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Heterogeneity of the determinants of euro-area sovereign bond spreads; what does it tell us about financial stability?

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ABSTRACT

In this paper, we assess the movements of euro area sovereign bond yield spreads vis-à-vis the German Bund as processes specified across different levels of volatility and subject to movements in asset prices and economic conditions. The determinants we use are grouped into domestic and euro-area aggregates, thus allowing us to derive results on their relative explanatory power and compare them across time and the spectrum of countries. We find that volatility influences the deterministic processes of the euro area sovereign spreads and that identical determinants have effects on spreads that vary considerably across countries. Furthermore, we find that variables reflecting investment confidence conditions and perceptions for the upcoming economic activity are significant determinants and their significance remains, to a large extent, even when controlling for fiscal variables.

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1. Introduction

Ever since the European Monetary Union (EMU) was launched, short-term interest rates in the euro-area became *de jure* anchored. Long-term rates were also deemed to be anchored *de facto*, in the first 8 years of the EMU, in the sense that they exhibited strong co-movements (see for example, Baele et al., 2004; Manganelli and Wolswijk, 2009; Ehrmann et al., 2011). However, the sovereign debt crisis suggests that the initial policy setting cannot ensure stability of the degree of financial integration in the European monetary union. As a result, a wide literature on European sovereign bond spreads is developing with the aim to enhance our understanding of their determinants and to provide concrete proposals to encourage a high degree of integration in the euro-area bond markets. In this paper, we focus on how market perceptions and states of uncertainty affect the euro-area sovereign bond spreads.

In this respect, our analysis first focuses on the impact of different states of volatility since the monetary unification on the determinants of spreads. This step of our analysis provides information on the determinants of spreads and changes in their underlying specifications arising from changes in the degree of uncertainty. Furthermore, it enables us to focus on the recent crisis and distinguish the specification of spreads for this period; in this context, the empirical evidence that changes in conditions of uncertainty have led to the repricing of risks in sovereign markets and that spreads in these markets are significantly explained by variables related to economic and market sentiment, may be important for ongoing discussions on ways to restore stability in euro-area bond markets.

Additionally, our investigation is concerned with issues related to financial integration. These are addressed by examining the homogeneity of the effects exercised by common, euro-area-wide variables and comparing their strength against the strength of the effects stemming from country-specific variables. Our findings indicate that there are differences in the effects exercised on spreads by their determinants, both in terms of the strength and/or the direction of their responses to movements in euro-area wide variables. Furthermore, in several cases we find that the effects derived by country-specific determinants of movements in spreads are stronger than those that stem from euro-area-wide variables. In this respect, there exists evidence that even before the recent financial crisis there was no uniform pattern of dependence of sovereign bond yields on a common set of explanatory factors.

Finally, we ask whether fiscal consolidation will suffice in order to restore stability and re-establish a high degree of integration in

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euro-area bond markets. In order to answer this question we introduce the debt-to-GDP ratio series and the ratio of the fiscal deficit (/surplus) relative to GDP into our analysis. In this context, the assumption that fiscal variables are the main determinants of sovereign bond spreads is rejected, whereas the significance of variables capturing economic and market sentiment is confirmed. As a result, we conclude that while fiscal consolidation may be a necessary condition to address macroeconomic imbalances and structural malaises, it may not be a sufficient one to restore a high degree of financial integration and stability in the euro-area.

The rest of the paper is organized as follows. In Section 2 we review the literature that has dealt, so far, with the determinants of sovereign bond spreads and other related issues. Section 3 presents the framework employed and Section 4 the findings of the empirical investigation. Finally, Section 5 concludes.

2. Discussion of previous literature

Sovereign bond markets have traditionally attracted interest from academia, policy makers and market participants because of their role as benchmarks for defining the cost of capital. Furthermore, bond yields have served to provide investors with the information needed to disentangle the various risk components (see for example Cochrane and Piazzesi, 2005). Recently, interest in euro-area sovereign bonds has increased, initially in order to assess the impact of the EMU on the process of financial integration and, latterly, because of the sovereign debt crisis.

Initially, the literature focused on the effects of EMU on the process of financial integration in European bond markets. Baele et al. (2004), in their assessment of financial integration indicators for the euro area, examine European government bond markets and conclude that they share a high degree of financial integration, having benefitted from EMU. In this study, sovereign bond spreads are used to assess the degree of financial integration in the euro-area bond markets. In this respect, studies whose data end before the global financial crisis of 2007–2009 agree that euro-area bond markets share a high degree of financial integration (see among others, Pagano and von Thadden, 2004; Codogno et al., 2003; Abad et al., 2009).

To this end, several studies have explored the determinants of European sovereign bond spreads, by placing emphasis on assessing the extent to which bond yields co-move, thus reflecting systemic or idiosyncratic risks (e.g. Bernoth et al., 2004; Geyer et al., 2004; Pozzi and Wolswijk, 2008; Schuknecht et al., 2009); the larger is the impact of the systemic component, the smaller the home-bias effects are. This strand of the literature addresses the topic of the determinants of spreads mainly by focusing on linear, ever since the EMU, specifications. Hence, euro-area sovereign bond yields are found to share a large systemic component, indicating a high degree of financial integration. Recent studies, though, have shown that the idiosyncratic risk component in the movements of spreads has become larger than the systemic one (e.g., Goméz-Puig, 2009; Favero and Missale, 2012; Dötz and Fischer, 2010).

In parallel with this research, the literature on sovereign spreads compares the strength of the effects exercised by the credit and liquidity risk factors. Codogno et al. (2003) argues that effects stemming from the liquidity risk component are stronger than those of the credit risk one. Similarly, Bernoth et al. (2004) find that European sovereign bond spreads incorporate both liquidity and default risk premia, while the latter are shown to be related to fiscal conditions in euro area countries. This last outcome is also supported by the findings of Favero and Missale (2012); however, they find that the credit risk component has increased in importance as a determinant of sovereign bond spreads because of the adverse market sentiment conditions after the global financial crisis. Similar arguments can be found in other recent studies using data that extend beyond the 2007–2009 crisis period (see among others, Dötz and Fischer, 2010; Palladini and Portes, 2011); comparing these findings to the ones with data samples ending before the crisis period provides evidence of potential in-sample changes in the specification of the spreads, motivating the use of non-linear methodologies.

Furthermore, on the economic meaning of the determinants of the euro-area sovereign bond spreads, movements of the credit risk component are often associated with deviations from or compliance with the limits imposed by the Stability and Growth Pact (SGP). In this respect, the concept of 'market discipline' is used in order to highlight that even a small increase in the credit risk component may entail significant costs for the tax payer (see, Codogno et al., 2003). Following the same rationale, Manganelli and Wolswijk (2009) argue that re-assessments of risks in sovereign bonds by the markets may induce pressure for soundness in fiscal policies, while empirical findings supporting this argument may be found, among others, in Bernoth and Erdogan (2012). Furthermore, Palladini and Portes (2011) find that the CDS spreads cause movements in sovereign bond spreads and Aizenmann et al. (2011)[2] that fiscal-related fundamentals drive the risk of sovereign default as perceived by the CDS market. As a result, the combination of these findings points towards an indirect link between fiscal figures and sovereign bond spreads. Finally, Gibson et al. (2012) find that the Greek sovereign bond spread is cointegrated with current account and fiscal deficits, while a large proportion of its movements remains unexplained; this finding is attributed to under- or over- pricing of risks by markets.

Several studies highlight other determinants such as the dynamic properties of movements in sovereign spreads and uncertainty. For instance, Gerlach et al. (2010) suggest that sovereign spreads, as a consequence of the global financial crisis of 2007–2009, rose more in countries in which the deficit had persistently exceeded the SGP limit. However, the fact that fiscal data are not significant for explaining movements in spreads in the pre-crisis period and the finding that the banks' capital explains the rise in the spreads lead to the conclusion that the rise in the spreads was associated with expectations that public finances would be burdened by the support required for the banking sector. Under the concept that (forward-looking) asset prices cannot be explained by (backward-looking) economic fundamentals, Arghyrou and Kontonikas (2011) rely on expectations of fiscal outcomes, while with the use of volatility indices, they aim to capture market sentiment. They find that market perceptions of risks in euro-area sovereign bonds shifted after the global financial crisis of 2007–2009. The non-linear framework of this study, which reveals a re-pricing of risks, is consistent with the concept of Georgoutsos and Migiakis (2010), in which the degree of financial integration is found to be positively linked to financial stability.

All in all, these results suggest that linear formulations are not optimal in the event of changes in investors' preferences. Specifically, if we assume that spreads are indeed good proxies for the degree of financial integration in the bond markets and take into account varying aspects of this process (e.g. Hardouvelis et al., 2006 and Baele and Inghelbrecht, 2010), then this provides a motivation to investigate changes in the structure of the deterministic process of euro-area sovereign bond yields and spreads. In this respect, time-variation in the degree of financial integration can be treated as a regime-switching process (Georgoutsos and Migiakis, 2012), possibly revealing changes in the underlying determinants

[2] The study suggests that current prices of default risks for peripheral euro-area countries reflect expected rather than actual fiscal figures.

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