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Market perception of sovereign credit risk in the euro area during the financial crisis

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ABSTRACT

We study market perception of sovereign credit risk in the euro area during the financial crisis. In our analysis we use a parsimonious CDS pricing model to estimate the probability of default (PD) and the loss given default (LGD) as perceived by financial markets. In our empirical results the estimated LGDs perceived by financial markets stay comfortably below 40% in most of the samples. Global financial indicators are positively and strongly correlated with the market perception of sovereign credit risk; whilst macroeconomic and institutional developments were at best only weakly correlated with the market perception of sovereign credit risk.

1. Introduction

In the early stages of the crisis, the financial problems identified in a number of large banks triggered support recapitalisation programs by various euro area governments. When the slowdown in the global economy became more apparent, and when the macroeconomic outlook for some euro area countries turned very pessimistic, international investors reacted nervously and started to seriously question the ability of many euro area governments to repay their debts. As a result, tensions in several euro area sovereign debt markets escalated to such a degree that the actual ability of some euro area

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governments to roll-over their debt was seriously hampered. Volatility levels, liquidity conditions and yield spreads reached historical peaks and reflected market malfunctioning. It was in this context that the European authorities decided to introduce a number of policy measures to deal with these tensions.

The aim of this paper is to study market perception of sovereign credit risk in the euro area during the financial crisis, and in particular, identifying the main factors that influence changes in market perception of sovereign credit risk. This is a question of special interest for economists, investors, and financial regulators. Similar to a number of recent studies, we also monitor the market perception of sovereign risk by using information derived from CDS spreads (Ang & Longstaff, 2013; Bei & Wei, 2012; Longstaff, Pan, Pedersen, & Singleton, 2011). CDS spreads are a more accurate measure to gauge market perceptions of sovereign credit risk than are sovereign bond yield spreads. This is so because movements in sovereign bond yield spreads during the financial crisis also reflected liquidity distortions, limited arbitrage operations amidst increasing risk aversion and the official interventions of the ECB, all of which were less apparent in the CDS market (e.g., Fontana & Scheicher, 2010).

In studying market perceptions of sovereign credit risk, one of the aims of this paper is to estimate measures of the probability of default (PD) and the loss given default (LGD) as perceived by financial markets embedded in the CDS spreads. Earlier studies of the euro area sovereign debt crisis usually employed the CDS spreads alone and thus were not able to separately identify changes in the valuation of risk stemming from either increases of potential losses or a growing likelihood of default (Beirne & Fratzscher, 2013; Blommestein, Eijffinger, & Qian, 2012). Yet, in the pricing framework of '*fractional recovery of face value*', the factors governing the dynamics of the PD and LGD play very distinct roles in the derivation of the price of the CDS contract, thus suggesting that PD and LGD can indeed, at least in theory, be separately identified. However, as pointed by Pan et al. (2008), what is conceptually true may not always hold empirically, and to date the separate identification of PD and LGD remains challenging. In this paper we show that, for a number of euro area countries, separate identification of PD and LGD appears empirically tractable.

The second aim of this paper is to shed some light on the key drivers of the market perception of sovereign credit risk. In contrast with earlier studies, we aim not only to study the main economic drivers, but also the potential impact of the numerous institutional changes introduced. Sovereign CDS spreads for the euro area countries were subject to large fluctuations during the financial crisis. This was understandable to a certain extent, as the recent financial crisis brought with it the largest recorded decline of economic activity and one of the fastest recorded increases in public debt since the second world war. However, economic fundamentals cannot be the sole explanation, as even in the euro area countries that had solid economic fundamentals, the sovereign CDS spreads were at historical record highs, and the functioning of the markets was affected by stress. This suggests that concerns over the institutional framework of the European Monetary Union, and in particular lack of credibility of the EU rules to enforce fiscal discipline, were possibly being priced by the markets.[1] To respond to this, a number of important institutional changes were introduced. For example, the European Financial Stability Facility (EFSF) was created to enable financing of the euro area member states that were in difficulty. Additionally, a new collection of measures to enforce fiscal discipline, referred to as the '*fiscal compact*', was introduced. In contrast to the rules of the Stability and Growth Pact in force, the fiscal compact would have to be documented in primary legislation at the country level, thus rendering it more credible. At the same time, and with a view to restoring the normal functioning of financial markets, the ECB introduced a number of non-standard monetary policy measures such as the Covered Bond Purchase Programmes and the Securities Markets Programme.

In our empirical investigation we are able to identify PDs and LGDs for most countries and periods. Notably, we find that the estimated PDs vary considerably in time, and reach values close to one during the most turbulent periods. Meanwhile, the estimated LGD stays comfortably below 40% in most of

[1] Budget Balance Laws had been enshrined in the Treaty of the European Union signed in Maastricht in February 1992. In particular, article 104 of the Treaty stated that member states shall avoid excessive government deficits. Further to this, in June 1997, the European Council had passed a resolution on a Stability and Growth Pact, by which member states committed themselves to respect the medium-term budgetary objective of positions close to balance or in surplus as set out in their stability programme.