

THE EUROPEAN STABILITY MECHANISM AND SOVEREIGN BOND YIELDS: AN ANALYSIS IN LIGHT OF NEW DEBATES

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KEYWORDS

eurozone, bailout, European Stability Mechanism, reform, Italy, bond yields

ABSTRACT

The sovereign debt crisis revealed that there was a need for a bailout mechanism in the then prevailing framework of the euro area (EMU). In 2010, bond spreads of troubled periphery sovereigns started to soar relative to the core countries, threatening monetary policy transmission. Ever since, the ways of crisis management and EMU institutional reforms have been sparking a conflict between a German view of country-level responsibility and French-Italian calls for more risk sharing. The most recent chapter of this debate is about the ongoing reform of the European Stability Mechanism (ESM). This paper focuses on the evolution of the EMU financial assistance framework, up until the latest concerns of Italy. Our key question is whether policy steps resulting in a permanent bailout mechanism have played a role in driving sovereign yields. By using an event study approach and panel regressions, we find that related announcements have significantly contributed to a decrease in periphery sovereign bond yields. This result suggests that markets reacted positively, and their expectations moved toward a more integrated and resilient European financial market. For debates on the ESM overhaul, this contribution to financial stability should serve as a common ground. A “package approach” bundling multiple key reforms together, as stressed by Italy, may well also need to be taken into account.

INTRODUCTION

Tensions in Italy in December 2019 have revealed concerns about one of the ongoing institutional reforms of the euro area. Doubts over the intended changes in the European Stability Mechanism have been voiced by Italy in the final phase of approval. This sheds light on a deeper disagreement among EMU members on the directions that key reforms should take. The debate over the ESM overhaul is all the more crucial because this change could be the first major one completed since 2014. However, Italy’s reservations may cause a delay

and prompt EMU leaders to speed up progress on other pending reforms.

As developments on the ESM can be a turning point, we deem it essential to review the underlying arguments and more broadly, the ESM’s “track record” in enhancing financial stability. This issue is closely related to sovereign bond markets, not just because the ESM is mandated to assist states, but also because Italian critics of the reform envisage a rise in bond yields (due to changes facilitating the restructuring of privately held debt). Thus, our paper seeks to examine the relationship between yields and bailout-/ ESM-related events in the crisis- and post-crisis period. This research can help reveal whether the creation of a bailout facility had an impact on the evolution of EMU sovereign yields, and also deliver insights for the debate on the current reform. Applying an event study approach, we first create an event set which includes announcements on the EMU bailout framework, along with actual cases of financial assistance. This event set is then used in a panel regression to check its possible impact on yields of periphery bonds with different maturities. (As conventional in the literature, the term “periphery” is used to refer to the Mediterranean member states and Ireland.)

To provide a preliminary insight into our results, we find that ESM-related events have a significant negative effect on yields, indicating an overall stabilizing role of the EMU-level bailout arrangements. This result may serve as a common ground for debates on ESM settings, as well as on a set of broader financial reforms. Our contribution can be regarded as new especially in terms of its coverage of ESM-related events. It does not only examine bailouts themselves, but a much wider range of announcements on the respective institutional progress.

This paper is structured as follows. The next section provides background, with a focus on the evolution of motivations leading up to the creation and reform of the ESM. Our interpretation also aims to spot the key events as a basis for the detailed event set created subsequently. The third section then describes this set, along with the methodology, data and variables used to get model outputs. Results and limitations are thereafter discussed, with the last section summarizing our conclusions.

THE EUROPEAN STABILITY MECHANISM: BACKGROUND, CREATION AND REFORM

Like all major changes in the EMU's institutional architecture during the last couple of years, the creation of a common bailout fund was also triggered by the euro crisis. At the time when Greece's severe debt problem quickly raised market tensions in 2010, the euro area had neither any crisis management functions/framework nor dedicated financial resources to assist its troubled members (Pisani-Ferry 2010, 2012; Christova 2011; Gocaj and Meunier 2013; Baldwin et al. 2015). In fact, up until the crisis, several years had passed in the belief that sovereigns in a monetary union could not go bankrupt (Surányi 2012). If for no other reason than because their peers would help them "get through". This view was indeed not in line with the "no bail-out clause" (enshrined in EU treaties) and it was also inconsistent with the lack of a proper "lender of last resort" function on the part of the European Central Bank (ECB) (see De Grauwe 2012, 2013). Nonetheless, the introduction of the euro prompted a substantial reduction in perceived risks, compressing bond spreads for all member countries. This kind of euro-related confidence, together with macro and policy factors, contributed to a prolonged period in which EMU sovereigns could borrow at historically low interest rates. Some of them (Greece and Italy) went on piling up huge debts during this period. (In other cases, like Spain, private debts increased and ultimately became a threat for sovereigns, in a deadly embrace between banks and states [Acharya et al. 2014].)

Market sentiments then drastically changed in late 2009 (Giordano et al. 2013, Schwendner et al. 2015). Yields for Southern states and Ireland soared, not least because prospects of any bailout or fresh liquidity seemed totally uncertain. Anxiety was fuelled by an extremely fragile EMU framework which left sovereigns without any backstop for their debts akin to FX denominated liabilities. As De Grauwe (2012, 2013) points out membership in a monetary union involves losing full control of the legal tender. In other words, there is not even an implicit guarantee that money will always be available to pay off creditors. This is because influence on money supply is in the hands of a single central bank of the area, allowing no substantive room for unilateral action. In contrast, "standalone" states can practically repay any amounts of debts denominated in their own currency at any time. This certainly does not mean that a sovereign default is impossible in this case (as a state in serious trouble would ultimately default on its foreign liabilities and lose access to foreign markets). Nevertheless, at certain critical moments like those in 2010 and thereafter, the ability for limitless debt service may be decisive for markets' risk perception (see Mehrling 2000 for a discussion on this).

Regarding the sudden stop of market finance in 2010, the problem was not merely that countries in distress had no room for creating euros on their own. Rather, it was about their inability to apply for a last resort. The ECB (or any other institution) was namely not mandated to fulfil this

role (De Grauwe 2012, 2013, Surányi 2012). As regards banks, access to emergency liquidity was possible, but also uncertain because it was conditional on ECB action. Certainly, it is a general rule that applicants need to be solvent to be eligible for last resort. It is also clear that at least one EMU member (Greece) was bankrupt at the time when an emergency loan could have been contemplated. Thus, we do not argue that the spike in bond yields was only attributed to a missing "lender of last resort" function or a fragile institutional framework more broadly. It is instead suggested here that the pace and amplitude of market reactions were largely aggravated by this weakness. As already mentioned, deficiencies also included the lack of an EMU-wide crisis management framework and any financial resources explicitly available for bailouts. There was in fact no agreement on what a "bailout" could mean in the EMU framework at all. Furthermore, no procedure had been laid down for exiting the monetary union as membership had been meant to be irreversible (De Grauwe 2018). When exit then emerged as a (partly rhetoric) option during the crisis, it threatened with unbearable economic and political costs (Eichengreen 2010).

Against this background, the ECB eventually took action in 2012 to bring relief to EMU sovereigns. After some previous purchases limited in size and time, the central bank decided to commit to infinite intervention in bond markets if needed. This was hallmarked by the speech of ECB President Mario Draghi who promised to do "whatever it takes to preserve the euro" (Draghi 2012). Through the subsequent Outright Monetary Transactions (OMT) program, the ECB practically offered to fulfil a "lender of last resort" role for sovereigns. This, however, did not come without a price tag in a political sense. Related debates about risk sharing and intra-area "transfers" were well on the rise. Due to this controversy, the OMT program soon found itself before the German Federal Constitutional Court, being challenged as violating the ban on monetary financing (Várnay 2017). (German reservations were later rejected by the European Court of Justice.)

This ECB case is important here as it reflects differences between a German and a French-Italian stance regarding risk sharing. Bénassy-Quéré et al. (2018) show that Germany, along with some other countries of the EMU core, stresses responsibility at the level of the individual member states and a fear of moral hazard. In contrast, some countries led by France and Italy argue for more risk sharing and stronger cooperation at the union level.

Such differences have also been leaving a mark on the evolution of bailout policies till today. Market panic in 2010 first caused EMU leaders to envisage ad hoc bailout commitments (February 2010). This was well before the realization that the ECB's unlimited intervention power is also unavoidable (De Grauwe 2012). A one-time lifebelt for Greece in the form of loans with strict conditionality could actually be regarded as being in line with the "no bailout" (no fiscal transfers) rule (Micossi et

al. 2011). For Germany, it could seem well-constrained while also well-suited to stop contagion threatening with bringing down German banks with large Southern exposures. But bond yields signalled that markets would not be calmed by such a standalone solution. The approach had to be scaled up as soon as the Greek rescue package was signed in May 2010. Thus, the European Financial Stability Facility (EFSF) was created as a temporary vehicle granting emergency credit to troubled sovereigns (up until 2013). The EFSF framework included €60 billion in loans and credit lines to be provided by the EU budget (an amount also known as the European Financial Stabilisation Mechanism, EFSM) and further bilateral credit guarantees by members up to €440 billion euros. Moreover, the IMF granted a contribution of €250 billion (Christova 2010; Gocaj and Meunier 2013). Guarantees were provided by member states on a pro-rata basis, according to their ECB capital keys, meaning that Germany became the biggest potential contributor, able to set the parameters of the institution. The EFSF issued bonds in financial markets to finance bailout commitments. These securities gained high credit rating thanks to the underlying state guarantees with Germany at the first place. Subsequently, EFSF extended loans to Ireland and Portugal in 2011. Assistance came not just with widely criticized austerity-based “reform programs”, but also with rather punitive interest rates. This was largely due to the fact that Germany wanted to make sure assistance was not a “subsidy”, and no “Eurobond” was created (Gocaj and Meunier 2013). EFSF principles and procedures draw upon those of the IMF which, along with IMF participation, seemed to be an appropriate “deterrent” to rule out moral hazard (Pisani-Ferry 2010).

Albeit certainly not unlimited (like an ECB intervention could be), this temporary rescue vehicle was supposed to put an end to market tensions. However, favourable reactions were short-lived, due to concerns about the actual size of contributions, especially the amount of money readily available (i.e. not only guaranteed). “The EU was once again grossly underprepared to deal with the burgeoning crisis” (Gocaj and Meunier 2013, p. 247). Therefore, in March 2011, the European Council decided to establish a permanent stability mechanism, the ESM, replacing the EFSF from 2013 onwards. The ESM’s lending capacity was set to €500 billion. Most of its subscribed capital came in the form of guarantees and “callable capital”, besides a paid-in part of €80 billion (Manasse 2011; Minenna and Aversa 2019). That is, a guarantee-based approach was maintained, along with the size of the overall rescue capacity. An innovation compared to the previous EFSF setting was the concept of private sector involvement (Christova 2011). It was envisaged that in case of irreversible debt dynamics, the recipient state would have to start a renegotiation of its debts with private creditors. Although such an outcome remained very unlikely (as it would have to be preceded by an official declaration of unsustainability in the frame of the ESM procedure), some further steps were taken to make way for private involvement. Starting from 2013,

so-called Collective Action Clauses (CACs) have been included in new government securities with a maturity over 1 year, issued by any member state (ESM 2020a). These CACs foresee that a change in bond terms (such as a restructuring) can happen if approved by a qualified majority of creditors at the levels of each bond series and all series combined.

In terms of tools, the ESM was at start able to extend loans with strict conditionality, and also to buy government bonds in primary markets (up to 50% of the final issued amount to reduce the risk of a failed auction, ESM 2020b). Interest rates of loans were decreased to some extent (by 100 basis points). Shortly after its inception, further enhancement of ESM powers took place, allowing the institution to recapitalize banks and make purchases in secondary markets (Christova 2011). The former was used to rescue Spanish banks in 2012, and Cyprus also entered a program thereafter in 2013. (Apart from loans and indirect bank recapitalization, no other instruments have been used yet [ESM 2020b].)

As it can be seen from the above, markets indeed pushed EMU leaders to adopt more far-reaching bailout solutions amid a sustained euro area debt crisis. Schwendner et al. (2015) argue that a consolidation in sovereign bond markets (a dissolution of negative correlations between daily changes of yields of core versus periphery countries) can be attributed to the new rescue and stability mechanisms. Similar conclusions are drawn by Kiss et al. (2019) who find that EFSF/ESM loans contributed to the observed decline in long-term yield premia in the aftermath of the euro crisis. In contrast, Gödl and Kleinert (2016) establish that announcements of financial assistance and fiscal measures (as conditions of rescue packages) prompted no significant change in long-term periphery bond yields (except for Ireland). These authors conclude that other events played a more decisive role (e.g. ECB action and separate country-specific episodes like the Greek haircut in 2012). The evolution of yields is the key question of our paper. Our findings are thus presented in the next section, based on an event set extended to cover the current ESM reform, as well.

A very recent debate about the ESM is related to its ongoing reform. In late 2019, Italy announced that it would seek changes in the approach regarding the amendment of the ESM Treaty, which had come to the last phase of approval (Fonte and Jones 2019, ANSA 2019). It is essentially this turmoil which has directed our attention to the ESM and its overhaul. The situation, resembling a deadlock, namely points to the fact that meaningful EMU reforms have stalled since 2014, due to different visions of the member states (Bénassy-Quéré et al. 2018; Minenna and Aversa 2019). Italy’s key fear is that new ESM rules may raise its debt servicing costs. Such an outcome would certainly hurt Italy whose public debt-to-GDP ratio is the second largest in the euro area. (The figure was 137.3% in the third quarter of 2019 according to Eurostat data, surpassed only by a Greek

ratio of 178.2%.) We close this section by reviewing the reform and the potential rationale for Italian doubts.

Changes in the ESM framework were initiated a couple of years ago when proposals like a non-paper by then German Finance Minister Wolfgang Schäuble (2017) raised the question of debt restructuring. Schäuble suggested that ESM assistance should come with an automatic extension of the maturities of sovereign bonds of the recipient state. Moreover, there should be a mandatory debt restructuring mechanism to be used if deemed as necessary to restore debt sustainability. The non-paper also points to the need to modify current CACs to facilitate private sector involvement in risk sharing. Despite such proposals, current revisions do not include an automatic obligatory restructuring as a condition for ESM help (ESM 2020a). Amendments in CACs, however, have become a part of the reform, and these are the main source of Italian concerns about rising yields. Current CACs are so-called “double-limb CACs”. As already mentioned, they require two separate majorities to approve a change in bond terms: one at the level of each series and one at the level of all series combined (ESM 2020a). This feature benefits “holdout” investors who can delay a debt restructuring by acquiring majority in a single series. Similar CACs have caused misery during the 2012 Greek restructuring when debt burdens from 18 series (out of 35) could not be eased due to “holdout” investors (Bénassy-Quéré et al. 2018).

To prevent such an outcome, “single-limb” CACs are now to be introduced. These “allow the majority vote to take place at the level of all (...) series combined, without the need for a majority at the level of the holders of each individual series” (ESM 2020a). The amendment makes debt restructuring (if needed) clearly easier. This can in turn decrease the attractiveness of government bonds, especially in case of highly indebted sovereigns like Italy. Italian critics argue that higher yields will follow, making it “more likely that Italy will have to restructure or even default on its debt” (Fonte and Jones 2019). Market reactions are also examined in the next section.

Other key points of the ESM reform include a backstop role for the Single Resolution Fund (SRF) and enhancing the effectiveness of precautionary credit lines (PCLs). A part of the banking union, the SRF is an EMU-level fund for the resolution of failing banks. Granting a backstop is aimed at strengthening its stabilization function. Notwithstanding, such a commitment will necessarily put a strain on the resources of the ESM. (Even though potential ESM loans are capped [ESM 2020a].) As regards precautionary credit lines, the innovation lies in more standardization. PCL requests will be processed on the basis of standardized eligibility criteria, enhancing speed and transparency. To the best of our knowledge, neither the backstop function nor the change regarding PCLs have been challenged by recent Italian critics.

Italy’s reservations have had a remarkable impact on the approval process so far. Although in December 2019, the

Eurogroup agreed in principle on a revised ESM Treaty text, its final adoption by national parliaments has been postponed (possibly) until spring this year. It is not by accident that Eurogroup President Mário Centeno hinted at the importance of a “package approach” (Centeno 2020). Italy has namely been stressing this as a solution that could make the ongoing ESM reform more feasible. A “package” here refers to the need for advancing other reforms parallelly. An EMU-wide bank deposit guarantee, a common unemployment insurance mechanism and progress on a eurozone budget are among those preferred by Italy (Fonte and Jones 2019). However, these plans are much less advanced as they involve even more disagreement among the members. In what follows, we examine the potential impact of the evolution of the EMU bailout framework on the yields of the most vulnerable sovereigns of the currency area.

EMPIRICAL ANALYSIS

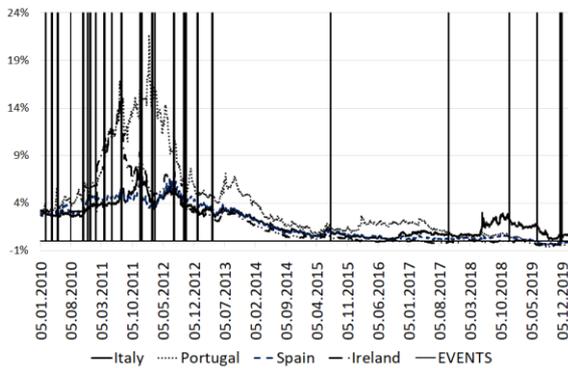
In the empirical part of our paper, we analyse the impact of news related to the EFSF/ESM on government bond yields in the eurozone periphery, namely in Italy, Spain, Portugal and Ireland. We disregard Greece because of a notable shrinkage in its marketable debt, implying a less reliable reflection of the prevailing market sentiments.

We assess market reactions by employing an event study approach, explaining the change in bond yields with event dummies and control variables. It is commonly called in the literature, as ‘intervention analysis’: we measure the impact of bailout policy events by regarding the change in sovereign bond yields. We also apply a set of control variables to support our estimation.

Data and Variables

We use benchmark government bond yields on different maturities (1, 5 and 10 years). Figure 1 presents the evolution of 5-year benchmark yields since the early period of the euro crisis. Benchmark yields enable us to compare roughly similar securities in terms of maturity, although the shift from one bond to another as benchmark might lead to an unexplained rise in yields. As it often happens with time series financial data, the chosen yields are not stationary, which was confirmed by the augmented Dickey-Fuller test. Furthermore, using first differences later allows us to disregard fundamental determinants of yields which do not change in the very short run (Gödl and Kleinert 2016). Thus, we decided to calculate the first differences of bond yields. This eliminates the problem of changing benchmarks, as well, given that unexplained rise due such shifts occurs only rarely and may not mislead us. We use daily observations, so daily changes of yields (*dyield*) appear as the left-hand side variable (in the model discussed below). The time frame covers every working day between January 2010 and January 2020. All bond yields are retrieved from Bloomberg.

Figure 1: Government Bond Yields (5-year maturity) and Dates of Events



Source: Bloomberg, own calculations.

Prior to model calculations, we created a set of announcements related to EFSF/ESM funding to distressed countries and relevant institutional changes, ranging from early indications of a bailout scheme in 2010 up until to the recent reform proposal in 2019. These Events are collected from literature quoted above and double-checked by using official EU website. In total, 29 events are considered as marked in *Figure 1*. Note that we omitted country-specific fiscal announcements and ECB decisions from the set as they are not directly connected to our scope. (The possible effects of these events are captured by control variables discussed below.) We created a dummy variable for the events (*Events*), with 1 marking the day of announcements, as well as the days preceding and following them. (All other days have 0.) Surrounding days are taken into account as anticipated and lagged effects are likely to be captured this way. As for control variables, we collected several indicators, some of which have different values for each periphery country, while others are common indicators. Country-specific indicators include the uncertainty index (*Unc_index*) and Bloomberg political risk index (*BBG_pol_risk*) as provided by Bloomberg. In order to proxy underlying euro area processes and global risk sentiments, we selected VIX index (*VIX_index*), Citi macro risk indicator (*Citi_macro*), Citi short-term indicator (*Citi_short*) and Citi CPI surprise index (*Citi_CPI*) for the eurozone, along with EU uncertainty index (*EU_unc_index*). In addition, German yields (*Ger_XY*) and so-called ‘inflation breakevens’ (*CPI_breakeven*) were selected. The latter embodies information about the market pricing of inflation-linked bonds, i.e. this variable could be regarded as a market perception of future inflation rates. We also use periphery CDS data as a control variable (*PER_CDS*) as downloaded from Bloomberg. Note that we used 5Y contracts here as other maturities were not liquid at all times for all countries. Daily data are used as first differences (in accordance with the time series of bond yields), while monthly data such as Citi-indices, political risk and uncertainty indices remained unchanged.

As a robustness check, we resort to the ‘popularity’ of Google keywords related to the EFSF and ESM. We rely on Google’s own scale for measuring ‘popularity’. (The scale ranges from 1 to 100, with higher values indicating more searches in case of a keyword. The underlying methodology is accepted for the purposes of this paper.) As the potential ‘popularity’ of these words overlap, we decided to use the form ‘ESM OR EFSF’ in the first place, but we looked at separate popularity indices, as well. ‘Popularity’ indices may give a more nuanced picture about the importance and durability of the relevant effects. However, values are only available on a monthly basis, so differences in times of consecutive events are not reflected.

Model

In the literature, modelling the impact of policy announcements is common as it may be interpreted easily, even though the method is quite limited in capturing longer-term effects. Our model roughly follows the one used by Falagiarda and Reitz (2015). In their work, they employed a similar set of panel data to examine the impact of the ECB’s quantitative easing programs.

We estimate the following model (*Equation (1)*):

$$d(\text{yield}_{i,t}) = \alpha + \beta_1 \text{Events} + \beta_2 \mathbf{X} + \beta_3 \mathbf{Z} + \varepsilon \quad (1)$$

where $d\text{yield}$ is the first difference of the respective government bond yield in country i at time t . Regarding the three different maturities involved, we decided to repeat the same regression for each, using the respective maturities of the risk free (German) rate. Remember that *Events* is a dummy for policy announcements described earlier. This is a common variable with the same content for all countries in our panel. \mathbf{X} and \mathbf{Z} are sets of control variables, with \mathbf{X} being country-specific, while \mathbf{Z} not. (\mathbf{X} includes *Unc_index*, and *BBG_pol_risk*, while \mathbf{Z} comprises the rest of our control variables.) Intercept α is common and time invariant. (Chow test showed that country-specific fixed effects are not needed in the model.) Finally, ε denotes the error term.

Note that our approach is similar to that of Gödl and Kleinert (2016) and Kiss et al. (2019) as both studies apply variations of the event study method and regressions. However, we resort to a single, more detailed and comprehensive event set regarding the evolution of bailout policies. This goes beyond focusing exclusively on the fact whether financial assistance was received by a country or not (Kiss et al. 2019). We also strove to overcome limitations arising from a small number of events of separate types, and we pooled announcements on EMU bailout funds exclusively (two features different from Gödl and Kleinert (2016)).

Results and Discussion

Estimating the model, we find that the announcements had a significant negative impact on the bond yields of EMU periphery countries between January 2010 and 2020 (Tables 1-3). In other words, news about the establishment and use of the European bailout funds have tended to contribute to the moderation of contemporaneous sovereign yields since the outbreak of the euro crisis. After several iterations, we decided to omit most of the indices (*Unc_index*; *BBG_pol_risk*; *Citi_macro*; *Citi_short*; *Citi_CPI*; *EU_unc_index*) as they did not improve the explanatory power of the model. Thus, the final version of the model includes the change in the CDS price of a given periphery country, the change in VIX index and the benchmark German government bond yield on the respective maturity. The latter proxy variables allow us to capture global, regional trends affecting the bond yields, while CDS is supposed to reflect the default risk of the respective periphery country (also as perceived by markets).

Table 1: Panel Outputs: Impacts of EFSF/ESM-Related Events on Periphery Bond Yields on 1Y Maturity

	Estimates			
	coeff.	std.err	t-ratio	p-value
const	0.0002	0.0017	0.10	0.9133
Events	-0.0599	0.0101	-5.45	4.92e-08***
d_PER_CDS	0.0008	6.63e-05	11.88	2.6e-032***
d_VIX_index	0.0022	0.0011	2.07	0.0380**
d_GER_1Y	-0.2619	0.0915	-2.86	0.0042***
F-statistic: 50.89 p-value: 1.78e0-42*** R-square: 0.02				

Table 2: Panel Outputs: Impacts of EFSF/ESM-Related Events on Periphery Bond Yields on 5Y Maturity

	Estimates			
	coeff.	std.err	t-ratio	p-value
const	-0.0006	0.0013	-0.52	0.6027
Events	-0.0214	0.0080	-2.67	0.0076***
d_PER_CDS	0.0012	5.03e-05	23.53	2.3e-119***
d_VIX_index	0.0045	0.0008	5.37	8.05e-08***
d_GER_1Y	-0.0740	0.0352	-2.10	0.03560**
F-statistic: 165.47 p-value: 1.304e0-137*** R-square: 0.06				

Table 3: Panel Outputs: Impacts of EFSF/ESM-Related Events on Periphery Bond Yields on 10Y Maturity

	Estimates			
	coeff.	std.err	t-ratio	p-value
const	-0.0009	0.0010	-1.00	0.3142
Events	-0.0111	0.0061	-1.81	0.0698*
d_PER_CDS	0.0009	3.8e-05	24.55	1.7e-129***
d_VIX_index	0.0058	0.0006	9.18	4.9e-020***
d_GER_1Y	0.1245	0.0245	5.07	3.92e-07***
F-statistic: 179.48 p-value: 5.42e0-149*** R-square: 0.06				

Source: Own estimations.

In case of 1-year government bond yields, we find that our event variable is statistically significant at every conventional significance level ($p < 1\%$). Therefore, we may establish that EFSF/ESM announcements significantly decreased the 1-year government bond yields of the periphery, with approximately 6 basis points on average each time.

Regarding 5-year yields, the event set also proved to be significant at a 1% level. Nonetheless, the estimated coefficient is smaller which means that events decreased bond yields by about 2 basis points on average each time. In case of 10-year bonds, events are still significant, although only at a higher (but still conventional) threshold (10%). The coefficient shows that the impact was also the smallest in this case: we may identify a 1-basis point average change connected to the events presented above. In sum, we can conclude that EFSF/ESM-related announcements contributed to a decrease in periphery bond yields in the aftermath of the euro crisis.

Although the overall explanatory power of these models could be upgraded, this is not key here insofar as our event variable is statistically significant even together with strong indicators of default risk and market uncertainty (as control variables). So, we deem these results to be useful insights, especially what regards different maturities. According to the literature, short-term yields are more likely to be affected by market sentiments and expectations about short-term monetary policy decisions, while long-term yields are reflecting long-run structural factors. Furthermore, long-term yields are more likely to be affected by quantitative easing programs, by nature. Our results suggest that market expectations about further turbulence eased mostly in case of shorter maturities. This is in line with the background described in the previous section. It can be assumed that policy steps before the eventual creation of a permanent fund (the ESM) were mostly judged by markets as a temporary fix. That is, investor confidence returned in case of short-term periphery bonds, but they were not strongly convinced that changes at hand will help to cut the divergence among eurozone countries in the long run. This may be due to the incremental and largely uncertain nature of the institutional progress and also to views about the overall size and structure of the dedicated funds. On the other hand, an alternative explanation is that the ECB's QE programs may have muted the impact of the institutional changes in case of 10-year maturities.

Regarding the robustness of our results, we carried out two types of alternative estimations. First, choosing and rotating different sets of the above control variables did not change the significance levels (p-values) of the event dummy in a sizable manner, on either of the maturities involved. Coefficients remained negative and they did not change substantially, ranging between 0.015 and 0.023. Second, we substituted the event set with Google popularity statistics, and we found that 'popularities' of

EFSF and ESM keywords proved to be significant. It is a thought-provoking result, raising questions that go beyond the scope of our paper (e.g. how market sentiments are indeed reflected in Google searches). Nevertheless, we argue that this alternative outcome confirms our results that markets reacted positively to the news on EFSF/ESM. In other words, the observed decrease in sovereign bond yields of the periphery is less likely to be attributable to an unknown, omitted variable. This is because searches for EFSF/ESM are rightly supposed to have been prompted by actual events and delivered information about (potential) additional funds for troubled EMU member states.

Regarding the market reactions after the debates in November 2019, Italian concerns about the ESM overhaul seem not to be underpinned. That is, we could not observe an obvious unilateral rise in sovereign bond yields for Italy (neither for Greece with similarly high debts). This can be due to the fact that the ESM reform does not include an automatic obligatory debt restructuring as a condition for financial assistance. Although the modification of CACs can be regarded as disadvantageous for private investors in future cases, Italian fears of capital flight have not come true so far.

Our results are in line with those of Schwendner et al. (2015) and Kiss et al. (2019) as we also found that the EFSF/ESM played a significant role in decreasing periphery bond yields. (At least what regards prompt market reactions in case of related news.) Our finding adds to the literature by demonstrating that the significant relationship can also be established when considering a broad set of EFSF/ESM-related events (not only disbursements of bailout loans themselves). This result may be a common ground for current debates. That is, in case of every proposal, it should be assessed whether they are in line with preserving the contribution of the ESM to financial stability.

Limitations

Our methodology has the usual limitations of event study methods which do not allow to assess longer-term impacts of events and are not suited to uncover connections between explanatory variables. Therefore, we could offer just limited insights into the root causes and underlying dynamics of the perceived decrease in periphery bond yields. Note also that event study outcomes may be sensitive to changes in the event set. In this paper, we strove to reach a reasonable coverage of EFSF/ESM-related events.

We shall add two further remarks to the regressions above. First, as we have just noted, the persistence of the reducing effect could not be handled in this type of model. Other factors also influence bond yields, such as particular data releases, deterioration in investment environment or business confidence, changes in domestic policies, shifts in the global economy etc. That is, the direct effects of announcements examined in this paper are likely to disappear after a couple of days. According

to our calculations for the event set used here, the decreasing effect lasted on average for 2-4 days after the announcement, with some heterogeneity in the different countries (2 days in Italy, 3 in Portugal, Spain and Ireland). (In this respect, the date of disappearance is the first day when the yield rose for the first time after the announcement.)

Second, although the institutional reform of the ESM received serious criticism from some Italian politicians at the end of 2019, there are at this time too few data points to assess these announcements alone. Thus, we could only provide a qualitative assessment as part of our paper's broader context. With more hindsight, however, the impacts of the reform (including the introduction of "single-limb" CACs) need to be separately evaluated in the future. A question whether new CACs may provoke higher yields in times of market turbulence, can only be answered later, too.

CONCLUSIONS

This paper examined the relationship between sovereign bond yields and events related to the EMU bailout framework. The relevance of the topic has lately been underlined by concerns about the ongoing ESM overhaul. As Italy, one of the most indebted countries of the euro area, has been afraid of a resulting increase in its bond yields, the larger issue of pending EMU reforms has been in the spotlight again.

Therefore, we deemed it essential to investigate the background of the concerns and more broadly, the role of Europe's bailout arrangements in driving sovereign yields. An event study approach and panel regressions were applied for this purpose. Our aim was to create a comprehensive set of major EFSF/ESM-related events after the outbreak of the euro crisis.

Our empirical findings show that the announcements related to EFSF/ESM institutional progress significantly decreased government bond yields in the eurozone periphery. That is, the creation of an EMU bailout framework is likely to have contributed to restoring financial stability. However, we could establish that long-term government bond yields reacted less strongly, which might be attributed to quantitative easing programs and/or the relative scepticism of investors regarding the long-run effects of the bailout mechanisms.

Regarding the most recent evolution of yields since late 2019, we found no obvious unilateral rise for Italy. Time will certainly tell whether a possibly less favourable position of private investors (due to new CACs) prompts capital flight and a rise in periphery yields. Nonetheless, a "package approach" stressed by Italy may well need to be taken into account. That is, EMU financial reforms should at best come together in order to reduce the chance of unintended outcomes for the most fragile members.

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