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The EMU sovereign-debt crisis: Fundamentals, expectations and contagion

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ABSTRACT

We offer a detailed empirical investigation of the EMU sovereign-debt crisis. We find a marked shift in market pricing behaviour from a 'convergence-trade' model before August 2007 to one driven by macro-fundamentals and international risk thereafter. We find evidence of contagion effects, particularly among EMU periphery countries. The EMU debt crisis is divided into an early and current crisis period. Unlike the former where contagion was mainly originating from Greece, the latter involves multiple sources of contagion. Finally, the escalation of the Greek debt crisis since November 2009 is due to an unfavourable shift in country-specific market expectations.

1. Introduction

The last couple of years have seen the transformation of the global financial crisis into a sovereign debt crisis in the euro area. Starting from Greece in autumn 2009, the crisis has since prompted European policy makers to take extraordinary measures aiming to limit the crisis' fall-out on the affected

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countries and prevent its further spreading. These include a 110-billion euro Greek bailout package, initially agreed in March 2010 and ratified in May 2010 along with the creation of the 440-billion euro European Financial Stability Facility (EFSF). These steps, however, have not proved enough to ease the crisis. In November 2010 Ireland applied for EFSF emergency assistance followed by Portugal in April 2011; and a second Greek bailout was agreed in February 2012. With Italian and Spanish government bonds now under close market scrutiny, the ongoing European debt crisis continues to cause debates ranging from the optimum short-run policy response to the euro's long-term sustainability.

With so much political and economic capital at stake, the economics literature has responded to the EMU crisis through a series of empirical studies. The consensus emerging from this literature, reviewed in Section 2, is summarised in two main findings. First, both the amount and the price of the perceived global risk associated with investments in sovereign bonds relative to the safe havens of US and Germany have increased during the global economic downturn. This explains the across-the-board increase in EMU spreads. Second, intra-EMU differences in spreads' increases are explained by heterogeneous transfer of banking risk to sovereign borrowers and heterogeneous macro-imbalances.

Our analysis covers the period January 1999 to August 2011 (monthly frequency). Compared to existing literature, including previous work by the undersigned authors (see Arghyrou and Kontonikas, 2011) this paper aims to contribute to the study of the EMU sovereign debt crisis in three respects. First, we test for contagion effects using the principal components approach adopted by Longstaff et al. (2011). This identifies previously unreported separate phases characterising the European sovereign debt crisis defined by distinct events of major significance. Furthermore, it captures the changing composition of the sources of contagion during the crisis period, as well as the changes in the impact of contagion on the overall systemic risk characterising European sovereign bond markets. Second, we use time-series and panel-data econometric specifications linked to the theoretical model by Arghyrou and Tsoukalas (2011) capturing the role of macro-imbalances in determining EMU bond spreads during the pre-crisis and crisis periods, as well as during each of the crisis period's phases. Finally, we examine the role of shifting country-specific market expectations regarding the probability of a unilateral exit from the EMU and/or sovereign default to explain the escalation of the Greek debt crisis in the autumn of 2009.

The remainder of the paper is structured as follows: Section 2 reviews the literature on the post-1999 determinants of EMU government bonds. Section 3 describes our data and our measure of contagion. Section 4 presents and discusses our empirical findings. Finally, Section 5 summarises and offers concluding remarks.

2. Related literature

The general literature on government bond yields conditions the latter on three variables (see e.g. Manganelli and Wolswijk, 2009): First, an international risk factor capturing the level of perceived risk and its unit price. Second, credit risk capturing the probability of sovereign default. Third, liquidity risk referring to the size and depth of the sovereign bonds market and capturing the risk of capital losses in the event of early liquidation or significant price changes resulting from a small number of transactions.

Studies on EMU government bonds covering the period prior to the global financial crisis are not unanimous regarding the role of each of the three determinants discussed above. However, the prevailing view can be summarised as follows: First, the international risk factor was important in determining spreads against Germany (see Codogno et al., 2003; Favero et al., 2010). This effect was particularly strong during periods of tightening international financial conditions (see Barrios et al., 2009) as well as for countries with high levels of public debt (see Codogno et al., 2003). Second, credit risk was priced, as suggested by Bernoth et al. (2004) and Manganelli and Wolswijk (2009). These findings are interpreted by Bernoth and Wolff (2008) and Schuknecht et al. (2009) as evidence that the Stability and Growth Pact was a credible mechanism imposing fiscal discipline among EMU members. Manganelli and Wolswijk (2009), however, raise the question as to whether the penalties imposed by markets were sufficiently high to encourage EMU governments to change unsustainable fiscal policies. Finally, the role of liquidity risk is controversial. Codogno et al. (2003) and Bernoth et al. (2004) find a limited or declining liquidity effect on EMU spreads. By contrast, Gomez-Puig (2006) and Beber et al.