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THE DETERMINANTS OF THE SOVEREIGN DEBT RATING: EVIDENCE FOR THE EUROPEAN UNION COUNTRIES

Abstract. *The paper aims at identifying the determinants of the sovereign rating for a panel comprising of 25 European Union countries over the period 2005-2012. We found that short run variation in inflation, unemployment, public debt to GDP ratio, real growth rate, GDP per capita and control of corruption are robust determinants of sovereign debt rating. We also showed that key socio-economic and political indicators of sovereign credit risk vary with differences in countries' development. In addition, a series of indicators such as real GDP growth rate and public debt to GDP ratio seems to act differently during the post-crisis period.*

Keywords*: sovereign debt, rating agencies, economic development, fiscal stabilization, European Union.*

JEL Classification: F34, G15

1. Introduction

The importance of rating agencies was amplified for both advanced and developing countries, especially in the light of financial globalization, Basel II Accord and recent sovereign debt crisis. The analysis of economic and political factors that might influence sovereign debt ratings received an extended attention in the recent literature (see, for instance, Afonso et al., 2011, Canuto et al., 2012). Some authors focused mostly on the determinants of sovereign rating in the specific context of emerging economies (Agliardi et al., 2012) and more particularly for Central and Eastern European (CEE) countries (Miricescu, 2011). Other studies emphasised the distinctions between sovereign credit ratings for developed and emerging economies (Tennant and Tracey, 2013).

The purpose of this study is to examine the correlation between the sovereign credit rating and economic and political indicators using a panel

comprising of 25 EU countries over the period 2005-2012. We find evidence of a negative impact of the short run variation in inflation, unemployment and public debt to GDP ratio and a positive impact of the average real growth rate, GDP per capita and control of corruption.

During the last two decades the evolution of the CEE countries has been characterized by the transition from a centralized economy to market economy with a particular focused on the real convergence process and fiscal sustainability (Miron et al., 2013, Leonte, 2011, Stoian and Campeanu, 2010). Considering the economic and political climate of CEE countries, we expect the pattern of their determinants on credit ratings to differ to some extent from that of EU advanced countries. Moreover, despite of the similarities between CEE countries and other emerging countries in terms of current account deficits and external debt, CEE countries' ratings seems to benefit from an increase in policy credibility due to their recent integration in EU (Hauner et al., 2010). In this context, we consider that a specific analysis of determinants of credit ratings for this category of countries will contribute to the existing literature. Our results show that the rating of CEE countries is sensitive to short-term variation of real GDP growth rate and to long-term levels of public debt, inflation rate and control of corruption, whereas EU 15 countries' ratings rely more on short-run variations in public debt and long term levels of real GDP growth rate and GDP per capita.

Recently, Basu et al. (2013) showed in a detailed worldwide analysis that sovereign ratings were impacted by the global economic and financial crisis. Our study contributes to the existing literature by explicitly testing the impact of the recent financial crisis on the relationship between sovereign credit rating and its determinants. This allows us to assess if rating agencies accommodate the shocks of a financial crisis in their models. We find that rating determinants differ with respect to GDP growth rate and short run variation of public debt ratio.

The study is organised as follows: Section 2 reviews the related literature focusing on the determinants of the sovereign debt rating. Section 3 describes the methodology and the dataset. Section 4 provides the results and discusses the determinants of sovereign debt rating for 25 EU member states. Concluding remarks of the study are drawn in Section 5.

2. Literature review

There is a rich body of literature trying to identify the economic, financial, political and social determinants of the sovereign credit ratings, starting with the seminal work of Cantor and Packer (1996). Using a dataset of 45 countries and the ratings assigned by Moody's and Standard & Poor's for 1995, the authors showed that sovereign ratings can be explained by macroeconomic variables such as GDP growth rate, per capita income, inflation rate, external debt, economic development and the default history of the analyzed countries. These results are supported by

further research on this topic (e.g. Afonso, 2003). Bissoondoyal-Bheenick et al. (2006) also showed that technological development should be considered as a factor with a significant impact on ratings. Alexe et al. (2003) identified bank loan to GDP ratio, GDP per capita and public debt as robust determinants of sovereign debt ratings. Moreover, they emphasized the importance of political variables in ratings' assessments by including in their models variables for political stability, government effectiveness and level of corruption. The same idea is highlighted by Mellios and Paget-Blanc (2006) and Butler and Fauver (2006) who found that the quality of legal and political institutions play a significant role in rating models. Recently, Afonso and Gomes (2011) emphasized the role of fiscal variables (i.e., fiscal deficit and government debt) in the downgrading of sovereign debt ratings of several OECD countries as a consequence of the recent financial crisis.

In addition to the studies focusing on identifying the rating determinants based on cross-section datasets, a series of works were based on a panel data models. This approach allows a dynamic analysis of the sovereign ratings' determinants. Borio and Packer (2004) based their analysis on a sample of 52 countries for a period ranging from 1996 to 2003 for ratings assigned by Standard & Poor's and Moody's and identified a set of indicators that impact sovereign rating: per capita income, index of political risk, corruption index, inflation rate and GDP growth rate. Afonso et al. (2011) made a detailed analysis by using different methodologies and a dataset over 1995 – 2005. The authors identified GDP per capita, GDP growth rate, public debt and fiscal balance as short-run determinants of sovereign ratings. However, the long-run analysis highlighted the important role played by variables such as government effectiveness, external debt, foreign reserves and default history in ratings assignments.

Previous literature on determinants of sovereign credit ratings tends to converge toward a similar set of economic, financial and socio-political variables. However, the inclusion of the low-and-middle income countries in the rating quotations of the main rating agencies highlighted the importance of additional determinants (Gaillard, 2014). For instance, Monfort and Mulder (2000) identified five determinants of sovereign ratings for 20 emerging countries during the period 1995-1999: government debt to exports ratio, default history, exports growth, inflation rate, and government debt to GDP ratio. Eliasson (2002) showed that in some particular specifications characterizing the post Asian crisis period, short-term debt to reserves ratio had a significant impact on the sovereign rating of emerging countries. In addition, Avendaño et al. (2009) emphasized the importance of remittances flows in assessing rating.

3. Methodology and database

For the purpose of this study, we collected data provided by Standard&Poor's regarding sovereign ratings as of December 31st of each year during the period 2005 – 2012 for 25 EU countries. The dataset consists in 15 EU advanced economies (Austria, Belgium, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the UK) and in 10 CEE countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Slovakia). The rating scores of our sample range between AAA to CC. However, considering that a reduced number of rating scores are below BB-, we grouped all these observations in a single one category. Thus, for linear transformation, we generated 14 categories for the countries in our sample. Long-term sovereign rating was transformed in a quantitative variable (table 1).

Table 1. Linear transformation

Rating	AAA	AA+	AA	AA-	A+	A	A-
Transformation	14	13	12	11	10	9	8
Rating	BBB+	BBB	BBB-	BB+	BB	BB-	Below BB-
Transformation	7	6	5	4	3	2	1

Source: Our results based on data provided by Standard & Poor's

As a robustness check, we will also express our determinant variable using a logistic transformation (see Afonso et al., 2007 for more details).

Our paper employs the panel data model with random effects presented by Afonso et al (2011) described by equation (1):

$$R_{it} = \beta(X_{it} - \overline{X}_{\iota}) + \theta\overline{X}_{\iota} + \varepsilon_i + \mu_{it} \quad (1)$$

Where R_{it} is Standard&Poor's sovereign rating obtained by either a linear transformation or a logistic transformation for a country i and period t, X_{it} is a vector of explanatory variables, $\overline{X}_{\iota}$ represents the average values of the dependent variable, ε_i is an error term considered to be uncorrelated with the explanatory variables and μ_{it} is the disturbance assumed to be independently distributed across countries and over time. In order to overcome shortcomings of a random effect model, the authors argue the introduction of explanatory variables average as additional determinant of the rating levels. Moreover, Afonso et al. (2011) show that this methodology allows to distinguish between short-term determinants (predicted by β coefficient) as the variable is expressed as a variation from a general trend and long-term determinants (predicted by θ coefficient).

Based on previous literature we consider eight indicators as potential sovereign ratings determinants: (i) provided by Eurostat [real GDP growth rate;

GDP per capita; unemployment rate; inflation rate; current account balance to GDP ratio; public debt to GDP ratio; government balance to GDP ratio] and (ii) provided by Worldwide Governance Indicators Database [control of corruption index].

Table 2 presents some descriptive statistics for the full sample, and also separately for the EU 15 countries and CEE countries. As expected, the two groups of countries show different patterns based on the main economic, fiscal and political indicators. CEE countries are characterized by higher real GDP growth rate and lower GDP per capita, relative to EU 15 countries, findings that are consistent with the real convergence process expected in CEE countries. The mean of real GDP growth rate is more than three times lower in the advanced economies compared to the emerging ones (0.85% vs. 2.73%), whereas the mean of GDP per capita is more than three times higher in EU 15 sample comparing to CEE sample. CEE countries reveal higher unemployment rates and higher inflation rates in balance with EU 15 countries. The distinctions are also reflected for current account balance: CEE countries are characterized by negative current account and EU 15 countries are characterized by positive current account. For the public debt variable, the results reveal a higher variation among countries. The mean of public debt to GDP ratio is more than two times higher in EU 15 than in CEE. The average for the government balance for both groups of countries is similar. Also, the control of corruption index show that EU 15 countries perform better than CEE countries. However, the standard deviation along with the minimum and maximum values of all these indicators shows important disparities within both groups of countries.

The existing distinctions between EU 15 and CEE represent a relevant reason for splitting the database in corresponding groups.

Table 2. Descriptive statistics by region

	Obs.	Mean	St. Dev.	Min	Max
Total sample					
Real GDP growth rate	200	1.60	4.39	-17.70	11.00
GDP per capita	200	23826.00	15600.95	3000.00	80700.00
Unemployment rate	200	8.54	3.92	2.80	25.00
Inflation rate	200	3.04	2.29	-4.48	15.40
Current account balance (%GDP)	200	0.82	9.27	-21.60	32.30
Public debt (% GDP)	200	53.60	32.66	3.70	170.30
Government balance (% GDP)	200	-3.18	4.33	-30.60	5.30
Control of Corruption Index	200	1.05	0.85	-0.30	2.55

EU 15 countries sample					
Real GDP growth rate	120	0.85	3.13	-8.50	6.60
GDP per capita	120	33168.33	13345.03	14600.00	80700.00
Unemployment rate	120	7.97	3.97	2.80	25.00
Inflation rate	120	2.17	1.30	-4.48	4.88
Current account balance (%GDP)	120	3.56	9.62	-14.50	32.30
Public debt (% GDP)	120	67.31	32.39	6.10	170.30
Government balance (% GDP)	120	-3.16	5.01	-30.60	5.30
Control of Corruption Index	120	1.55	0.71	-0.25	2.55
CEE countries sample					
Real GDP growth rate	80	2.73	5.63	-17.70	11.00
GDP per capita	80	9812.50	3659.78	3000.00	18400.00
Unemployment rate	80	9.39	3.70	4.30	18.70
Inflation rate	80	4.34	2.79	-1.09	15.40
Current account balance (%GDP)	80	-3.29	6.97	-21.60	7.30
Public debt (% GDP)	80	33.02	19.80	3.70	82.20
Government balance (% GDP)	80	-3.20	3.08	-9.80	4.30
Control of Corruption Index	80	0.32	0.38	-0.30	1.02

Table 3 presents some descriptive statistics separately for period 2005 – 2008 and period 2009 – 2012. The time span covered by our analysis allows us to search also for differences generated by two periods characterized by different economic context. Therefore, the economic performance indicators, like economic growth rate and unemployment rate, have been affected by the economic crisis. GDP growth rate is positive for 2005 – 2008 period, but becomes negative during the second period. The post-crisis period reveals higher unemployment rates, lower inflation rates, and positive current account.

The negative impact of economic and financial crisis is emphasized mainly by the evolution of fiscal variables. Therefore, public debt to GDP ratio increased significantly from 44.73% to 62.47% and the government balance is more than four times higher in 2009 – 2012 period comparing to 2005 – 2008 period. For control of corruption index, we identify similar mean values.

The pattern of this evolution supports additional analysis of sovereign rating determinants by sub-periods.

Table 3. Descriptive statistics by period

	Obs.	Mean	St. Dev.	Min	Max
2005 – 2008 period					
Real GDP growth rate	100	3.81	3.08	-4.20	11.00
GDP per capita	100	23322.00	15500.61	3000.00	78000.00
Unemployment rate	100	7.05	2.55	2.80	17.70
Inflation rate	100	3.74	2.59	0.45	15.40
Current account balance (%GDP)	100	-1.00	10.03	-21.60	32.30
Public debt (% GDP)	100	44.73	28.20	3.70	112.90
Government balance (% GDP)	100	-1.18	3.20	-9.80	5.30
Control of Corruption Index	100	1.09	0.83	-0.30	2.55
2009 – 2012 period					
Real GDP growth rate	100	-0.61	4.41	-17.70	9.60
GDP per capita	100	24330.00	15762.48	4600.00	80700.00
Unemployment rate	100	10.03	4.46	3.40	25.00
Inflation rate	100	2.34	1.67	-4.48	6.09
Current account balance (% GDP)	100	2.63	8.10	-11.50	31.00
Public debt (% GDP)	100	62.47	34.49	6.10	170.30
Government balance (% GDP)	100	-5.17	4.41	-30.60	4.30
Control of Corruption Index	100	1.02	0.86	-0.27	2.52

We apply three different analyses. First, we run the regression for the entire sample in order to identify factors that have an impact on rating scores for EU countries. However, considering the heterogeneity of our sample composed by EU advanced countries but also CEE countries, we apply the regression model separately for these two subsamples. Finally, we divide the sample in two sub-periods (prior to 2009 and after 2009) in order to search for changes in the determinants generated by the financial crisis.

4. Results

Table 4 presents the results for the total sample, using as dependent variable sovereign debt rating based on both a linear and logistic transformation.

If we consider short-term impact expressed as a variation of explanatory indicators from their averages, we can identify three main determinants of sovereign rating. Therefore, the rating is negatively impacted by unemployment rate, inflation rate and by public debt index. Contrary to what we expected, the coefficient of government balance variable is negative and statistically significant at 10% level. However, this relationship seems not to be robust as the findings are not validated by the results of the model based on the logistic transformation.

Long term analysis revealed some additional variables with significant impact on sovereign rating. The average of GDP growth rate, the level of development (expressed by GDP per capita) and the control of corruption index seem to be important factors that explain the rating level. The negative value of the coefficient for the current account variables implies that countries with high current account surpluses have lower ratings. However, this result is in line with the findings of Afonso et al. (2011).

Table 4. Determinants of sovereign debt ratings for European Union countries

	Linear transformation (1)	Logistic transformation (2)
Real GDP growth rate	0.040	0.008
	(0.027)	(0.012)
GDP per capita	0.333	0.199
	(1.004)	(0.424)
Unemployment rate	-0.221***	-0.102***
	(0.051)	(0.035)
Inflation rate	-0.154***	-0.054***
	(0.047)	(0.020)
Current account balance (% GDP)	-0.020	0.005
	(0.049)	(0.023)
Public debt (% GDP)	-0.058***	-0.024***
	(0.017)	(0.007)
Government balance (% GDP)	-0.074*	-0.012
	(0.043)	(0.021)
Control of Corruption Index	0.441	0.293
	(0.666)	(0.245)
Real GDP growth rate avg.	0.615**	0.274**
	(0.246)	(0.127)
GDP per capita avg.	2.750***	1.226**
	(0.930)	(0.480)
Unemployment rate avg.	-0.149	-0.073
	(0.109)	(0.054)
Inflation rate avg.	-0.889***	-0.206
	(0.268)	(0.130)
Current account balance (% GDP) avg.	-0.113***	-0.050**
	(0.039)	(0.020)
Public debt (% GDP) avg.	-0.013	-0.004
	(0.011)	(0.006)
Government balance (% GDP) avg.	0.042	0.004
	(0.095)	(0.047)
Control of Corruption Index avg.	1.089***	0.902***
	(0.360)	(0.180)
Constant	-13.697	-10.443**
	(9.661)	(4.970)
N	200	200
adj. R^2	0.90	0.90

Cluster robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

However, as specified above, we expect that rating agencies base their models and give different weights to specific variables according to development of countries. According to this specificity, we consider two-subsamples: EU advanced countries and CEE countries. The results presented on Table 5 reveal significant differences to respect to the determinants of ratings levels.

The short run analysis identify the variation of the real growth rate from the average level as a rating determinant for CEE countries, while rating levels for EU advanced countries seem to be correlated with short time variations of the public debt. The unemployment rate is significant determinant for both subsamples.

Regarding the long run analysis, the results for EU advanced countries subsample are in general in line with the findings for the total sample, identifying the growth rate of GDP, the GDP per capita and the current account as robust determinants of rating levels. Moreover, the average unemployment rate seems to also play a role in the model implemented by the rating agencies. However, the control of corruption index maintains its statistical significance only in the case of CEE countries. The findings emphasize the importance given to the long-run level of public debt ratio and inflation ratio as rating determinants for the CEE countries.

Table 5. Determinants of sovereign debt ratings for EU countries by region

	Panel A: EU 15 sample		Panel B: CEE sample	
	Linear transformation (1)	Logistic transformation (2)	Linear transformation (3)	Logistic transformation (4)
Real GDP growth rate	0.030	0.004	0.063**	0.020**
	(0.031)	(0.014)	(0.027)	(0.009)
GDP per capita	-2.360	-1.259	0.059	0.104
	(2.135)	(0.851)	(1.163)	(0.378)
Unemployment rate	-0.282***	-0.153***	-0.159**	-0.045*
	(0.029)	(0.018)	(0.081)	(0.025)
Inflation rate	-0.086	0.011	-0.079	-0.024
	(0.069)	(0.026)	(0.065)	(0.020)
Current account balance (% GDP)	-0.138*	-0.051	-0.001	-0.001
	(0.081)	(0.039)	(0.064)	(0.020)
Public debt (% GDP)	-0.050**	-0.018**	-0.034	-0.012
	(0.022)	(0.008)	(0.029)	(0.010)
Government balance (% GDP)	-0.098	-0.030	-0.074	-0.023
	(0.062)	(0.028)	(0.055)	(0.018)
Control of Corruption Index	0.214	0.202	1.373	0.484
	(0.843)	(0.337)	(1.238)	(0.373)
Real GDP growth rate avg.	1.852***	0.820***	-0.450	-0.204*
	(0.316)	(0.146)	(0.366)	(0.124)
GDP per capita avg.	5.086***	2.723***	-1.011	-0.471
	(1.336)	(0.915)	(1.151)	(0.389)
Unemployment rate avg.	-0.166*	-0.097*	0.076	0.029
	(0.097)	(0.053)	(0.137)	(0.046)
Inflation rate avg.	-0.548	-0.394*	-1.742***	-0.596***

	(0.458)	(0.234)	(0.240)	(0.081)
Current account balance(% GDP)avg.	-0.242***	-0.130***	0.012	0.001
	(0.053)	(0.034)	(0.054)	(0.018)
Public debt (% GDP) avg.	-0.026	-0.020*	-0.057**	-0.021**
	(0.017)	(0.012)	(0.027)	(0.009)
Government balance (% GDP) avg.	-0.054	-0.052	-0.024	-0.027
	(0.067)	(0.043)	(0.166)	(0.056)
Control of Corruption Index avg.	-0.058	0.005	1.360***	0.477***
	(0.645)	(0.378)	(0.189)	(0.064)
Constant	-36.673***	-23.205***	26.677**	7.770*
	(12.620)	(8.800)	(11.792)	(3.985)
N	120	120	80	80
adj. R^2	0.90	0.92	0.88	0.87

Cluster robust standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Our last analysis tries to identify possible adjustments in the models of rating agencies due to financial crisis, by dividing the dataset in two subsamples: a first subsample corresponding to the period 2005-2008 and a second one corresponding to the period 2009-2012 (the results are reported on Table 6). The first significant difference between these two periods is given by the opposite impact of the short-run variation of the growth rate in GDP from the average. This variable seems to have a negative impact on rating scores before the economic crisis and a positive one for the period 2009-2012. This result could be explained by the economic cycle effect. During the first period, countries showed increasing growth rates and increasing levels of GDP per capita and little or no change in rating scores. However, once we consider the negative effects of the financial crisis, the ability of countries to generate economic growth increase in significance and reveal a positive impact on the rating levels. In order to overcome this problem, some authors estimated their models by expressing the variables that are sensitive to changes in business cycle as a three year average (see, for instance, Afonso et al.,2011). The use of these averages will distort the values of explanatory variables for some years (e.g., 2008, 2009) and therefore we decided to keep annual values for the explanatory variables in order to better identify the effects of financial crisis on rating levels.

The variation in the public debt ratio gains in importance during the second sub-period. The coefficient for short-run changes in control of corruption index is positive and marginally significant only for the first sub-period. However, year-to-year changes in the value of this indicator are very small and difficult to interpret; therefore an approach based on trends over longer periods is more appropriate (Kaufmann et al., 2010). The findings of the lung-run analysis reinforce the conclusions for the total sample identifying the GDP per capita, the current account variable and the control of corruption as relevant determinants of rating levels. Only the real growth rate of GDP received an increase interest in the models of rating agencies starting with 2009 relative to the period before the financial crisis.

Table 6. Determinants of sovereign debt ratings for EU countries by region

	Panel A: 2005 – 2008		Panel B: 2009 - 2012	
	Linear transformation (1)	Logistic transformation (2)	Linear transformation (3)	Logistic transformation (4)
Real GDP growth rate	-0.056**	-0.017**	0.083***	0.036***
	(0.027)	(0.008)	(0.017)	(0.007)
GDP per capita	-1.710***	-0.509***	0.882	-0.236
	(0.596)	(0.180)	(2.037)	(0.962)
Unemployment rate	-0.210***	-0.063***	-0.266***	-0.153***
	(0.039)	(0.012)	(0.072)	(0.027)
Inflation rate	-0.151***	-0.045***	-0.132**	-0.037
	(0.038)	(0.011)	(0.058)	(0.023)
Current account balance (% GDP)	-0.026	-0.008	-0.017	0.037
	(0.022)	(0.007)	(0.063)	(0.028)
Public debt (% GDP)	-0.019	-0.006*	-0.098***	-0.036***
	(0.012)	(0.003)	(0.022)	(0.007)
Government balance (% GDP)	-0.008	-0.002	0.014	0.002
	(0.029)	(0.009)	(0.026)	(0.009)
Control of Corruption Index	0.534*	0.163*	-0.851	0.245
	(0.316)	(0.097)	(1.341)	(0.755)
Real GDP growth rate avg.	0.259	0.112	0.693**	0.295**
	(0.224)	(0.137)	(0.319)	(0.144)
GDP per capita avg.	2.033***	1.028**	4.026***	1.820***
	(0.661)	(0.451)	(1.298)	(0.613)
Unemployment rate avg.	-0.067	-0.011	-0.161	-0.093*
	(0.102)	(0.063)	(0.141)	(0.056)
Inflation rate avg.	-0.786***	-0.176	-0.877**	-0.193
	(0.232)	(0.127)	(0.373)	(0.167)
Current account balance (% GDP) avg.	-0.069***	-0.030**	-0.158***	-0.077***
	(0.021)	(0.012)	(0.054)	(0.029)
Public debt (% GDP) avg.	-0.009	-0.006	-0.036**	-0.012
	(0.013)	(0.006)	(0.016)	(0.008)
Government balance (% GDP) avg.	-0.050	-0.062	-0.155	-0.037
	(0.077)	(0.039)	(0.130)	(0.062)
Control of Corruption Index avg.	1.353***	1.032***	0.908*	0.732***
	(0.291)	(0.148)	(0.547)	(0.260)
Constant	-7.628	-9.022*	-24.740*	-15.429**
	(7.297)	(4.853)	(13.149)	(6.066)
N	100	100	100	100
adj. R^2	0.94	0.92	0.92	0.93

Cluster robust standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5. Conclusions

This paper identifies the determinants of sovereign credit ratings for a dataset consisting on 25 European Union countries over the period 2005 – 2012, based on a methodology described by Afonso et al. (2011). For the entire sample we found evidence that the short run variation in inflation, unemployment and public debt to GDP ratio has a negative impact on credit ratings, whereas the average real growth rate, GDP per capita and control of corruption revealed a positive impact. Considering the heterogeneity of our dataset, we replicated the analysis on distinctive sub-samples: EU 15 countries vs. CEE countries and pre-crisis vs. after-crisis. We showed that rating agencies emphasize more the short run variation of real GDP growth rate and long term average of inflation, public debt ratio and control of corruption when assessing credit ratings for CEE countries. Moreover, real GDP growth rate and variation of public debt ratio seemed to gain in importance during the after-crisis period.

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