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Has the crisis affected the behavior of the rating agencies? Panel evidence from the Eurozone

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HIGHLIGHTS

- We estimate credit rating models for the Eurozone.
- We allow for cross-sectional dependence.
- Government debt and current account have a stronger impact post-2008.

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ABSTRACT

We examine the determinants of credit ratings for the Eurozone countries over the period 2002–2013 within a panel framework that allows for cross-sectional dependence. We find that government debt and the cumulative current account exert a stronger impact on ratings post-2008 compared to the period before.

1. Introduction

The significant deterioration of public finances post 2008 has been closely monitored by the three major credit rating agencies (CRAs), Moody's Investor Services, Standard & Poor's and Fitch Ratings (all three account for 95% of the market share[1]). Most of the attention has focused on the Eurozone countries. In the case of Moody's, seven downgrades were recorded for Greece and five downgrades for Ireland, Portugal, and Spain. Standard & Poor's and Fitch Ratings also followed. Decisions made by the CRAs are crucial since sovereign credit ratings measure the probability that a country will default on its debt obligations and therefore set the tone for the sovereign state's borrowing costs.

Earlier work by e.g. Afonso et al. (2011) and Cavallo et al. (2013) (see also the references therein) examined sovereign credit ratings based on quantitative and qualitative factors. However, an arguably large number of decisions made by the CRAs remain unexplained. This has triggered heavy criticism by European politicians, such as Jose Manuel Barroso (the EU Commission's former President) who raised the issue of "deficiencies in their working methods".[2]

This paper revisits the determinants of credit rating decisions for the Eurozone countries. Our work departs from the earlier literature in three aspects. First, we take into account cross-sectional dependence that is present in the data. Second, we examine the role of the cumulated current account. Third, we assess whether the crisis has impacted on the way CRAs make credit rating decisions.

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[1] Economist 31/5/2007 http://www.economist.com/node/9267952.

[2] Barroso: Comments to the European Parliament, Wednesday 5 May 2010: http://uk.reuters.com/article/2010/05/05/eu-barroso-ratings-idUKLDE6442B120100505.

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Table 1
Data definitions.

Variable	Description	Source
Fitch rating	Sovereign rating attributed at 31st December of each year	Fitch
S&P rating	Sovereign rating attributed at 31st December of each year	S&P
Moody's rating	Sovereign rating attributed at 31st December of each year	Moody's
GDP per capital	Log GDP per capital, US dollars, constant 2005 prices	World Bank
GDP growth rate	Annual percent change of GDP	IMF WEO
Government debt	General government gross debt as a percent of GDP	IMF WEO
Accumulated current account	Sum of current account balances as a percent of GDP from 1995	IMF WEO
Unemployment rate	Unemployment rate as a percent of total labor force	IMF WEO
Inflation rate	Annual growth rate of consumer price index	IMF WEO
External balance	External balance on goods and services as a percent of GDP	World Bank
Reserves	Log of total reserves (includes gold, constant 2005 prices)	World Bank
Regulatory quality	Aggregate Government Indicator	World Bank

Table 2
Sovereign rating grades.

	Rating agency			Rating grades
	Fitch	S&P	Moody's	(1–21)
Highest quality	AAA	AAA	Aaa	21
High quality	AA+	AA+	Aa1	20
	AA	AA	Aa2	19
	AA−	AA−	Aa3	18
Strong payment capacity	A+	A+	A1	17
	A	A	A2	16
	A−	A−	A3	15
Adequate payment capacity	BBB+	BBB+	Baa1	14
	BBB	BBB	Baa2	13
	BBB−	BBB−	Baa3	12
Likely to fulfill obligations, ongoing uncertainty	BB+	BB+	Ba1	11
	BB	BB	Ba2	10
	BB−	BB−	Ba3	9
High credit risk	B+	B+	B1	8
	B	B	B2	7
	B−	B−	B3	6
Very high credit risk	CCC+	CCC+	Caa1	5
	CCC	CCC	Caa2	4
	CCC−	CCC−	Caa3	3
Non default with possibility of recovery	CC	CC	Ca	
	C			2
	DDD	SD	C	
Default	DD	D		
	D			1

The paper proceeds as follows. The next section discusses the data and our empirical results. Section 3 concludes.

2. Data description and empirical results

Our dataset includes annual data from 2002 to 2013 for 18 Eurozone countries (216 observations in total). Table 1 presents the data employed and their sources.

The variable of interest is the sovereign credit rating. This study employs the linear transformation of ratings presented in Table 2.

The model specification we adopt takes into account the cross-sectional dependence that is present in the sample. In line with Gros (2011), we further examine whether the cumulative current account is of importance in a monetary union setting. Further, following Baghai et al. (2014), we examine whether credit ratings agencies have changed their behavior during the crisis. The specification we employ can be written as:

$$CRA_{it} = a_0 + \mu_i + \sum_{i=1}^{9} a_i x_{it} + \sum_{i=1}^{9} b_i \bar{x}_i + \sum_{j=1}^{3} c_j D_{crisis} x_{jt} + error_{it},$$

where x_i includes nine variables, namely GDP per capita, growth rate of GDP, government debt, inflation rate, unemployment rate, current account, external balance, log reserves, regulatory quality. D_{crisis} takes the value of 1 for the years 2009–2013 and 0 otherwise. Three variables (government debt, current account and external balance) interact with the crisis dummy in line with Gros (2011) who argues that the external sector was of vital importance during the crisis.

The model is estimated using (i) pooled OLS, (ii) fixed effects and (iii) random effects. The Pesaran (2004) test provides convincing evidence that cross sectional dependence exists in the models without the cross-section averages ($\bar{x}$: *cavg*); these preliminary results are not reported due to space limitations but are available on request. In fact, cross-sectional dependence would point to the existence of spill-over effects from one Eurozone country to another.[3] Following from this, we follow the common correlated effects (CCE) approach of Pesaran (2006) that includes the cross-section averages of the independent variables as additional regressors denoted by *cavg* in Tables 3–6. The estimated coefficients on the cross-section averages are not interpretable in a meaningful way; these are merely present to blend out the biasing

[3] De Santis (2014) identifies spill-over effects in terms of the direct impact of a Greek credit rating downgrade on other Eurozone sovereign spreads.