The Impact of Solicitation on Sovereign Credit Ratings[☆]

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Abstract

Credit Rating Agencies (CRAs) are in the spotlight since the occurence of the Subprime crisis. After being blamed for favorable credit evaluation of insolvent products before the crisis, CRAs are criticized for early downgrading the sovereign debt of several countries', threatening their economic recovery (Staikouras, 2012). More recently, CRAs have come under sever criticism for suspicion of conflict of interest that could arise from clients - either corporate or sovereigns - soliciting a credit rating. The aim of this paper is to formally test whether the solicitation of credit rating by sovereigns affects the grade provided by the rating agency. Our empirical results based on an ordered probit for sovereign credit ratings attributed by Standard & Poor's in 2013 suggest that unsolicited ratings are higher than solicited ones which goes against previous results found for corporate ratings.

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"We need to go further to look at the impact of the ratings on the financial system or economic system as a whole".

Michel Barnier

E.U. Commissioner responsible for internal market and services.

1. Introduction

The primary function of Credit Rating Agencies (hereafter CRAs) is to provide reliable evaluation of borrowers' creditworthiness. This role is important in financial markets where bond issuers need to provide potential investors, that face information asymmetry, with signals attesting their good quality (Spence, 1973). Since several decades now, the influence of CRAs has steadily grown. In August 2011, the S&P500 experienced a 6.7% drop after the downgrade of the U.S. long term rating by Standard & Poor's. The market reaction to CRAs assessments has been well documented in the literature. Empirical evidence generally show that downgrade or upgrade announcements are associated with significant abnormal returns both in the stock and the bond markets (Ederington and Goh, 1998; Hand et al., 1992; Afonso et al., 2012). Less is known conversely on how these ratings are calculated, mainly because CRAs have always been reluctant to provide clear information on both economic variables used to make their assessment and the weight attached to each of them for calculating the final rating. This opacity has recently raised some concerns about the potential existence of biases in the credit rating assessment process due to conflict of interest between CRAs and debt issuers (Benmelech and Dlugosz, 2009). Given CRAs pivotal role in financial markets, the question of how they evaluate borrowers' creditworthiness is of major importance. In this paper, we aim to address this issue by examining the underlying determinants of CRA's sovereign ratings and more specifically by testing whether the solicitation of a rating by a country affects the grade provided by the CRA.

Among all credit ratings, sovereign credit ratings hold a pivotal role as benchmark for credit risk evaluation of corporate, banks or other public entities located in their territory (Williams et al., 2013; Gaillard, 2009). These ratings are, in addition, often viewed as good indicators of the general health of

an economy and may constitute an early warning of crisis periods (Sy, 2004). Against this background, starting from the pioneers Cantor and Packer (1996), a strand of the literature has attempted to better understand how ratings are determined (Hu et al., 2002). In general, public finance variables and the GDP per capita have been found to be significant (Afonso et al., 2007; Remolona et al., 2008).

Over the recent years, CRAs assessments have come under sharp criticism. After being blamed for favoring boom-bust cycles during the Asian crisis (Ferri et al., 1999) and for rating favorably institutions that turned out to be insolvent during the 2008 financial turmoil (Benmelech and Dlugosz, 2009), they are now denounced for their early downgrades of sovereign credit ratings and the likely threat that such downgrades represent for the economic recovery particularly in the USA and Europe (Staikouras, 2012).

Critics towards CRAs mainly concern potential conflicts of interest (Bolton et al., 2012; Baker and Mansi, 2002) that may arise as in the issuer-payer model (White, 2010) leading for example EU officials to consider the creation of an independent credit rating agency.[1] Along these lines, a financial institution issuing financial products and soliciting a rating (i.e. meaning that the institution pays a fee for the rating) could receive a better credit valuation than in the case in which it would not have solicited the rating, just for commercial reasons.[2] Interestingly, the fact that an entity solicits or not a credit rating and gets involved in the rating process by having regular meetings with the CRA during the rating process or not[3] may have a crucial impact on the final creditworthiness evaluation from the CRA or its perception by market participants (Poon et al., 2009; Poon and Firth, 2005; Bannier et al., 2009; Fulghieri et al., 2013). In this respect, one of the principal aims of this paper is to analyze the existence of conflicts of interest in the process of elaboration of sovereign credit ratings. To do so, we focus on the influence of sovereign credit rating solicitation.

[1] "In light of these downgrades and their critical timing, the acceptance, transparency and legitimacy of sovereign ratings have been put into question,", Bertelsmann Foundation, Financial Times, 04/16/2012

[2] For a complete review of the growing literature on the microeconomic analysis of the source of CRAs conflicts of interests, please refer to Bolton et al. (2012).

[3] Contractually, the solicitation involves meetings with the CRA as well as providing a large set of information.

Relying on Standard & Poor's data for 2013, we carry out an ordered probit analysis to identify the determinants of sovereign credit ratings with the particular aim to asses the impact of rating solicitation. Our results show that unsolicited sovereign credit ratings tend to be higher than solicited ones, advocating then for the rejection of the so-called "blackmail" hypothesis. CRAs are therefore not providing better ratings in exchange to fees. Rather, solicitation appears to lower the rating given to a country. The way to interpret this result is that when they have more information (i.e. when the rating is solicited), CRAs tend to minimize the risk of providing a good rating to a country that may default.

The remainder of this paper is organized as follows. Section 2 introduces the literature of sovereign credit determinants and the discussion of hypothesis relative to the impact of the solicitation on sovereign credit ratings while section 3 presents the data and the methodology. Sections 4 examines results and robustness checks and section 5 concludes.

2. The literature

This section is divided in two parts. The first part presents an overview of the literature on sovereign credit ratings determinants. While the second part focuses more specifically on the solicitation and the associated problem of conflict of interest.

2.1. Sovereign credit rating

The academic literature on sovereign credit rating has so far attempted to address two main questions: What is the impact of sovereign credit ratings on financial markets dynamics? And, are the determinants of sovereign credit ratings related to the fundamental value of the creditworthiness of a country ?

The first strand of the literature tends to confirm the significant impact of sovereign credit ratings on financial markets, particularly for downgrades. Brooks et al. (2004) and Ferreira and Gama (2007)

focus on stock markets and document the asymmetric response of stock markets to sovereign credit news. Contrary to rating upgrades, they show that sovereign credit rating downgrades influence negatively the domestic stock market dynamics. Similar results are found for European bonds and CDS spreads (Afonso et al., 2013). Furthermore, Afonso et al. (2013) highlight the significant impact of downgrades on stocks and bonds volatility, whereas they result indicate that upgrades do not have significant effects. These results are nevertheless mitigated by Ismailescu and Kazemi (2010) who find evidence suggesting that downgrades (contrary to upgrades) are anticipated by market participants and do not affect the CDS spreads of emerging market.

In addition, the academic literature confirms the existence of spillover effects induced by credit rating announcements. Sovereign credit rating events occurring in one country affect both the stock market (Kaminsky and Schmukler, 2002) and bond market dynamics (Christopher et al., 2012) in other countries. Gande and Parsley (2005) highlight the significant spillover effect from negative sovereign credit rating announcements to credit spreads in other countries.[4] Extending the analysis of contagion, Alsakka and ap Gwilym (2012) find similar results on the foreign exchange market showing that sovereign credit downgrades affect both the own country exchange rate and also other countries' exchange rates. Beyond these elements, the authors disagree on the existence of different impacts of credit rating announcement depending on the country's classification. In particular Ferreira and Gama (2007) state that emerging countries are more sensitive to credit rating announcements whereas Brooks et al. (2004) find no evidence for it. The literature confirms the major role of sovereign credit ratings in destabilizing the bank's risk weighting scheme within the Basel II regulation framework for emerging markets. Ferri et al. (2001) and Monfort and Mulder (2000) show that the use of credit rating as determinants of the level of capital adequacy ratio introduces a damaging procyclicality of capital requirements for emerging economies.

The significant impact of downgrade and upgrade announcements on financial markets couple with the lack of transparency of CRA led academics to raise the question: what is the underlying model

[4] Afonso et al. (2012); Arezki et al. (2011) also document contagion effects.

used by CRA for attributing a rating? The pioneers of the literature on credit ratings determinants are Cantor and Packer (1996) with an analysis of the determinants of 49 countries ratings attributed by Moody's and Standard & Poor's in 1995. They highlight 6 main determinants of sovereign credit rating: per capita income, GDP growth, external debt, inflation, the degree of economic development and the default history. This seminal paper led to a wide stream of research which is presented in Table 1. As can be seen, the list of significant determinants of sovereign credit rating vary across papers. In order to ease the comparative analysis of these researches, we classify the significant determinants of sovereign credit rating in five main categories: macroeconomic indicators (GDP growth, inflation), public finance indicators (Government deficit, amount of debt), monetary and external indicators (current account balance, foreign reserves, level of interest rates) and qualitative indicators (level of corruption, quality of law enforcement).

As for the results of this literature, a consensus emerges on the importance of macroeconomic indicators as determinants of sovereign credit rating. Conversely, evidence relative to public finance, monetary and external indicators remains mitigated. Qualitative indicators hold a growing importance in academic studies confirming CRAs statement. The default history appears to be significant in many papers Afonso (2003); Afonso et al. (2007); Borio and Packer (2004); Butler and Fauver (2006); Hu et al. (2002); Remolona et al. (2008). Several studies underline the importance of economic or technological development (Afonso, 2003; Bissoondoyal-Bheenick et al., 2006; Cantor and Packer, 1996; Ferri et al., 1999) whereas others focus on the institutional environment and the governance (Afonso, 2003; Butler and Fauver, 2006; Remolona et al., 2008)

Table 1: Significant determinants of sovereign credit ratings

Author	Countries	Period	Macroeconomic Indicators	Public Finance Indicators	Monetary and External Indicators	Qualitative Indicators
Afonso (2003)	81 countries	2001	GDP per capita, GDP growth, inflation	External debt		Level of economic development, default history
Afonso et al. (2007)	130 countries	1995-2005	GDP per capita, GDP growth	Government Debt, External Debt	External Reserves	Government effectiveness, EU accession, Sovereign default indicator
Bissoondoyal-Bheenick (2005)	95 countries	1995-1999	GNP per capita, Inflation	Government balance / GDP, debt / GDP	Foreign reserve, net exports / GDP	
Bissoondoyal-Bheenick et al. (2006)	78-94 countries	2001	GDP, Inflation		real interest rate, current account /GDP	Technological development
Borio and Packer (2004)	52 countries	1996-2003	GDP per capita, GDP growth, inflation			Corruption perception index, political risk score, default history
Butler and Fauver (2006)	93 countries	2004	GDP per capita, Inflation	Foreign debt / GDP		Legal environment, underdevelopment index, default history
Carlos Caceres and Segoviano Basurto (2010)	10 advanced countries	2005-2010	Global risk aversion, spillover coefficient,	debt/ GDP	Overall balance	
Cantor and Packer (1996)	49 countries	1991-1995	GDP per capita, GDP Growth, inflation	External debt		Economic development, default history
Catao and Sutton (2002)	25 emerging countries	1970-2001	Real GDP growth,	fiscal balance	debt services / export ratio, ratio of net international reserve / debt, US interest rate, REER	Policy volatility
Cosset and Roy (1991)	71 countries	1982-1987	GNP per capita, propensity to invest		Net foreign debt / exports	
Eichengreen and Mody (1998)	37 countries	1991-1996	GDP growth	Debt maturity, debt / GNP, deficit / GDP	debt services / exports, reserves / GNP, US treasury rate	
Eliasson (2002)	38 countries	1996-1999	GDP per capita, GDP growth, inflation	External debt	Current account / GDP, External debt / export	
Ferri et al. (1999)	17 countries	1989-1998	GDP growth	Budget deficit, external debt	Current account balance, foreign exchange reserve	development level
Ul Haque et al. (1996)	60 developing countries	1990-2006	GDP growth, inflation		Non gold foreign exchange reserves to imports ratio, Current account balance / GDP, international interest rates, export structure	Country's regional location

Hill et al. (2010)	129 countries	1990-2006	Change of GDP growth			Beginning of period watch status, direction of last rating, probabilities derived from rating level
Hu et al. (2002)	12 to 92 countries	1981-1998	Inflation	Debt / GNP	Reserves, debt services / exports	Past default, being a non industrial country
Min (1999)	11 emerging countries	1991-1995	CPI inflation rate	Total external debt / GDP	Issue spread, foreign reserve / GDP, debt service / GDP, imports growth rate, exports growth rate, net foreign assets, terms of trade, nominal exchange rate adjusted by the CPI, Issue size	Private issuer
Monfort and Mulder (2000)	20 emerging countries	1995-1999	Investment / GDP ratio, inflation		Export Growth, REER	Crisis indicator
Oliveira et al. (2012)	7 EMU countries	2000-2010	Inflation rate, state of business cycle	Public debt, government investment	Stock return, Interest rate, Current account balance	
Reisen and von Maltzan (1999)	14 countries	1988-1997			Government bond yields, stock market return, reserves, real exchange rate, terms of trade	Past rating
Remolona et al. (2008)	26 emerging	1990-2005	Nominal GDP, GDP per capita, inflation	External debt / GDP	Current account balance / GDP, currency mismatch	Default history, political risk

2.2. Background on the Solicitation

While a major part of credit rating can be attributed to uncontroversial factors such as macroeconomic, financial or institutional factors, there have been growing suspicions over the recent years concerning the potential existence of biases in the credit risk assessment process by CRAs. In particular, the payment of fees to CRAs by a limited number of countries - soliciting countries - in order to get a grade has raised the issue of conflict of interest between the CRA and credit issuers. In this section, we describe the theoretical background of solicitation as a factor explaining the level of sovereign credit ratings attributed by CRAs. We also discuss how the existence of conflict of interest can be tested. The tested hypothesis are summarized in Table 2.

Different arguments have been discussed in the literature to explain the fact that similar issuers may receive different ratings depending on whether ratings have been solicitated, i.e. conflict of interest hypothesis (H1). The first argument is related to the so-called "blackmail" strategy. As discussed in Mukhopadhyay (2006), the CRA may attempt to attract new customers and in turn increase its market coverage ratio by providing more generous ratings to soliciting countries (Pagano and Volpin, 2010; Bolton et al., 2012). This reason is particularly relevant for new entrants in the market as unsolicited credit ratings contributes to credibility building in the marketplace. Second, unwanted ratings represent a potential tool for financial blackmail. The hypothesis of "blackmail" (H2) or commercial purposes assumes that rating agencies will give a lower credit rating to issuers which do not solicit credit ratings in order to improve their incentive to pay fees (Poon and Firth, 2005). In the same vein, CRAs have also an incentive to provide good ratings to soliciting issuers to keep them as clients. This hypothesis seems to be rejected empirically for corporates. Gan (2004), Van Roy (2006) and Bannier et al. (2009) confirm that this hypothesis does not hold for corporates as the reputation remain crucial for rating agencies. They show that CRAs do not endanger their long term credibility for short term benefits.

Another argument lies in the reputation cost of the agency (H3). CRA-initiated credit rating represents a jeopardy for the credibility of the institution as the CRA is considered to have all information

about the issuer at its disposal. If the main risk for the CRA credibility is that a country flagged as safe eventually defaults, we expect better grades to be given to unsolicited credit ratings. Bannier et al. (2009) offer another view on the reputation cost hypothesis. They assume that CRAs are reluctant to provide good grades if they do not have an access to private information to reduce their risk of loosing credibility.

Table 2: Tested Hypothesis

Hypothesis	Definition	Expected effects
H1	Existence of a Difference of Rating Depending on the Solicitation	$\alpha \neq 0$
H2	Blackmail	$\alpha < 0$
H3	Cost of Reputation	$\alpha < or > 0$

Expectation of coefficients relative to the following model : $Rating_i = f(\gamma + \alpha * USOL_i + \sum_j \beta_j * (X_j)_i)$ with *Rating* representing the level of sovereign credit rating, $USOL$ a dummy variable which tatke the value 1 if the sovereign credit rating is not solicited and, X the control variables

3. Empirical approach

3.1. Data and variables

Our dependent variable is the mean of the rating of sovereign long term debt issued in foreign currency disclosed in 2013 by Standard & Poor's for each country available.[5] The distribution of sovereign credit ratings depending on the solicitation is presented in Table 3. Importantly Standard & Poor's rating's distribution is balanced even though countries with a lower level of credit ratings are less present.

Contrary to Moody's, Standard & Poor's and Fitch disclose information regarding the solicitation of sovereign credit ratings. As a matter of fact, governments imposed new regulations on CRAs in

[5]Data collected in March 2013 for Standard & Poor's are considered as the mean of 2012 ratings.

Table 3: Distribution of ratings by level and Solicitation.

Rating	Solicited/ Unsolicited	Occurrence	Frequency
			Standard & Poor's 2013
AAA	Solicited	7	7%
	Unsolicited	6	6%
AA	Solicited	9	9%
	Unsolicited	3	3%
A	Solicited	11	10%
	Unsolicited	0	0%
BBB	Solicited	19	18%
	Unsolicited	2	2%
BB	Solicited	21	20%
	Unsolicited	1	1%
B	Solicited	22	21%
	Unsolicited	2	2%
CCC	Solicited	1	1%
	Unsolicited	0	0%
SD	Solicited	1	1%
	Unsolicited	0	0%
TOTAL		105	
	solicited	91	87%
	unsolicited	14	13%

Data collected from public information provided on the website of Standard & Poor's.

order to increase the accountability of credit rating agencies.[6] A sound illustration of this is that since 2009, in Europe, CRAs are obliged to disclose whether credit ratings are solicited or not[7]. As a conse-

[6]For example, the establishment of the credit rating office at the SEC with the Dodd-Franck Act(2010), or the European Securities Market Authority in Europe (2009) to supervise CRAs.

[7]Staikouras (2012) provides a comprehensive discussion relative to the EU Regulation 1060/2009 relative to CRAs.

quence of this new regulation[8], investors know in theory about potential conflicts of interest. However due to delays in the implementation of the reform, data only became available in 2011. Moreover, the quality of this information depends on the CRA and its interpretation of the regulation. As a matter of fact, among the Big Three, Moody's does not provide information about solicitation and only discloses its access to private information rather than on solicitation itself. In other words, in case of Moody's countries providing private information with and without paying fees are registered under the same category. On the top of that, Moody's considers that this regulation only applies to European countries ratings. Thus only Standard & Poor's and Fitch sovereign credit ratings remain suitable for our analysis. However given that the market share of Fitch on sovereign bonds ratings is relatively small, we rather focus on Standard & Poor's data.

Sovereign ratings determinants detailed in Table 4 are obtained from the World Economic Outlook database (IMF) and from the World Bank for the Worldwide Governance Indicators. To take into account for both the long term perspective of CRAs and the availability of data for each country, we consider all variables as a mean of their three last observation, consistently with Poon (2003) for corporates and Afonso et al. (2011) for sovereigns[9,10]. The rationale behind this is that even though sovereign credit ratings are continuously monitored by CRAs, macroeconomic data of one given year are usually made available only during the following year. Therefore, any explanatory variables should be seen as representing the trend of the country over the three years of interest, namely 2007-2012.

In particular, the author presents the four new requirements relative to the disclosure of unsolicited ratings: "(a) CRAs should disclose their policies and procedures regarding unsolicited ratings; (b) unsolicited ratings should be clearly identified as such and should be distinguished from solicited ratings by appropriate means; (c) unsolicited ratings should include a statement regarding whether the rated entity or related third party participated in the credit rating process and whether the CRA had access to the accounts and other relevant internal documents of the rated entity or a related third party; and (d) CRAs are required to provide to the ESMA on an annual basis a list of their ratings during the year, including the proportion of unsolicited ratings among them"

[8] EU Regulation 1060/2009.

[9] If we denote X the quantitative macroeconomic variable, we have $\overline{X} = (X_{2012} + X_{2011} + X_{2010})/3$

[10] As robustness checks, we also provide results with a mean of five years

As an improvement of the literature, we also introduce a forward looking model, which takes into account forecasts for our macroeconomic variables. CRAs indeed claim to consider both the current situation of the issuer and its future perspectives. Data extracted from Worldwide Governance Indices are only available until 2011. Therefore, they are constructed as a mean of three years 2008-2011 to remain consistent with IMF data even if the scores' evolution remain low.redexplanation of this sentence

3.2. Methodology

Our paper aims at determining if solicitation has an impact on sovereign credit rating. In other words, we look at whether or not a difference between solicited and unsolicited ratings can emerge on the level of sovereign credit determinants.

In order to analyze the impact of solicitation as well as other determinants of sovereign credit rating, we carry out an ordered probit analysis (Poon, 2003; Gan, 2004) suitable for ordinal variables.[13]

Following ((Poon, 2003)) the model is as follows:

$$Y^* = \alpha * X_i + \sum_{j=1}^{4} \beta_j * (Z_j)_i + \epsilon_i \tag{1}$$

$$Y_i = \begin{cases} 1 \quad if \quad Y_i^* \leq \mu_0 \\ 2 \quad if \quad \mu_0 < Y_i^* \leq \mu_1 \\ 3 \quad if \quad \mu_1 < Y_i^* \leq \mu_2 \\ 4 \quad if \quad \mu_2 < Y_i^* \leq \mu_3 \\ 5 \quad if \quad \mu_3 < Y_i^* \leq \mu_4 \\ 6 \quad if \quad \mu_4 < Y_i^* \leq \mu_5 \\ 7 \quad if \quad Y_i^* > \mu_5 \end{cases} \tag{2}$$

Y^* is a latent continuous variable representing the creditworthiness evaluated by the CRA, Y_i holds for the rating of the country i, X_i for the dummy which takes the value 1 if the rating is unsolicited

[13] The transformation of credit ratings into ordinal variable is presented in appendix 6

Table 4: List of explanatory variable to test the difference of profile

Code of the Variable	Definition
Variables of Interest	
Rating	Ordinal variable representing the credit rating of the country in foreign currency.[11]
No Solicitation	Dummy variable which takes the value 1 if the country do not solicit a credit rating.
Economic Indicators	
GDP per capita	GDP per capita, current prices, dollars.
GDP growth	GDP growth in constant prices, expressed in percent change.
Inflation	Inflation, annual percentages change of average consumer prices.
Fiscal Indicators	
Budget Government Balance	General government balance.
Debt	General government gross debt expressed as a percentage of the GDP.
Monetary and External Indicators	
Current Account Balance	Current Account Balance, percent of GDP.
Rating Difference	Dummy variable, takes the value 1 if the country has a better rating in its own currency.[12]
Qualitative Indicators	
Default Period	Dummy variable which takes the value 1 if a country experienced at least one default period since 1950
Violence	Score value of the political stability and absence of violence index of the worldwide governance indicator (World Bank)
Voice Accountability	Score value of the voice and accountability index of the worldwide governance indicator (World Bank)
Government Efficiency	Score value of the government effectiveness index of the worldwide governance indicator (World Bank)
Regulatory Quality	Score value of the regulatory quality index of the worldwide governance indicator (World Bank)
Rule of Law	Score value of the rule of law index of the worldwide governance indicator (World Bank)
Control of Corruption	Score value of the control of corruption index of the worldwide governance indicator (World Bank)

Data extracted from the World Economic Outlook, 2012 and from the World Bank (WGI)

and 0 otherwise. Z_j is a vector of other determinants presented in Table 4.

4. Results and robustness checks

4.1. Results

Table 6 synthetizes the results. Models 1 and 3 are the parsimonious model. They provide an analysis of the determinants of the sovereign credit rating without taking into account the solicitation. Consistently with the literature, the GDP per head, the level of debt and the current account are found to be significant, meaning that a country in a good situation (i.e. a positive current account balance, a high level of GDP per head) exhibits a higher rating whereas a higher level of debt is associated with a lower rating. The sign of the rating difference is counter-intuitive but significant at a lower significance level, as we expect a negative sign, meaning that a currency risk should deteriorate the credit rating valuation in foreign currency. The model 3 is slightly different from the model 1 as it introduces qualitative variables relative the the governance quality of the country. The linear correlation between these scores and the GDP per head is high (Table 8), therefore to avoid the omitted variable bias, we decide to present both models even if the results may be subject to collinearity issues when qualitative variables are introduced. Nevertheless, despite the significance of the GDP per head, it appears that it does not significantly affect our results. Among the four qualitative variable, the regulatory quality and the government efficiency are of a particular interest for our analysis as they remain significant and affect positively the sovereign credit rating.

The objective of our analysis is to examine the determinants of sovereign credit ratings and highlight the behavior of CRAs relative to solicitation. The dummy variable "No Solicitation" is introduced in the model to determine the impact of solicitation. The variable takes the value 1 if the rating is unsolicited and 0 otherwise. If the coefficient relative to the absence of solicitation is significant, it will bring out the existence of a premium between solicited and unsolicited sovereign credit ratings. Its value would be negative if a CRA attributed a premium to contractor countries whereas a positive value would indicate that unsoliciting countries have a better grade than soliciting countries. Models 2 and 4 present the value of this coefficient. The positive sign of the coefficient relative to the absence of solicitation means that countries which do not solicit sovereign credit ratings deserve better ratings

than country which do not. These results are opposite to those found for corporates for which a negative premium is found. Our analysis exhibit a significant and positive premium for countries which do not initiate credit ratings. In other words, this result advocates for the rejection of the blackmail theory suggested for corporates and tends to confirm our intuition about the reputation cost.

1. Countries soliciting sovereign credit ratings deserve a better rating that countries which do not,
2. We confirm the rejection of the "blackmail" hypothesis for corporates,
3. We confirm that CRAs remain more conservative in the attribution of solicited credit ratings due to reputation costs.[14]

Often the question of forward looking variables has been raised by the literature ((Bissoondoyal-Bheenick, 2005)) as a potential explanation for the level of sovereign credit ratings. The authors consider for example that GDP per head and inflation have a major impact on credit ratings level because quantitative indicators are mainly backward looking and do not reflect the ability for the government to pay back its debt. The Table 5 presents the results of a forward looking analysis of the determinants of the sovereign credit rating. Contrary to previous results and numerous papers which take into account only backward looking variable, this model deals with forward looking variables. In fact, the mean of the 3 following years forecast of each quantitative variable is taken into account to determine the level of sovereign credit rating.

The results presented in Table 5 confirms the results estimated with backward looking variables. Countries which do not solicit credit rating have a higher rating than countries which solicit (Model 2 and 4). Results are almost similar if we exclude highly indebted countries and the significance of the absence of solicitation at a level of 11%.

[14] As our study could be subject to the definition of our variables and particularly to the window considered, we provide in appendix 10 results with a 5 year window instead of a 3 year ones

Table 5: Results of the forward looking ordered probit estimation for sovereign credit ratings of Standard & Poor's

	Model 1	Model 2	Model 3	Model 4
Indicator of the Absence of Solicitation				
No Solicitation	-	0.708*	-	0.928**
Economic Indicators				
GDP per capita (/10000)	0.694***	0.67***	0.30**	0.24*
GDP growth	-0.008	-0.011	0.146*	0.151*
Inflation	-0.078*	-0.085**	0.005	-0.002
Fiscal Indicators				
Budget Government Balance	-0.040	-0.034	0.053	0.062
Debt	-0.011*	-0.012***	-0.010**	-0.010**
Monetary and External Indicators				
Current Account Balance	0.034	0.034	0.044**	0.047*
Rating Difference	0.516*	0.528*	0.060	0.070
Qualitative Indicators				
Default Period	-0.238	-0.249	0.092	0.087
Violence	-	-	-0.166	-0.078
Voice Accountability	-	-	-0.211	-0.323
Government Efficiency	-	-	1.365**	1.349**
Regulatory Quality	-	-	1.020**	1.173**
Rule of Law	-	-	-0.089	-0.285
Control of Corruption	-	-	-0.108	0.074
Pseudo R2	0.305	0.315	0.410	0.425

105 observations

Results of the ordered probit regression with expanatory variable as a mean of the expectations of three years ahead.

***,**,* representing the significance level at 1%,5% and 10% repsectively

Table 6: Results 3 years

	Model 1	Model 2	Model 3	Model 4
Indicator of the Absence of Solicitation				
No Solicitation	-	0.650*	-	0.892**
Economic Indicators				
GDP per capita (/10000)	0.68***	0.65***	0.18	0.12
GDP growth	0.001	-0.011	0.094*	0.079
Inflation	-0.026	-0.028	0.019	0.016
Fiscal Indicators				
Budget Government Balance	-0.029	-0.025	0.002	0.008
Debt	-0.010**	-0.011**	-0.009**	-0.010**
Monetary and External Indicators				
Current Account Balance	0.037*	0.036*	0.068***	0.072***
Rating Difference	0.574*	0.584*	0.007	0.021
Qualitative Indicators				
Default Period	-0.275	-0.282	0.069	0.073
Violence	-	-	-0.153	-0.080
Voice Accountability	-	-	-0.189	-0.299
Government Efficiency	-	-	1.315**	1.278**
Regulatory Quality	-	-	1.152**	1.281***
Rule of Law	-	-	-0.260	-0.436
Control of Corruption	-	-	0.121	0.319
Pseudo R2	0.289	0.298	0.411	0.425

105 observations

Results of the ordered probit regression with expanatory variable as a mean of the three previous years.

***,**,* representing the significance level at 1%,5% and 10% repsectively

4.2. Robustness checks

Ordered probit estimates can be biased in the presence of outliers. In our context, an outlier would be either a country with an extremely low level of debt or a country experiencing an unsustainable level of debt. As the level of debt is bounded by zero on one side, we consider only outliers experiencing a high level of debt. Robustness checks in Table 7 are obtained by removing Heavily Indebted Poor

Countries (HIPC) of the sample.[15] Interestingly, our results and conclusions remain unchanged. The GDP per capita, the level of debt, the current account balance and the regulatory quality are found to be significant determinants of the level of sovereign credit rating. Conversely to previous results, the government efficiency does not appear as significant for our truncated sample. The coefficient relative to solicitation remain positive and significant for the model 4 strengthening our previous results.

Table 7: Results except Heavily Indebted Countries

	Model 1	Model 2	Model 3	Model 4
Indicator of the Absence of Solicitation				
No Solicitation	-	0.58	-	0.783**
Economic Indicators				
GDP per capita (/10000)	0.65***	0.063***	0.17	0.12
GDP growth	0.022	0.009	0.144**	0.126**
Inflation	-0.032	-0.033	0.020	0.017
Fiscal Indicators				
Budget Government Balance	-0.035	-0.030	-0.008	-0.002
Debt	-0.011**	-0.011***	-0.009*	-0.009**
Monetary and External Indicators				
Current Account Balance	0.033	0.034	0.066***	0.069***
Rating Difference	0.447	0.463	0.034	0.044
Qualitative Indicators				
Default Period	-0.315	-0.323	-0.089	-0.027
Violence	-	-	-0.149	-0.252
Voice Accountability	-	-	0.952	0.928
Government Efficiency	-	-	1.290	1.397
Regulatory Quality	-	-	0.002***	-0.168***
Rule of Law	-	-	0.051	0.236
Control of Corruption	-	-	-0.013	0.006

95 observations

Results of the ordered probit regression with expanatory variable as a mean of the three previous years.

Highly indebted countries are removed from the sample

***,**,* representing the significance level at 1%,5% and 10% repsectively.

[15] These countries experience an unsustainable level of debt and are eligible to repayment facilities from the World Bank and the IMF. In our sample, 10 countries are registered as HIPC

5. Conclusion

CRAs are under severe criticisms since the burst of the subprime crisis. The implementation of new regulations both in the USA and Europe to increase the transparency of CRAs allows us to gauge the importance of conflicts of interest in attributing sovereign credit ratings. Our analysis contributes to the literature on the determinants of sovereign credit rating and reveals the importance of solicitation. The significance of the absence of solicitation reveals the existence of conflicts of interest in the attribution of sovereign credit ratings. However, conversely to corporate, the absence of solicitation has a positive impact on the grade attributed by the CRA. These results advocate for the rejection of the blackmail hypothesis meaning that a CRA would not attribute a lower rating to unsoliciting countries. However it highlights the particular importance of sovereign credit ratings for the credibility of CRAs. It confirms the hypothesis that CRAs remain preservative in attributing solicited sovereign credit rating to reduce the probability of flagging a country as safe with all the information available that would finally default.

6. Appendix

Correlation between the GDPH and qualitative variables

Table 8: Correlation between GDPH and qualitative variables

	GDP per capita	Voice Accountability	Violence	Government Efficiency	Regulatory Quality	Rule of Law	Control of Corruption
GDP per capita	1	0.519	0.612	0.761	0.705	0.776	0.794
Voice Accountability	0.519	1	0.614	0.741	0.743	0.743	0.739
Violence	0.612	0.614	1	0.718	0.652	0.763	0.766
Government Efficiency	0.761	0.741	0.718	1	0.931	0.961	0.943
Regulatory Quality	0.705	0.743	0.652	0.931	1	0.917	0.879
Rule of Law	0.776	0.743	0.763	0.961	0.917	1	0.955
Control of Corruption	0.794	0.739	0.766	0.943	0.879	0.955	1

Rating correspondance for the ordered probit model

Table 9: Rating correspondance for the ordered probit model

Rating	Ordinal Value
AAA	7
AA	6
A	5
BBB	4
BB	3
B	2
CCC or Below	1

Table 10: Results 5 years

	Model 1	Model2	Model3	Model4
Indicator of the Absence of Solicitation				
No Solicitation	-	0.627*		0.953**
Economic Indicators				
GDP per capita (/10000)	0.64***	0.61***	0.14	0.08
GDP growth	-0.035	-0.041	0.056	0.045
Inflation	-0.042	-0.046	0.010	0.006
Fiscal Indicators				
Budget Government Balance	-0.046	-0.038	0.005	0.015
Debt	-0.011**	-0.011***	-0.010**	-0.010**
Monetary and External Indicators				
Current Account Balance	0.059***	0.057***	0.077***	0.078***
Rating Difference	0.551*	0.554*	-0.013	-0.015
Qualitative Indicators				
Default Period	-0.244	-0.252	0.097	0.102
Violence	-	-	-0.122	-0.052
Voice Accountability	-	-	-0.197	-0.312
Government Efficiency	-	-	1.331**	1.303**
Regulatory Quality	-	-	1.134**	1.276***
Rule of Law	-	-	-0.483	-0.647
Control of Corruption	-	-	0.332	0.517
Pseudo R2	0.301	0.309	0.413	0.428

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