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Shadow Sovereign Ratings

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Sovereign ratings are a necessary condition for countries to fully access international capital. Even if the sovereign government is not issuing bonds, the sovereign rating often acts as a "ceiling" for the private sector and can influence its international capital market access. However, 58 developing countries are still not rated by Standard & Poor's, Moody's, and Fitch, the three international credit rating agencies. This premise presents an exercise to predict "shadow" sovereign ratings to estimate where unrated countries would lie on the credit spectrum if they were rated. Contrary to popular perception, unrated countries are not necessarily at the bottom of the rating spectrum.

Introduction

Sovereign ratings not only are important for attracting private capital flows, but also act as widely available and internationally comparable indicators of a country's fiscal performance. A country's sovereign rating provides a basis for international investors and bondholders to assess the risks of a country's ability to honor its public debt obligations (Beers and Cavanaugh 2005; Lehmann 2004; Truglia and Cailleteau 2006). Assessments of sovereign creditworthiness are also important for other types of resource flows, including official aid (for example, performance-based aid allocation by the U.S. Millennium Challenge Account) and concessional loans provided by multilateral and bilateral donors.

Even when the sovereign government is not issuing bonds, the sovereign rating often acts as a "ceiling" for the foreign currency rating of bonds issued by firms and banks located in the country (Borensztein, Cowan, and Valenzuela 2007). Therefore, the country rating acts as a benchmark for the international capital market activities of the private sector.

However, as of mid-2011, 58 developing countries are not rated by Standard & Poor's, Moody's, and Fitch, the three international rating agencies. Another 36 countries have had the same assigned rating since early 2009. Countries in the first group need their creditworthiness evaluated to improve their access to market-based international financing. Countries in the latter group need to have their current sovereign rating assessed to determine whether that rating is justified by current macroeconomic fundamentals or whether changes in the country's policy or institutional variables might suggest an upgrade (or downgrade, as appropriate) of the existing rating.

This premise presents an exercise to predict "shadow" sovereign ratings to estimate where unrated countries would lie on the credit spectrum if they were rated.[1]

A Brief History of Sovereign Credit Ratings

Sovereign credit ratings have existed for nearly a century. Two of the major rating agencies—Standard & Poor's and Moody's—started rating sovereign Yankee bonds in the early 20th century. By 1929, 21 countries were rated by Poor's Publishing, the predecessor to Standard & Poor's, including several of today's emerging markets, such as Argentina, Colombia, and Uruguay (Bhatia 2002). Moody's started rating debt instruments in 1919, and within the next decade, it had rated bonds issued by about 50 governments (Cantor and Packer 1996). However, demand for ratings declined during the Great Depression, and most ratings were suspended following World War II. Rating activity for sovereigns resumed in the 1970s but at a significantly slower pace until the 1980s. In 1980, eight high-income countries were rated by at least one of the three leading rating agencies. By the late 1980s, almost all the high-income Organisation for Economic Co-operation and Development countries had been rated.

Sovereign credit ratings for developing countries (as currently defined by the World Bank) began in the late 1980s after the sovereign debt crises earlier that decade. The number of rated developing countries increased significantly during the 1990s emerging market phenomena. By April 2011, 135 countries—45 high-income and 90 developing countries—were rated by at least one of the three agencies. Furthermore, sovereign ratings issued by different agencies tend to be highly correlated. The bivariate correlation coefficient between the ratings of the three agencies ranges from 0.97 to 0.99. For most developing countries, the ratings are usually within one to two notches of one another.

The Case for Predicting Shadow Ratings for Unrated Developing Countries

Most of the unrated countries need capital from international markets. Yet without a credit rating, those countries have difficulty accessing international bond markets and resort to costly relationship-based borrowing from commercial banks or to sales of equity to foreign direct investors. This scenario is especially true for subsovereign entities and private companies for which the sovereign rating acts as a ceiling (Canuto and Liu 2010a, 2010b). Without a sovereign rating, such borrowers tend to be cut off from international credit markets. Thus, it is in the interest of all countries to obtain a credit rating even if the sovereign government does not need to borrow.

Why are so many countries not rated in the first place? Several factors influence a country's reluctance or inability to get rated. Countries are constantly reminded of the risks of currency and term mismatch associated with market-based foreign currency debt, as well as the possibility of sudden reversal of investor sentiment. The information required for the commercial rating process can be complex and not readily available in many countries. The institutional and legal environment that governs property rights and the sale of securities may be absent or weak, which prompts reluctance on the part of politicians to be publicly judged by the rating analysts. Some countries find it discouraging to request a rating, pay a fee for the rating, and then have no command over the final outcome. Basel capital adequacy regulations that assign a lower risk weight (100 percent) to unrated entities than to those rated below BB− (150 percent) may also discourage borrowing entities from being rated.

A Predictive Model for Sovereign Ratings

Many researchers have found that ratings by the major agencies are largely explained by a handful of macroeconomic variables (Cantor and Packer 1996; Canuto, dos Santos and de Sá Porto 2004; Lee 1993; Ratha, De, and Mohapatra 2011; Rowland 2005). Ferri, Liu, and Stiglitz (1999) and Mora (2006) used similar models to examine whether ratings were procyclical during the Asian crisis by comparing predicted with actual ratings. Related literature has found that a small set of variables explains the likelihood of debt distress and defaults (Kraay and Nehru 2006; Reinhart, Rogoff, and Savastano 2003).[2]

The first step in the empirical analysis is to convert the letter long-term foreign currency rating from the three major agencies to a numerical equivalent (Bhatia 2002; Canuto, dos Santos, and de Sá Porto 2004). In the scale used for this exercise (see table 1), 1 denotes the highest rating (corresponding to AAA for Standard & Poor's and Fitch, Aaa for Moody's) and 21 denotes the lowest rating (or C for all three agencies). Cases of sovereign or selective default are excluded in this regression analysis because assigning a specific numeric rating to such extreme credit events is difficult. Although default or selective default appears to be just another step down the road of getting a rating downgrade, assigning a specific value to such an event would risk ignoring the degree of distress (for example, a temporary liquidity crisis versus a systemic crisis).

The next step is to estimate the numeric equivalent of sovereign ratings for the rated developing countries as a function of macroeconomic variables, rule of law, debt and international reserves, and macroeconomic volatility (as identified in the literature). A linear regression model of the data is presented in the following equation:

$$\begin{aligned}\text{Sovereign rating} = {} & \alpha + \beta_1(\text{log of GNI per capita}) + \beta_2(\text{GDP growth rate}) \\ & + \beta_3(\text{Debt/Exports}) + \beta_4[\text{Reserves/(Imports + Short-term debt)}] \\ & + \beta_5(\text{Growth volatility}) + \beta_6(\text{Inflation}) + \beta_7(\text{Rule of law}) + \text{error} \qquad (1)\end{aligned}$$

Data for most of the right-hand variables are from the World Bank's World Development Indicators database and

Table 1. Sovereign Ratings: Conversion from Letter to Numeric Scale

	Standard & Poor's	Fitch	Moody's	Numeric grade
Investment grade				
Highest credit quality	AAA	AAA	Aaa	1
Very high credit quality	AA+	AA+	Aa1	2
	AA	AA	Aa2	3
	AA–	AA–	Aa3	4
High credit quality	A+	A+	A1	5
	A	A	A2	6
	A–	A–	A3	7
Good credit quality	BBB+	BBB+	Baa1	8
	BBB	BBB	Baa2	9
	BBB–	BBB–	Baa3	10
Speculative grade				
Speculative	BB+	BB+	Ba1	11
	BB	BB	Ba2	12
	BB–	BB–	Ba3	13
Highly speculative	B+	B+	B1	14
	B	B	B2	15
	B–	B–	B3	16
High default risk	CCC+	CCC+	Caa1	17
	CCC	CCC	Caa2	18
	CCC–	CCC–	Caa3	19
Very high default risk	CC	CC	Ca	20
	C	C	C	21

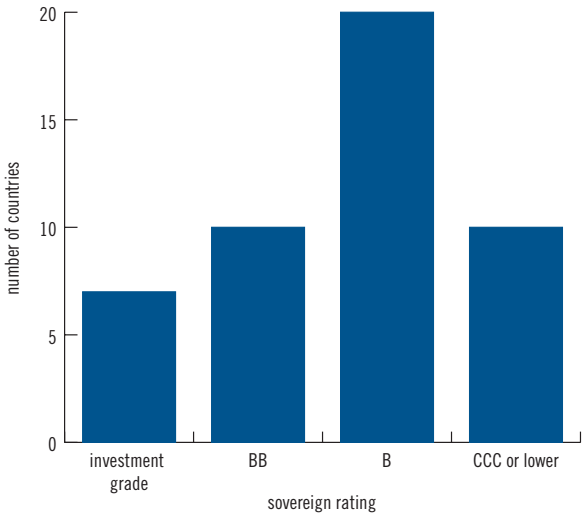
Sources: Standard & Poor's, Moody's Investors Service, and Fitch Ratings.

the International Monetary Fund's World Economic Outlook database, which are now publicly available. Data on short- and long-term claims are collected from the Bank of International Settlements. The rule of law variable is taken from a widely used dataset produced and updated by Kaufmann, Kraay, and Mastruzzi (2009). The signs of the explanatory variables are in the expected direction and are significant at the 10 percent level or better (see Ratha, De, and Mohapatra 2011). All the variables together explain about 80 percent of the variation in ratings for the regression sample.[3]

Shadow Ratings for Unrated Developing Countries

This exercise uses the benchmark model to predict ratings for the unrated developing countries. The results are presented in the annex. Strikingly, the predicted ratings for the unrated countries do not all lie at the bottom end of the rating spectrum but are spread over a wide range (figure 1).

Figure 1. Distribution of Predicted Ratings



Source: Authors' calculations.
Note: The distribution is based on the lowest predicted rating.

Table 2. Comparison of Actual and Predicted Ratings for Ratings Issued after January 2007

Country	Sovereign rating	Date established	Shadow rating (April 2011)
Angola	B+	May 2010	B to B+
Bangladesh	BB– to BB	April 2010	B+
Belarus	B	March 2011	B+ to BB–
Gabon	BB–	November 2007	BB to BB+
Libya	BB	March 2011	BB+ or lower
Rwanda	B	August 2010	B to B+
Zambia	B+	March 2011	BB

Sources: Authors' calculations, Fitch, Moody's, and Standard and Poor's.

Of 47 unrated countries from an original 55 unrated countries for which Ratha, De, and Mohapatra (2011) generated predicted ratings, 7 countries are likely to be investment grade, 10 are likely to be in the BB category, 20 in the B category, and 10 in the CCC or lower category. The countries just below the investment grade but at or above CCC are comparable to many emerging market countries with regular market access. For example, in our analysis, Swaziland's shadow rating from Standard & Poor's ranges from B+ to BB, which puts the country in a similar bracket as Indonesia. Several other unrated developing countries (for example, Algeria, Bhutan, Djibouti, Equatorial Guinea, Maldives, and the Syrian Arab Republic) have shadow ratings in the B category or above.

While the predicted or shadow rating indicates the likelihood of default on foreign currency debt obligations of the sovereign, it is not a predictor of whether the country will be successful if it were to issue an international bond. This is particularly true for small countries where volatility of economic growth and government revenue can be too high to render them unable to access private capital markets.[4]

Table 2 presents the shadow ratings for several countries that were rated since the estimates of Ratha, De, and Mohapatra (2011) in early 2007. The predicted ratings are within one notch of the actual rating range for five of the seven countries. The difference between the predicted and actual ratings likely reflects improvement (or deterioration) in macroeconomic fundamentals during the intervening period.

The model-based shadow ratings can provide a benchmark for evaluating unrated countries or rated countries that have not been rated for some time and might have improved sufficiently to deserve an upgrade (or changed enough to require a downgrade). The shadow ratings also suggest a group of indicators that developing countries can improve to achieve a higher sovereign rating.

The international donor community can play a role in helping developing countries to obtain ratings. Such policy interventions have precedents. The United Nations Development Programme partnered with Standard & Poor's to rate eight African countries during 2003–06 (Standard & Poor's 2006), several of which have since accessed international capital markets to raise financing at a lower cost than the domestic borrowing cost.

Knowing the shadow ratings of unrated countries can also be helpful to bilateral and multilateral donors interested in setting up guarantees and other financial structures to reduce project risks and to mobilize private financing. One such innovative financing instrument that is being discussed is diaspora bonds to tap into the considerable wealth of the diaspora of developing countries (Okonjo-Iweala and Ratha 2011). These mechanisms can complement existing efforts to improve aid effectiveness.

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Annex: Shadow Ratings for Unrated Countries, April 2011

Country	Shadow rating (April 2011)	Rated countries in a similar range
Algeria	BB to BB+	Indonesia, Turkey
Bhutan	BB– to BB	Bangladesh; Venezuela, RB
Burundi	C or lower	Gambia, The; Malawi
Central African Republic	CCC+ to B–	Belize, Zambia
Chad	CC to B	Belize, Ecuador
Comoros	CCC– to CCC+	Gambia, The; Malawi
Congo, Dem. Rep.	CCC– to CCC	Gambia, The; Malawi
Congo, Rep.	B+ to BB–	Guatemala, Uganda
Côte d'Ivoire	B– or lower	Ecuador, Pakistan
Djibouti	B+ to BB–	Guatemala, Uganda
Dominica	BB+ to BBB	Costa Rica, Croatia
Equatorial Guinea	B+ to BB	Dominican Republic, Paraguay
Eritrea	CCC– to CCC	Gambia, The; Malawi
Ethiopia	B– to B	Jamaica, Mali
Guinea	C to CCC–	Gambia, The; Malawi
Guinea-Bissau	CCC+ to B	Belize, Zambia
Guyana	B+ to BB–	Guatemala, Indonesia
Haiti	B– to B	Mali, Jamaica
Iraq	B	Honduras, Ghana, Burkina Faso
Kiribati*	A+	China
Kyrgyz Republic	CCC+ to B–	Belize, Zambia
Lao PDR	B– to B+	Argentina, Belarus
Liberia	CCC+ to B	Belize, Zambia
Maldives	B+ to BB+	Latvia, Senegal
Marshall Islands*	B– to B+	Jamaica, Mali
Mauritania	B– to B	Jamaica, Mali
Myanmar	CCC+ to B–	Belize, Zambia
Nepal	CCC+	Gambia, The; Malawi
Niger	B– to B+	Argentina, Belarus
Samoa	BB+ to BBB	Costa Rica, Croatia
São Tomé and Príncipe	CCC or lower	Gambia, The; Malawi
Sierra Leone	CCC+ to B–	Belize, Zambia
Solomon Islands*	B– to B+	Jamaica, Mali
St. Kitts and Nevis*	BBB+ to A	Brazil, Panama
St. Lucia	BBB– to A–	Botswana, Panama
St. Vincent and the Grenadines	BB+ to BBB	Costa Rica, Croatia
Sudan	CCC– to CCC+	Gambia, The; Malawi
Swaziland	B+ to BB	Dominican Republic, Indonesia
Syrian Arab Republic	BB– to BB+	Uruguay, Vietnam
Tajikistan	C to CCC	Gambia, The; Malawi
Tanzania	B+	Albania, Angola, Kenya
Togo	B– to B+	Argentina, Belarus
Tonga*	B+ to BB+	Colombia, Indonesia
Uzbekistan	B to B+	Bolivia, Lebanon
Vanuatu	BBB– to BBB+	Kazakhstan, Mexico
Yemen, Rep.	B– to B	Jamaica
Zimbabwe	CC to CCC–	Gambia, The; Malawi

Source: Updated from Ratha, De, and Mohapatra 2011.
Note: Shadow ratings for unrated countries marked with an asterisk (*) are from Ratha, De, and Mohapatra (2011). The model-based ratings should be treated as indicative; they are clearly not a substitute for the broader, deeper analysis and qualitative judgment employed by experienced rating analysts. The predicted ratings range is based on predictions for the benchmark models for Standard & Poor's, Moody's, and Fitch. Forecasts of explanatory variables for 2011 (as available in April 2011) were used to predict ratings for 2011. Predicted ratings for rated countries were also generated and are available upon request.

Notes

1. The exercise follows an econometric model developed by Ratha, De, and Mohapatra (2011) that explains ratings assigned to developing countries by the three major rating agencies. The shadow ratings are updated to the current year using International Monetary Fund and World Bank forecasts of explanatory variables for 2011. For a previous econometric exercise using fixed-effects methods, see Canuto, dos Santos, and de Sá Porto (2004).
2. Because most of the unrated countries (for which this exercise predicts ratings) are also low-income countries, this exercise has some similarities with that of Kraay and Nehru (2006). However, this exercise uses a continuous numeric scale for ratings and excludes cases of default in the regressions, unlike the 0–1 dummy for debt distress used by Kraay and Nehru.
3. Ratha, De, and Mohapatra (2011) test the predictive power of this model using "within-sample" prediction. This exercise also exploits the high correlation across ratings assigned by the three agencies to test whether the predicted rating for one agency is similar to the actual ratings by other agencies.
4. The shadow ratings for some small economies seem unexpectedly high. Kiribati's A+ rating is likely due to extraordinarily high reserves accumulated from earlier phosphate mining revenues in a Revenue Equalization Reserve Fund. The high shadow ratings of Samoa and Vanuatu reflect high levels of international reserves which in turn depend on the continued availability of official aid.

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