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The anatomy of sovereign risk contagion

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ABSTRACT

The channels for the cross-border propagation of sovereign risk in the international sovereign debt market are analysed. Identifying sovereign credit events as extraordinary jumps in CDS spreads, we distinguish between the immediate effects of such events and their longer term spillover effects. To analyse "fast and furious" contagion, we use daily CDS data to conduct event studies around a total of 89 identified credit events in a global country sample. To analyse "slow-burn" spillover effects, we apply a multifactor risk model, distinguishing between global and regional risk factors. We find that "fast and furious" contagion has been primarily a regional phenomenon, whilst "slow-burn" spillover effects can often be global in scope, especially those of the recent European debt crisis. The global risk factors are found to be driven by investor risk appetites and debt levels, whilst the regional factors depend on economic fundamentals of countries within a region.

1. Introduction

The U.S. subprime crisis and the subsequent European sovereign debt crisis have had adverse consequences for sovereign borrowers around the world. Spreads on credit default swaps (CDS) written on sovereign names rose sharply and simultaneously, especially at the time of the Lehman default in

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September 2008 and again during the height of the Eurozone debt crisis in late 2011. This study seeks to examine the risk transmission mechanisms by which such credit crises spread to sovereign borrowers around the world. To do so, we distinguish between the "fast-and-furious" contagion mechanism and the "slow-burn" risk spillover mechanism, to use the adjectives applied by Kaminsky et al. (2003) to contagion and protracted spillover effects.

The literature distinguishes between two types of cross-border propagation of financial crises which are consistent with these two risk transmission mechanisms. Forbes and Rigobon (2002) see a contagion mechanism in which the realization of a shock to one country triggers a cascade of adverse reactions in other countries. Alternatively, Adrian and Brunnermeier (2011) and Ang and Longstaff (2013) amongst others focus on the contemporaneous effects across countries in response to major common shocks which lead to systemic risks. Bekaert et al. (2014) associate both mechanisms with financial crises. In this paper we examine both of these channels, using sovereign credit events to analyse the contagion channel and factor analysis to analyse the common shock channel. The latter leads to a risk spillover interpretation as we show that common risk factors depend significantly on country-specific sovereign credit events and the effects were magnified during the European Sovereign Debt Crisis.

The growing empirical literature on the determinants of sovereign credit spreads suggests that after controlling for common global shocks, sovereign default risk is related to country fundamentals (Chiarella et al., 2015; Hilscher and Nosbusch, 2010). It has been recognized that adverse economic fundamentals in individual countries have played a significant role during the European sovereign debt crisis (Arghyrou and Kontonikas, 2012; Caceres et al., 2010; Mink and De Haan, 2013) and this has been referred to as "wake-up calls" or fundamental contagion. However, recent research also supports a role for regional contagion or cross-country links that are somewhat divorced from country-specific fundamentals. Such contagion seems to stem in part from correlated investor sentiment across the Eurozone (Beetsma et al., 2013; Beirne and Fratzscher, 2013; Chiarella et al., 2015; De Grauwe and Ji, 2013). Aizenman et al. (2013), De Grauwe and Ji (2013) and Fuertes et al. (2015) show that in 2010 Eurozone periphery CDS spreads were higher than those of non-Euro countries with similar fundamentals, suggesting a role for contagious pessimism and self-fulfilling dynamics of panic and fear leading to the European sovereign debt crisis. Aizenman et al. (2013) provide an alternative explanation based on the effect of expectations on future fundamentals, which were expected to worsen due to the adjustment challenges faced. In another vein, Dieckmann and Plank (2012) and Brutti and Saure (2015) document risk transfers due to the exposures of national banking sectors to bad credit stemming from the US sub-prime and European sovereign debt sectors and the widespread expectation of government bailouts across multiple countries.

A parallel literature argues that sovereign credit spreads exhibit a strong degree of commonality that is unrelated to correlations in fundamentals. Instead the commonality can be traced to global financial market factors (see for example, Ang and Longstaff, 2013; Dieckmann and Plank, 2012; Geyer et al., 2004; Longstaff et al., 2011; Mauro et al., 2002). In particular, Longstaff et al. (2011) show that sovereign CDS spreads are explained by US equity returns, equity market implied volatilities and bond market risk premia. Remolona et al. (2008) and Chiarella et al. (2015) decompose the pricing of sovereign CDS contracts into what is attributed to fundamentals and what is due to non-fundamental forces such as investor risk aversion and price momentum, with the latter two components consistently accounting for the larger part of CDS spreads. Nonetheless, much of the focus in the literature has been on finding the determinants of credit spreads at the country level but not on the common pricing kernel for sovereign credit risks.

For other market instruments as well, researchers have found that both country fundamentals and global sentiment can play a role in driving asset prices. Cohen and Remolona (2008), looking at Asian equity markets and US closed end country funds based on them, find that while Asian market returns normally reflect domestic developments, US market sentiment sometimes has a strong day-to-day influence on these returns, particularly in crisis periods.

Our study speaks to the literature on cross-border sovereign risk propagation by exploring both the time dimension and the cross-country dimension of this phenomenon. We investigate the time dimension by distinguishing between "fast-and-furious" contagion and the subsequent "slow-burn" spillover effects that are found to arise from increasing common risks. We explore the cross-country dimension by distinguishing between regional risk propagation and global risk propagation. Further-

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