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# An update on EMU sovereign yield spread drivers in times of crisis: A panel data analysis



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### ABSTRACT

We empirically investigate the determinants of EMU sovereign bond yield spreads with respect to the German bund. Using panel data techniques, we examine the role of a wide set of potential drivers. To our knowledge, this paper presents one of the most exhaustive compilations of the variables used in the literature to study the behaviour of sovereign yield spreads and, in particular, to gauge the effect on these spreads of changes in market sentiment and risk aversion. We use a sample of both central and peripheral countries from January 1999 to December 2012 and assess whether there were significant changes after the outbreak of the euro area debt crisis. Our results suggest that the rise in sovereign risk in central countries can only be partially explained by the evolution of local macroeconomic variables in those countries. Besides, without exception, the marginal effects of sovereign spread drivers (specifically, the variables that measure global market sentiment) increased during the crisis compared to the pre-crisis period, especially in peripheral countries. Moreover, the increase in the significance of the banking level of indebtedness and foreign bank's claims in the public sector (mainly in peripheral countries) along with the crisis unfolding seems to highlight the interconnection between private and public debt and thus, between banking and sovereign crises.

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## 1. Introduction

The recent European sovereign debt crisis has spurred academics and policy makers to try to identify the drivers of sovereign risk, in order to be able to react to similar challenges in the future. Fig. 1 shows that from the start of the European Economic and Monetary Union (EMU) and before the financial crisis, spreads on 10-year sovereign bond yields relative to the German benchmark moved in a narrow range with only very slight differences across countries. Nevertheless, with the financial crisis the picture changed completely; after the outbreak of the Greek sovereign debt crisis in late 2009, sovereign risk differentials rose sharply and then continued to fluctuate strongly. Indeed, the financial crisis put the spotlight on the macroeconomic and fiscal imbalances within EMU countries which had largely been ignored during the period of stability<sup>1</sup> when the markets had seemed to underestimate the possibility that governments might default.

These events raised some important questions for economists. What explains the disparities and the shift in the pricing of sovereign debt risk during the crisis period? Have the drivers of yield spreads and their relevance changed since the crisis? Are there important differences between peripheral and central countries?

Euro area sovereign bond markets initially attracted attention from academia as a way to assess the impact of the EMU on the process of financial integration [see Codogno, Favero, & Missale, 2003; Baele, Ferrando, Hördahl, Krylova, & Monnet, 2004, or Gómez-Puig, 2006, 2008, to name a few]. In these first studies, the standard definition of sovereign risk included its two main domestic components, market liquidity and credit risk, and an international risk factor which reflected investors' risk aversion. Some of the research then focused on the analysis of the relative importance of systemic *versus* idiosyncratic risk factors in explaining yield spreads in Europe after the introduction of the common currency, even though the empirical evidence was not conclusive. Several studies [Geyer, Kossmeier, & Pichler, 2004; Pagano & von Thadden, 2004, among others] stressed the importance of systemic risk in the behaviour of yield differentials in EMU countries, while others showed that the idiosyncratic risk component in the movements of spreads was greater than the systemic risk [e.g., Gómez-Puig (2009); Dötz & Fischer, 2010; Favero & Missale, 2012]. All in all, studies whose data end before the global financial crisis coincided in stating that euro area bond markets shared a high degree of financial integration (see, e.g., Abad, Chulià, & Goméz-Puig, 2010).

However, the sovereign debt crisis in Europe which began in late 2009 has revived the literature on euro area sovereign spread drivers and has attributed increasing importance to uncertainty and variables reflecting investment confidence conditions and perceptions for the upcoming economic activity (see, e.g. Georgoutsos & Migiakis, 2013). In this regard, Gómez-Puig and Sosvilla-Rivero (2014a)<sup>2</sup> point out that a crisis in one country may give a “wake-up call” to international investors to reassess the risks in other countries; since uninformed or less informed investors that may have difficulty in extracting the signals from the falling prices, in following the strategies of better informed investors, may generate excess co-movements across the markets<sup>3</sup>. Likewise, Favero and Missale (2012) 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 crisis period [see, among others, Palladini & Portes 2011; Beirne & Fratzscher, 2013 or Aizenman, Binici, & Hutchison, 2013]. Besides, many authors have stressed the importance of other fundamental variables beyond the country's fiscal position to explain yield spread behaviour after the outbreak of the crisis [Mody, 2009; Barrios,

<sup>1</sup> Kocenda, Kutan, and Yigit (2008) empirically examine the fiscal convergence of the European Union members and their results suggest that monetary unions do not necessarily encourage fiscal convergence for its members.

<sup>2</sup> In this paper, the authors analyse contagion using an approach that is based on the channels of transmission that are used to spread the effects of the crisis [Masson, 1999; Kaminsky and Reinhart, 2000 among others]. Specifically, they examine whether the transmission of the recent crisis in euro area sovereign debt markets was due to “fundamentals-based” or “pure contagion”. Their results suggest the importance of both variables proxying market sentiment and macrofundamentals in determining contagion and underline the coexistence of “pure contagion” and “fundamentals-based contagion” during the recent European debt crisis.

<sup>3</sup> The degree of non-anticipation of a crisis by investors or sudden shifts in market confidence and expectations have been identified as important factors causing “pure contagion” (see Mondria and Quintana-Domeque, 2013).

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