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Sovereign credit rating contagion in the EU

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Abstract

The recent persistent and synchronised deterioration in the euro zone had severe consequences for the euro community, the effects of which have been felt by the global community. This study proved that sovereign rating contagion existed between euro countries during the two recent windows of crises, namely the Lehman and sovereign debt crisis. Compelling evidence from the analysis provided a clear indication of contagion during the two periods of crisis. Results indicated a higher vulnerability to shocks and a higher degree of connection during the windows of crises than during the tranquil periods. Notable was that the European Union (EU) sovereign debt crisis experienced a more pronounced degree of contagion than the Lehman crisis period did. During the sovereign debt crisis window, a dominant theme was the highly integrated connection between the Portugal, Italy, Greece and Spain (PIGS) group of countries.

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Keywords: Sovereign credit ratings; contagion; cointegration; causality; EU countries; PIGS; variance decomposition

1. Introduction

The persistent and synchronised deterioration of the economic health in the euro countries since the global financial crisis has had far reaching economic and social consequences that will create a drag on the economic growth of these nations for generations to come (Stracca 2013:5[1]; Caporin et al. 2012:2[2]; Gentile and Giordano 2012:1[3]). Contagion is not a new phenomenon. In his speech on sovereign contagion in Europe, European Central

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Bank (ECB) board member Gonzalez-Paramo (2011:1[4]) points out that reference to contagion were made as early as 1871 by Walter Bagehot in the 'Lombard Street' speech around the panic caused by the failure of Overend, Gurney and Co in 1866.

According to Constancio (2012:110 [5]), the banking crisis that was triggered in August 2007 reached a climax in September 2008 when Lehman defaulted. This culminated in a sovereign crisis in the spring of 2010. The sovereign crisis was triggered by the announcement of a referendum in Greece in November 2010, following the decision to consider a rescue program at an EU summit the previous week (Gonzalez-Paramo 2011:1[4]). Although Germany and France normalised soon after the announcement, this triggered the start of a persistent decline in Italian and Spanish sovereign debt. In addition to the weakening in government bond spreads, a synchronised deterioration in sovereign ratings of the euro zone as well as numerous large bank and corporate rating downgrades ensued. Aside from the dislocation experienced in the euro zone during the sovereign debt crisis, it should be noted that the integration effect of the EU increases the interconnectedness and therefore exacerbates the negative effects of the instability caused by the Greek rescue package. This integration effect has been the subject of numerous studies (Bekaert et al. 2010:1[6]; Beber et al. 2009:1[7]; Gomez-Puig 2008:455[8]; Borensztein et al. 2007:1[9]; Rowland and Torres 2004:3[10]; Amira 2004:1[11]).

The synchronised decline in the health of sovereigns in the euro zone and the deterioration of the global economy prompts a number of important questions. What is the nature of the connection between euro countries and their sovereign ratings? Does this relationship change during periods of crisis? This research investigates the presence and directionality of contagion between countries sovereign credit ratings in the euro zone.

The remainder of the paper is structured as follows, in section two the literature review will be discussed, in section three the data and method will be discussed briefly, section four present the empirical findings and the discussion of the results and section five conclude this paper.

2. Literature review

Gentile and Giordano (2012:8[3]) describe "contagion" as "the amount of co-movement among asset prices which exceeds what is explained by fundamentals". These authors argue that a degree of extreme connection or asymmetry that goes beyond interdependencies must be present in order for contagion to be present.

Research on contagion range from conditional correlation to contagion of bond spreads, equity market stock returns, differences in interest rates, monetary policy and currency market variance (Gentile and Giordano 2012:8[3]; Andenmatten and Brill 2011:1[12]; Saghaian 2010:1[13]; Pontines and Siregar 2007:1[14]; Campbell et al. 2006:2[15]; Suleimann 2003:1[16]; Forbes and Rigobon 2002:2225[17]; Butler and Joaqin 2002:981[18]; Ang and Chen 2002:444[19]; Longin and Solnik 2001:4[20]; and Favero and Giavazzi 2000:3[21}, Beirne and Gieck (2012:1[22]).

A wide range of empirical techniques has been used to quantify correlation and contagion. Dungey et al. (2004:4[23]) note that tools to measure contagion range from correlation and covariance analysis undertaken by, for example, Forbes and Rigobon (2002:2225[17]) to probability models by, for example, Eichengreen, Rose and Wyplosz (1995:250[24]) to latent factor structure by Dungey and Martin (2001:2[25]), principle components by Kaminsky and Reinhart (1999:474[26]), multiple equilibria and finally VAR.

Vector Autoregression (VAR) cointegration and VECM / Granger causality tests have been used to measure contagion in numerous studies. Beirne and Gieck (2012:1[22]) use a global VAR to measure interdependence and contagion across bonds, stocks and currencies for over 60 economies during periods of crisis. These authors' analysis reveals that shocks to equity markets typically originate in the US and that bond market shocks tend to originate in the euro zone. Gentile and Giordano (2012:7[3]) use cointegration and VECM / Granger causality tests to measure the existence and direction of contagion in European countries during the Lehman default and sovereign debt crisis. Gentile and Giordano (2012:7[3]) use sovereign bond spreads and stock returns as a country risk indicator. Andenmatten and Brill (2011:1[12]) use a bi-variate test to prove contagion in emerging and industrialised countries using credit default swap (CDS) spreads during the Greek debt crisis of 2009. Saghaian (2010:1[13]) uses Granger causality to create contemporaneous contagion links between agriculture and energy markets within the commodity sector. Suleimann (2003:1[16]) uses VAR to measure contagion in technology stock prices between Europe and the United States. Pontines and Siregar (2007:1[14]) use Markov Switching and VAR to measure contagion in East Asian markets using stock exchange returns during periods of turbulence. Favero and Giavazzi (2000:3[21]) use VAR to test contagion using money market spreads across European Monetary Union countries.