: i) Table presents resulting coefficients for each variable and respective p-values which are in brackets. ii) Announcement variable represents view of finance and prime ministers regarding austerity and fiscal consolidations. The negative coefficient indicates a decrease of yield spread after hawkish (committing) comment and the positive to dovish (reluctant) attitude expressed towards austerity. iii) Rating variable represents rating changes. The positive coefficient indicates an increase of yield spread after a credit rating increase. iv) \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%.*

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