Int. Fin. Markets, Inst. and Money 26 (2013) 258–272

Contents lists available at SciVerse ScienceDirect

Journal of International Financial Markets, Institutions & Money

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

Sovereign bond yield spillovers in the Euro zone during the financial and debt crisis

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ARTICLE INFO

Article history:
Received 26 February 2013
Accepted 10 June 2013
Available online 12 July 2013

JEL classification:
C32
G01
G11
G12
G15
H63

Keywords:
Government bond yield spread
Spillover
Vector autoregression
Variance decomposition
Impulse response

ABSTRACT

In this paper we examine sovereign bond yield spread (BYS) spillovers between Euro zone countries during a turbulent period encompassing both the global financial crisis and the Euro zone debt crisis. Using the VAR-based spillover index approach of Diebold and Yilmaz (2012) and impulse response analyses, we find that: (i) on average, BYS shocks tend to increase future BYS, and are related to news announcements and policy changes; (ii) BYS spillovers between Euro zone countries are highly intertwined, however, BYS shocks from the periphery have, on average, three times the destabilizing force on other countries than shocks coming from the core. (iii) The within-effect of BYS spillovers is of greater magnitude within the periphery than that within the core; (iv) The between-effect (core vs periphery) of BYS spillovers suggests directional spillovers of greater magnitude from the periphery to the Euro zone core than vice versa. (v) Finally, joint shocks in the periphery and the core reveal decoupling effects between these two groups of countries. Overall, our findings highlight the increased vulnerability of the Euro zone from the destabilizing shocks originating mostly from the Euro zone countries in the periphery and to a lesser extent from the Euro zone core.

1. Introduction

During the recent global financial crisis, extraordinary measures were taken to prevent a collapse of the Euro zone. Because the debt crisis was accompanied by a slowdown in economic activity, many

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http://dx.doi.org/10.1016/j.intfin.2013.06.004

Euro zone countries faced risks to long-term sustainability. As a consequence, international markets are seeking greater sovereign risk premia; this problem being compounded by the fear of spillovers from the Euro zone periphery countries. Since little has been studied about the linkages between sovereign bond yield spreads exposures within the Euro zone during the crisis, this paper examines the directional linkages of government bond yield spreads (BYS) between Euro zone countries over the period March 3, 2007–June 18, 2012, and studies the features of BYS spillovers during the Euro zone debt crisis.

Beirne and Fratzscher (2013) and Aizenman et al. (2011) examine the pricing of sovereign risk and contagion. In contrast, we focus on the dynamics of sovereign bond yield spread spillovers in the Euro zone during the current crisis employing a VAR-based spillover index approach (Diebold and Yilmaz, 2009, 2012), and impulse response function analyses. Our findings reveal several empirical regularities: (i) on average, BYS shocks tend to increase future BYS, and are related to news announcements and policy changes. (ii) BYS spillovers between Euro zone countries predominantly from the periphery (Greece, Ireland, Italy, Portugal and Spain (GIIPS)) and to a lesser extent from the core (Austria, Belgium, France and Netherlands (ABFN)). (iii) The within-effect of BYS spillovers is of greater magnitude within the periphery than that within the core. (iv) The between-effect (core vs periphery) of BYS spillovers suggests directional spillovers of greater magnitude from the periphery to the Euro zone core than vice versa. (v) Finally, the cumulative impulse responses of joint shocks in the periphery and the core reveal decoupling effects between these two groups of countries. In summary, our findings highlight the increased vulnerability of the Euro zone from the destabilizing shocks originating from the Euro zone countries in the periphery, and to a lesser extent from the Euro zone core.

The remainder of the paper is organized as follows. Section 2 presents a brief literature review of the most related studies on government bond yield spreads spillovers. Section 3 discusses the application of the spillover index approach to disentangle the intricate relationships between government bond yield spreads in the Euro zone and describes the data used. Section 4 presents the empirical findings. Section 5 summarizes the results and concludes.

2. Literature review

From a theoretical perspective, fear of international financial contagion and spillovers may develop in an economic environment described by multiple equilibria with heterogenous market outcomes and self-fulfilling characteristics (Obstfeld, 1996; Masson, 1999). In such a case, macroeconomic fundamentals are usually weak to prevent a speculative attack on a market. Hence, revealing a country's distressed debt position, as that of Greece in late 2009, may trigger a sudden loss of investors' confidence that can lead to self-fulfilling crises and spillovers.

While empirical studies of sovereign bond yield spreads spillovers from 1999 to 2006, show convergence of spreads in EMU countries, studies that examine spreads from 2007 onwards show that risk factors from the capital markets, sovereign risk rating changes and increasing bank credit risk lead to a divergence of spreads in countries with weaker macroeconomic data. Thus weak Euro-zone countries have faced disproportionately high spreads, especially from 2010 onwards, probably showing that the benefits of a single Euro currency for countries with weak macroeconomic factors had no longer outweighed the risks.

In the following subsections we discuss the most related empirical studies during the pre- and post-crisis period.

2.1. Pre-crisis period (1999–2006)

During the pre-crisis period, Pagano (2004) shows that credit risk alone explains a considerable portion of 10-year average yield differentials in Euro zone countries during the 2001–2004 period, as a result of convergence after the transition to EMU. However, Balli (2009), who examines spillover effects on bond yields in Euro zone countries during 1999–2005, finds that unlike other bond markets, the credit risk factor and other macro and fiscal indicators are not sufficient to explain sovereign bond yields in these Euro zone countries after the beginning of the monetary union. Christiansen (2007) brakes down volatility to local, regional and global components, and finds evidence of substantial