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## Review of Economic Dynamics

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# Why prices don't respond sooner to a prospective sovereign debt crisis <sup>☆</sup>

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## ARTICLE INFO

## Article history:

Received 14 March 2016

Received in revised form 16 January 2018

Available online xxxx

## JEL classification:

E62

G11

G12

H60

## Keywords:

Sovereign debt crisis

Bond prices

Short-selling

Leverage

Heterogenous beliefs

## ABSTRACT

Transactions costs associated with taking short positions on sovereign debt can have profound effects on government debt yields and the pattern of trade as a country moves toward default. To make this point we propose an equilibrium model of the sovereign debt market and fit the model to reproduce the dynamic path of 5-year Greek sovereign bond yields between 2008 and its credit event in 2012. We find that short-selling costs play a central role in accounting for the path of government bond yields and the pattern of movements in net credit default swap positions on Greek debt during this sample period.

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## 1. Introduction

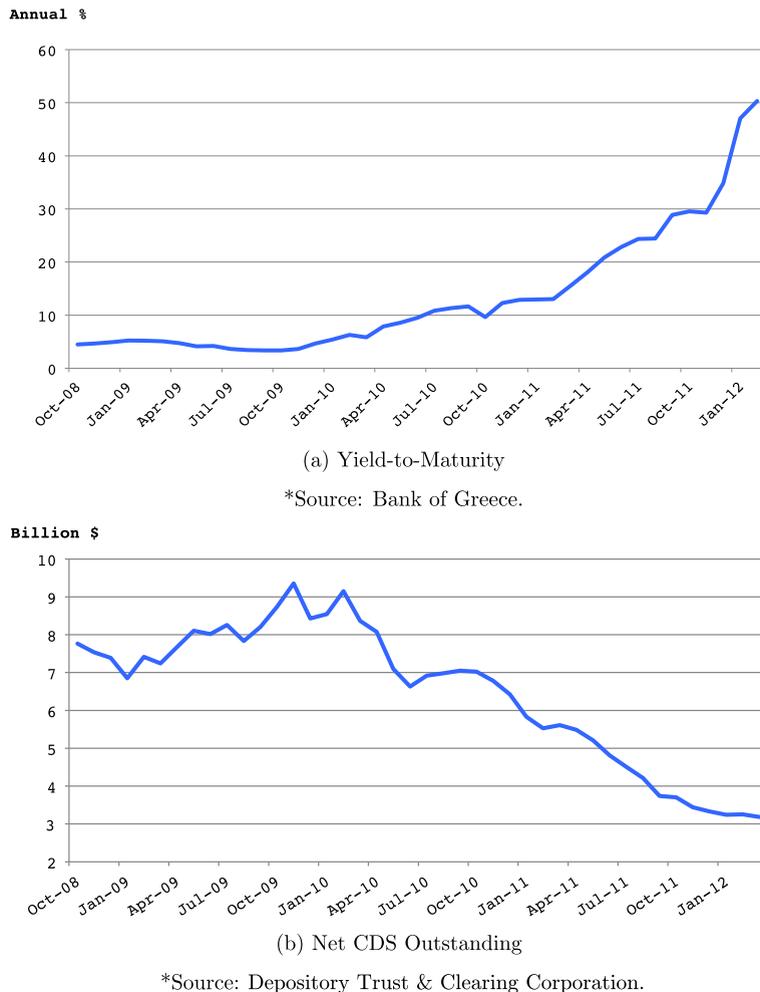
As a country approaches default yields on government debt experience their biggest increases shortly before the default event. Fig. 1a, which reports the yield on 5-year Greek debt between October 2008 and February 2012, exhibits a typical pattern. Increases in bond premia are relatively low between October 2008 and August 2011 and then increase sharply between November of 2011 and March 9 of 2012, the date when a credit event was declared on Greek sovereign debt credit default swaps (CDS). What is striking is that the Greek credit event in March of 2012 was preceded by a string of bad news dating back to 2008. Greece and other peripheral countries in the EU experienced large declines in GDP and a worsening in their trade balances in the years 2008 and 2009. The weak economy and the accompanying deterioration in Greece's fiscal situation led Fitch to downgrade Greek debt from A– to BBB+ in December 2009. Then Eurostat announced on January 12, 2010 that their Greek public debt statistics were not reliable and Greece requested its first bailout from the IMF and EU on April 23, 2010.<sup>1</sup>

<sup>☆</sup> These are our personal views and not those of the Federal Reserve System.

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<sup>1</sup> Other evidence of a lack of responsiveness of bond yields is reported in Nieto-Parra (2009) who finds that investment banks start charging significantly higher fees to underwrite sovereign debt one to three years in advance of a sovereign default but that sovereign bond yields don't begin to rise until shortly before the crisis in a study of 13 countries.



**Fig. 1.** Greece 5-year Government Bond Yields and Net Notional Outstanding Greek CDS.

Even though yields were not responding much to the bad news between 2008 and April of 2010, traders of Greek debt were as Fig. 1b indicates. This figure, which reports the size of net notional Greek CDS positions, suggests that investors perceived that the risk of a sovereign default was elevated well before the event and acted on this belief by taking positions on a sovereign default in the CDS market. The size of CDS positions rises steadily during 2008 and 2009 and peaks in November 2009 at just above 9 billion dollars. There is a second peak in February 2010 and but then net CDS positions reverse their course and fall steadily. In particular, CDS positions are steadily declining in late 2011 and early 2012 when yields on Greek debt experience their largest increases.

Our analysis is motivated by these observations. In particular, we are interested in producing a theory that can account for the lack of response of bond yields to bad news in early periods and the very large response of bond yields to bad news that is close to the default date. At the same time we would like this theory to account for the fact that net CDS positions are hump-shaped and peak about two years prior to the default date.

One potential explanation for the timing of bond yield movements is that the content of news that arrives shortly before the crisis is particularly large. This can happen, for instance, if a sovereign chooses to strategically delay releasing bad news about the risk of a sovereign default to the market. Braun et al. (1996) and Paluszynski (2015) develop theories where a sovereign has superior information that a default is likely and is able to successfully delay releasing this information in the sense that the delay itself does not signal to the market that the risk of a default is elevated. A problem with these explanations is that one would expect that net CDS positions would peak at the same date that it becomes clear that the risk of a default is substantially elevated.

In this paper we show that short-selling costs have a big impact on the dynamics of bond prices and the pattern of trade and that they play a central role in accounting for both the timelines of Greek bond price movements and net CDS positions. Short-selling activities are subject to a range of special regulations in most countries (see Angell, 2004 for a description of regulatory restrictions on short-selling in the U.S., Europe and Asia). To give a specific recent example, at the time of the financial crisis in 2008, settlement of delivery failures of short positions in the Greek repo market were handled by holding

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