Journal of International Money and Finance 34 (2013) 60–82

Contents lists available at SciVerse ScienceDirect

Journal of International Money and Finance

journal homepage: www.elsevier.com/locate/jimf

The pricing of sovereign risk and contagion during the European sovereign debt crisis

John Beirne, Marcel Fratzscher*

European Central Bank, Kaiserstraße 29, 60311 Frankfurt am Main, Germany

JEL classifications:
E44
F30
G15
C23
H63

Keywords:
Sovereign risk
Contagion
Sovereign debt crisis
Bond spreads
CDS spreads
Ratings

A B S T R A C T

The paper analyses the drivers of sovereign risk for 31 advanced and emerging economies during the European sovereign debt crisis. It shows that a deterioration in countries' fundamentals and fundamentals contagion – a sharp rise in the sensitivity of financial markets to fundamentals – are the main explanations for the rise in sovereign yield spreads and CDS spreads during the crisis, not only for euro area countries but globally. By contrast, regional spillovers and contagion have been less important, including for euro area countries. The paper also finds evidence for herding contagion – sharp, simultaneous increases in sovereign yields across countries – but this contagion has been concentrated in time and among a few markets. Finally, empirical models with economic fundamentals generally do a poor job in explaining sovereign risk in the pre-crisis period for European economies, suggesting that the market pricing of sovereign risk may not have been fully reflecting fundamentals prior to the crisis.

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1. Introduction

The European sovereign debt crisis initially came as a surprise to most observers and policy-makers. Economic growth was generally strong, fiscal deficits limited and public debt levels were rising only modestly in most of Europe prior to the 2007–2008 global financial crisis, in particular among those euro area countries that are now engulfed most intensely in the subsequent debt crisis. This has spurred some observers and policy-makers to argue that financial markets have been overreacting and overpricing sovereign risk since the 2007–2008 crisis, and that this overreaction is due to

* Corresponding author. Tel.: +49 69 13446871.
E-mail addresses: John.Beirne@ecb.int (J. Beirne), Marcel.Fratzscher@ecb.int (M. Fratzscher).

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http://dx.doi.org/10.1016/j.jimonfin.2012.11.004

contagion, in particular from the most affected countries, such as Greece, to other more innocent or prudent bystanders.

The question about the drivers of sovereign risk is important also from a longer-term policy perspective in order to understand how policy can react to the challenges of the sovereign debt crisis and the great global recession in the next decade. As Reinhart and Rogoff (2011, p. 3) argue: "The combination of high and climbing public debts (a rising share of which is held by major central banks) and the protracted process of private deleveraging makes it likely that the ten years from 2008 to 2017 will be aptly described as a decade of debt."

To what extent have financial markets been overpricing sovereign risk in the euro area during the European sovereign debt? And what has been the role of contagion for sovereign risk? The paper critically examines these questions for a broad set of 31 advanced economies (AEs) and emerging market economies (EMEs) by empirically modeling the link between three measures of sovereign risk (long-term government spreads, CDS spreads and ratings of sovereigns) and economic fundamentals over the period 2000–2011. As is common in the literature, contagion is defined as the *change* in the way countries' own fundamentals or other factors are priced during a crisis period, i.e. a change in the reaction of financial markets either in response to observable factors, such as changes in sovereign risk among neighboring countries, or due to unobservables, such as herding behavior of market participants.

We motivate the empirical analysis for the determinants of sovereign yields through a standard definition of sovereign risk as reflecting credit risk, liquidity risk and risk appetite. Based on this conceptual framework, the first part of the analysis highlights that if one takes the relationship between fundamentals and sovereign risk during the pre-crisis period 2000–2007 as the true relationship, then sovereign risk is indeed substantially overpriced in many Europeans economies, and in particular among the euro area periphery (Greece, Ireland, Portugal, Spain and Italy – GIPSI), but not for many EMEs, especially outside Europe. However, it is striking that those fundamentals that one would expect to be the most important determinants for the price of sovereign risk – the public debt level, fiscal deficit, growth and the current account – explain very little of the pricing of risk in GIPSI countries before the crisis, but have much more explanatory power for sovereign risk in other AEs and EMEs. In fact, the most important determinant for the price of sovereign debt in GIPSI countries in the pre-crisis period was the price of public debt among other European countries, such as that of Germany. And indeed, the small spreads and very high comovements of sovereign yields within the euro area suggest that other factors than fundamentals may have been the prime determinants of sovereign debt in Europe before the crisis.[1]

This finding thus suggests that country-specific fundamentals had less importance for the pricing of sovereign risk in the euro area during the pre-crisis period compared to other economies. The empirical analysis of the paper shows that the price of sovereign risk has been much more sensitive to fundamentals and that fundamentals explain a substantially higher share of the movements and cross-country differences in sovereign risk during the 2008–2011 crisis than in the pre-crisis period. Applying this counterfactual analysis for the crisis period shows that sovereign yields and CDS spreads would have been much more dispersed before 2007, in particular among euro area countries, if markets had priced fundamentals in the pre-crisis period in the same way that they did in 2008–2011. In fact, there is a negative correlation between the "mispricing" of sovereign risk – i.e. the deviation of actual market prices of risk from those implied by empirical models based on fundamentals – during the crisis and in the pre-crisis period. In other words, those countries for which sovereign risk was "underpriced" in the pre-crisis period were also those that became "overpriced" relative to economic fundamentals during the crisis.

The findings raise the question of what constitutes a "fair" pricing of sovereign risk and an overpricing or under-pricing of such risk.[2] A basic intertemporal budget constraint for a government highlights the importance of expectations for determining the sensitivity of the pricing of sovereign

[1] Some have speculated that a market perception of an implicit bail-out guarantee, or simply ignorance among financial market participants to country-specific fundamentals may be the main explanations for this comovement. We stress that the paper cannot provide an answer to the precise reasons for this high comovements in the pre-crisis period.

[2] We stress that the terms "overpricing" and "underpricing" as used throughout the paper with regard to sovereign risk should not necessarily be interpreted in a normative sense, because such a normative interpretation would require making a statement about what the "true" pricing of risk should be.

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