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The Home Bias in Sovereign Ratings

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Abstract: Credit rating agencies are frequently criticized for producing sovereign ratings that do not accurately reflect the economic and political fundamentals of rated countries. This article discusses how the home country of rating agencies could affect rating decisions as a result of political economy influences and culture. Using data from nine agencies based in six countries, we investigate empirically if there is systematic evidence for a home bias in sovereign ratings. Specifically, we use dyadic panel data to test whether, all else being equal, agencies assign better ratings to their home countries, as well as to countries economically, politically and culturally aligned with them. While most of the variation in ratings is explained by the fundamentals of rated countries, our results provide empirical support for the existence of a home bias in sovereign ratings. We find that the bias becomes more accentuated following the onset of the Global Financial Crisis and appears to be driven by economic and cultural ties, not geopolitics.

JEL codes: G24, F34, H63, F65, G15

Key words: Sovereign debt ratings, credit rating agencies, home bias, international finance, cultural distance, bank exposure

"The assessments by Standard & Poor's appear dictated more by newspaper articles than reality and appear to be tainted by political considerations."

Italy's Prime Minister Silvio Berlusconi after his country was downgraded to "A" in September 2011

"If I ever dictated anything, it must have been what S&P had to say about domestic Italian economic policy."

Italy's Prime Minister Mario Monti after his country was downgraded to "BBB" in January 2012

1.   INTRODUCTION

Do credit rating agencies objectively assess the default risk of sovereigns? The economic function of rating agencies is to reduce the information gap between potential borrowers and lenders and thereby increase the efficiency of financial markets. The accuracy of sovereign ratings is crucial for the global economy as rating outcomes affect the borrowing costs of states (e.g., Afonso et al. 2012), set de-facto ceilings to corporate ratings (e.g., Borensztein et al. 2013) and might trigger financial crises (e.g., Ferri et al. 1999). Ideally, competition and concerns over reputation should incentivize agencies to publish accurate and unbiased ratings. However, many scholars and policymakers around the world blame credit rating agencies for unreliable practices, unfortunate timing and misjudgments. Russia's president Vladimir Putin and Germany's finance minister Wolfgang Schäuble speak of "abuses" and "abusive behavio[u]r," Turkey's prime minister Recep Tayyip Erdoğan makes claims of "unfair" decisions, and José Manuel Barroso, president of the European commission, directly accuses the agencies of a "bias […] when it comes to the evaluation of specific issues of Europe."[1]

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[1] See media reports by *AFP* (http://www.google.com/hostednews/afp/article/ALeqM5jj73UJWw-IDUL1HU5WqDhvPBfqcA?hl=en; accessed 12 September 2013), *The Express Tribune* (http://tribune.com.pk/story/211912/breaking-the-oligopoly-ratings-agencies-under-attack-amid-debt-crisis/; accessed 13 June 2013), *Today's Zaman* (http://www.todayszaman.com/news-280044-.html; accessed 13 June 2013), and *BBC News* (http://www.bbc.co.uk/news/business-14043293; accessed 12 September 2013).

The common argument behind these accusations of biased ratings is that factors other than the economic and political fundamentals of recipient countries influence rating outcomes. Many of these concerns about biased sovereign ratings revolve around the role of the credit rating agency's "home country." We define "home country" as the country where the agency's headquarters is located or, alternatively, as the country of origin of its major shareholders. Accordingly, we refer to a "home bias" in sovereign ratings if a rating agency gives preferential treatment to its home country and to countries with close economic, political and cultural ties to it. Thus, in our definition a home bias is a deviation of the actual rating level from what would be predicted solely by the sovereign's economic and political fundamentals. Our line of reasoning builds on and adds to the literature on a home bias in investment decisions, bank lending behavior, and trade (e.g., French and Poterba 1991; McCallum 1995; Tesar and Werner 1995; Wolf 2000; Grinblatt and Keloharju 2001).

A simple comparison of the sovereign ratings issued by the China-based and Chinese-owned agency Dagong and the big three U.S.-based agencies (Fitch, Moody's and Standard & Poor's) serves as an illustrative example why ratings might be perceived as influenced by the agency's home country. On the one hand, Dagong assigns higher ratings to the Chinese territories Hong Kong and Macao as well as to the group of BRIC countries, including China itself. On the other hand, Dagong assigns lower ratings to many Western economies than the big three U.S.-based agencies.[2] The existing literature does not explain these stark differences across agencies. Up until now, scholarship has largely explained sovereign ratings by economic and political characteristics of rated countries (e.g., Cantor and Packer 1996; Archer et al. 2007; Hill et al. 2010; Biglaiser and Staats 2012). However, systematic research on the role of the home country of credit rating agencies in rating decisions is still lacking – despite the increased attention this topic has received in debates following the Global Financial Crisis. Our article fills this gap in the literature.

Why would a rating agency's home country matter for sovereign ratings? We identify steps in the rating process where political economy influences and culture could affect rating decisions. Specifically, the rating process might be subject to political pressure, the "lobbying" activities of private actors and the self-interests of agency staff. Moreover, cultural

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[2] Note that Dagong and S&P provide both an "AAA" rating to Hong Kong. Comparison as of June 28, 2013. Data from Bloomberg and Fitch.

distance between the home country of the agency and the rated country could affect ratings as well. For example, the economic situation of a country that is culturally closer to the home country of the rating agency might appear more positive to analysts than an objective assessment would justify. Thus, our work also contributes to the literature on the effect of cultural biases (Grinblatt and Keloharju 2001; Guiso et al. 2006, 2009; Giannetti and Yafeh 2012).

Is there systematic empirical evidence of a home bias in sovereign ratings? We examine whether the home country's economic and geopolitical interests in rated countries as well as cultural distance to rated countries are related to rating outcomes. For this purpose, we use monthly dyadic panel data on sovereign ratings issued by nine rating agencies based in six countries between January 1990 and June 2013. The data have been obtained directly from the rating agencies or accessed via Bloomberg and cover up to 143 sovereigns. Specifically, we test whether, conditional on the economic and political fundamentals of rated countries, credit rating agencies assign better ratings to their home country as well as to countries that are geopolitically and economically aligned with, or culturally similar to it. Our results show empirical evidence of a home bias in sovereign ratings, which becomes more pronounced following the onset of the Global Financial Crisis in September 2008. The extent to and the areas in which agencies are prone to a home bias differ across agencies. Specifically, we find that four agencies provide significantly better ratings to their home country than what would be justified by their assessments of the economic and political fundamentals of other sovereigns. Moreover, five agencies assign significantly better ratings to those countries to which home-country banks have a higher relative risk exposure, and six agencies are to some degree affected by cultural distance as measured by linguistic differences and common language. Overall, the home bias in sovereign ratings appears to be driven by economic and cultural ties, not geopolitics.

The article proceeds as follows. In Section 2, we introduce the credit rating agencies and compare their key characteristics. Section 3 summarizes the existing literature on sovereign ratings and highlights the gaps in the literature that this article addresses. In Section 4, we discuss the mechanisms that could lead to a home bias in sovereign ratings and present our hypotheses. Section 5 introduces the data and econometric methods. In Section 6, we put our hypotheses to an empirical test and present our results. Finally, Section 7 summarizes, concludes, and outlines policy implications.

2.   THE AGENCIES

Credit rating agencies are private companies that assess the default risk of bonds of all types. There are about 150 agencies operating in the rating business worldwide (White 2010; De Haan and Amtenbrink 2011). Of these, most agencies are active in a narrow national or regional market and focus solely on corporate ratings. Only a small number of agencies issue sovereign ratings. We were able to identify nine agencies that provide sovereign ratings for at least 25 sovereigns: *Capital Intelligence* (CI), *Dagong Global*, *Dominion Bond Rating Services* (DBRS), *Feri EuroRating Services*, *Fitch Ratings*, *Japan Credit Rating Agency* (JCR), *Moody's Investors Service*, *Rating and Investment Information* (R&I), and *Standard & Poor's* (S&P).[3] These nine agencies are based in six countries.

Sovereign ratings, often used synonymously with the terms "sovereign credit ratings," "sovereign debt ratings," or "sovereign risk ratings," are assessments of a country's creditworthiness. CI, for example, defines sovereign credit ratings as an indicator of "the ability and willingness of sovereign governments to repay existing and future commercial debt obligations on time and in full."[4] The rating scales follow letter designations and differ only marginally in terms of notation across agencies (see Online Appendix A1 for details). The best rating issued by most agencies is the grade "AAA," which is assigned to sovereigns with the lowest probability of default. As of June 2013, Switzerland, Finland, Liechtenstein, Luxembourg and Norway are the only sovereigns that receive the top rating by all agencies that assign a rating to them. Ratings of "BB" or lower are usually considered to be of "junk status," i.e., to have a high expectation of default.

Table 1 provides an overview of the nine agencies covered in our study. While the corporate history of S&P dates back to 1860, the smaller agencies are relatively new actors in the rating business. DBRS is the oldest of the small agencies, having been active since

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[3] The U.S.-based agency *Egan-Jones Ratings Company* provides ratings for 19 sovereigns only (see http://www.egan-jones.com/; accessed 24 September 2013). Moreover, there is a number of rating agencies that provide ratings for a very limited set of countries. For example, the Ukrainian rating agency *Credit-Rating* issues sovereign ratings for member countries of the Commonwealth of Independent States (see http://www.credit-rating.ua; accessed 17 September 2013).

[4] See CI's company website available at http://www.ciratings.com/page/rating-methodologies/sovereign-ratings (accessed 18 October 2013).

1976. Most of the smaller agencies have started to rate sovereigns in the late 1990s since the demand for these ratings increased strongly when a larger number of countries started to issue sovereign bonds. The nine agencies under analysis show huge variation with regard to their size. The three large U.S.-based agencies, Moody's, Standard & Poor's and – to a lesser extent – Fitch, are the dominant players in the global rating market. They have several thousand employees each, of which more than a thousand are concerned with ratings (White 2010). All three are not only physically present in their home country, but possess between 24 and 34 offices in other countries, and employ numerous foreign analysts as well. The other six agencies employ a much smaller number of people, and only possess between one (JCR) and five (Feri) foreign offices. Nevertheless, the interest in these smaller agencies is increasing – not only in the financial sector. Downgrades by Dagong in particular receive a lot of media attention.[5]

The agencies differ considerably with regard to their ownership structure. Banks and financial institutions are among the most important shareholders of most credit rating agencies. Feri, Moody's, S&P's mother company McGraw Hill, JCR and R&I all have one or more financial institutions among their major shareholders. For example, the Vanguard Group, the Bank of New York Mellon Corp. and BlackRock Inc. are shareholders of both Moody's and S&P. The vertical and horizontal cross holdings have led to concerns about the influence of banks as shareholders if they are also invested in rated securities.[6] Dagong and DBRS are owned by private individuals. Not much information is publicly available about the Canadian businessman Walter Schroeder who owns DBRS. Dagong owner Guan Jianzhong

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[5]   See, for example, articles on the websites of *The Economist* (http://www.economist.com/blogs/buttonwood/2011/08/debt-ceiling-crisis-1; accessed 13 November 2013), the *Wall Street Journal* (http://blogs.wsj.com/moneybeat/2013/10/17/chinas-dagong-takes-aim-at-u-s/?KEYWORDS=dagong; accessed 13 November 2013) and *CNN* (http://edition.cnn.com/2011/BUSINESS/08/02/china.us.rating/; accessed 13 November 2013)

[6] The European Commission speaks of "shareholders that sometimes overlap" and "risk of conflicts of interest that could affect the quality of rating." Their new rules specifically "require CRAs to disclose publicly if a shareholder with 5% or more of the capital or voting rights holds 5% or more of a rated entity" and "prohibit ownership of 5% or more of the capital or the voting rights in more than one CRA." (see European Commission MEMO/13/13 available at http://europa.eu/rapid/press-release_MEMO-13-13_en.htm, accessed 11 December 2013).

previously worked for the Chinese government, but publicly emphasizes the independence of his agency despite the generally strong government influence on the economy in China.

In two cases, the home country as determined by the agency's headquarters is not identical to the home country as defined based on the citizenship of the agency's major shareholders. While the U.S.-based agency Fitch belonged to 100 percent to the French holding company Fimalac until 2006 (which still holds 50 percent of the shares), Cyprus-based CI is owned by three private individuals with Arabic names and a privately-owned Kuwait-based company.

Finally, there are huge discrepancies with respect to the country coverage of the rating agencies. While S&P has the widest coverage with 125 countries (and territories), DBRS covers the least (25). Appendix 1 shows a world map for each rating agency that graphically displays the respective sovereign ratings assigned to each country as of June 2013. As can be seen, there are not only substantial differences with respect to the set of countries covered, but also striking differences with respect to the ratings assigned. For example, the US agencies Moody's and Fitch rate the United States with the top-notch "AAA," while Chinese Dagong assigns an "A" only, i.e., five points lower. Table 2 compares the (average) rating assigned to each home country by its respective home agencies to the average rating received from all other agencies. As of June 2013, six out of eight home countries receive a better rating from their home agencies. Does the literature provide an explanation why these differences in rating assignments exist across rating agencies? This is what we turn to next.

3. WHAT THE PREVIOUS LITERATURE EXAMINES

The importance of sovereign rating decisions has risen over the last decades. In today's globalized economy, sovereign ratings exert considerable influence on both economic and political outcomes. Evidently, they have an impact on sovereign debt yields and thus a government's ability to borrow from international capital markets (e.g., Cantor and Packer 1996). There is also empirical evidence that concludes that downgrades have negative repercussions on market returns, the domestic stock market and the dollar value of the currency of the rated country (Brooks et al. 2004). Other studies have found that changes in sovereign ratings also affect corporate ratings (Borensztein et al. 2013; Durbin and Ng 2005) and inflows of portfolio investments in the same direction (Biglaiser et al. 2008). Moreover,

credit rating agencies are blamed for contributing to the instability of financial markets and for having aggravated financial crises (e.g., Ferri et al. 1999; Kaminsky and Schmukler 2002; White 2010). Therefore, it is not surprising that the study of the determinants of sovereign ratings has received a lot of attention in the literature.

Early work by Cantor and Packer (1996) investigates the determinants of rating assignments by the US agencies Moody's and S&P. They find that both agencies share the same rating criteria but put different weights on individual factors. Similarly, Hill et al. (2010) find significant differences in the weights that Fitch, Moody's and S&P assign to the various factors that determine sovereign ratings. By comparing the relevant factors, they identify six variables that are used as common determinants of sovereign ratings: GDP per capita, GDP growth and its square, past default experience, country risk rating, and risk premiums.

Other recent studies have focused on political factors as determinants of sovereign ratings. Starting with Archer et al. (2007), one strand of the literature examines a potential "democratic advantage" in sovereign ratings. While Archer et al. (2007) do not find empirical support for the suggested positive link between ratings and democratic institutions, Beaulieu et al. (2012) come to the opposite conclusion when they account for the fact that democratic countries are more likely to have access to the international capital markets. Disentangling electoral democracy and political constraints, Cordes (2012) shows that the existence of contested elections does not matter for rating outcomes, but countries that impose more political constraints on the executive do receive better ratings. Along similar lines, Biglaiser and Staats (2012) find that countries' rule of law, judicial independence and protection of property rights all improve a country's rating outcome. Overall, political factors have been shown to play an important, though smaller, role compared to economic fundamentals (Haque et al. 1998; Archer et al. 2007). Among the political factors that seem to be considered in agencies' rating decisions are political business cycles (Block and Vaaler 2004; Vaaler et al. 2006; Biglaiser and Staats 2012) and executive party tenure (Archer et al. 2007).

The findings of the previous literature have two important caveats. First, most of the literature analyzes only sovereign ratings made by the big three U.S.-based agencies. There are just a few exceptions. Alsakka and ap Gwilym (2010) compare rating decisions by

Japanese agencies to those of the US agencies. Bartels and Weder di Mauro (2013) come to the surprising conclusion that the ratings assigned by Germany-based Feri to European countries are "tougher" than those issued by its US competitors.[7] To the best of our knowledge, no empirical study so far has looked at a broad set of rating agencies to analyze the determinants of sovereign ratings. Second, the previous literature does not explain the marked differences in rating assignments *between* agencies. The literature so far explained sovereign ratings r issued by a rating agency a based in home country j only with characteristics of the rated country i at time t:

$$r_{a,j,i,t} = f\left(e_{i,t}, p_{i,t}\right) \qquad (1)$$

where e stands for the economic fundamentals and p for the political fundamentals of the rated country. This approach ignores the potential role played by the location of the agency's headquarters and the nationality of its main shareholders. We aim to fill this gap.

4.   WHY THE HOME COUNTRY COULD MATTER

Consider Japan. The US-based agencies Fitch, Moody's and S&P all assign ratings of "AA-" or lower to the country plagued by demographic problems, deflation and economic stagnation. German Feri had assigned an "AA" rating until it also downgraded Japan's sovereign debt to "AA-" in June 2013. The ratings of Japan issued by Dagong are even lower than those issued by its Western counterparts. The Chinese agency downgraded the country's debt to "A" in March 2013. On the other side of the spectrum, the Japanese agencies are significantly more optimistic about their home country. Since Japan Credit Ratings (JCR) entered the rating business, it has continuously assigned an "AAA" rating to Japan. Although JCR's Japanese competitor Rating and Investment (R&I) downgraded its home country in December 2011, it still assigns the second highest rating "AA+."

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[7] With respect to China, some papers analyze corporate ratings from Chinese agencies (e.g., Kennedy 2008), but we are not aware of a systematic empirical study on Dagong's sovereign ratings. See also Shin and Moore (2003) for a study of the differences in corporate ratings from Japanese and US agencies.

This case serves as an illustrative example why many observers perceive agencies to be influenced by their country of origin. In this article, we refer to a home bias if a sovereign rating deviates from what would be justified by a sovereign's economic and political fundamentals in favor of the home country (or countries aligned with it). There are two potential sources of a home bias. First, political economy influences on the rating process could bias rating decisions in a way that favors the home country's economic and geopolitical interests. Governments and lobby groups might put pressure on rating agencies in order to advance the economic and geopolitical interests of the home country, leading to a preferential treatment of certain countries. Second, sovereigns that are more culturally similar to the home country could receive a favorable treatment. Extending equation (1) from above, we hypothesize that home-sovereign pair-specific variables $x_{j,i,t}$ explain sovereign ratings in addition to the characteristics specific to country i:

$$r_{a,j,i,t} = f\left(x_{j,i,t}, e_{i,t}, p_{i,t}\right) \qquad\qquad (2)$$

If the home country of a rating agency matters for rating outcomes, which steps in the rating process could be subject to such biases? To answer this question, we need a thorough understanding of the process that leads to the assignment of a sovereign rating. For the most part, all agencies follow similar procedures to determine their ratings. Figure 1 groups the usual process that leads to a rating assignment into four phases. In the first phase, *Rating Initiation*, the agency enters into an official agreement with the sovereign (in case of a solicited rating), assigns analysts to that particular sovereign and collects data. In the second phase, which we refer to as *Due Diligence*, the agency gathers further information by collaborating with the sovereign, which are subsequently analyzed. In the third phase, *Rating Assignment*, the analysts draft a preliminary report for the rating committee, which has the final say on the decision. The committee consists of several analysts, augmented with at least one senior director with managerial authority, who serves as chairperson. After the committee's decision, the sovereign gets notified and has the opportunity to appeal. In the final phase, *Rating Publication*, the agency publishes the final report and the corresponding rating and continuously monitors the sovereign's economic and political situation.

There are several important differences in the rating process between the nine agencies under analysis (see Appendix 2 for details). First, the number of analysts that are assigned to assess the creditworthiness of a sovereign varies considerably across agencies. While most agencies assign only one (CI, DRBS, and Moody's) or two (Fitch, JCR, and

S&P) analysts to each sovereign, Dagong and R&I claim to use a whole team of analysts. Second, most agencies (e.g., Fitch, S&P) conduct several interviews with representatives of the sovereign, which usually involve personal meetings at relevant ministries and central banks, while others do not (CI, Dagong, and Feri). Third, R&I is the only agency that does not provide the sovereign with the opportunity to pursue a rating appeal after being notified about the final rating decision. Most agencies approve such a request if the sovereign provides new or additional information that the agencies consider relevant. The fourth obvious difference concerns the surveillance of the credit rating. While some agencies follow a fixed update interval, others provide ongoing surveillance (e.g., S&P).[8] The knowledge about the rating process allows us to derive how economic interests, geopolitical alignment and cultural proximity could influence rating decisions.

4.1 Economic and Geopolitical Interests of the Home Country

Political economy influences to advance the home country's economic and geopolitical interests are more likely to occur during the later stages of the rating process. The rating committee plays a decisive role as the usual rating process gives discretion to the members of this committee. While the initial rating proposal ("sovereign indicative rating level") generally results from a quantitative model made by analysts, the composition of the rating committee leaves room for a senior director to overturn an "objective" rating proposal. S&P, for example, speaks of "exceptional adjustment factors" (S&P 2012). Lobbying the chairperson of the rating committee should be most attractive as she possesses the highest leverage. The possibility of sovereigns to appeal after the initial rating decision gives further leeway for interested parties to influence rating outcomes.

Governments have strong reasons to try to sway rating decisions. First, sovereign ratings determine the extent of access to international capital markets, in particular for emerging and developing economies (Reinhart 2002). Second, even for industrialized economies with well-established market access, rating downgrades can influence a

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[8] The update intervals range between a monthly frequency (e.g., JCR) to an annual frequency (e.g., Fitch).

sovereign's borrowing costs (Afonso et al. 2012). In particular, certain institutional investors are bound by their own charter or law to choose only assets above a certain critical rating threshold ("hardwiring of ratings").[9] For a sovereign, falling below this threshold would lead to a sudden drop in bond demand and consequently an increase in bond yields. Third, rating decisions can also be interpreted as a signal of leader performance. Despite the widespread public skepticism towards the agencies, repeated downgrades can severely damage the reputation of a government. For example, the downgrades of France in 2012 and 2013 cast doubts over the optimistic predictions of President François Hollande's government concerning the future development of the French economy. According to the media, the downgrade by S&P constitutes "politically a heavy blow for the head of state."[10] Fourth, governments might also be interested in ratings of countries to which they have strong economic ties. Downgrades and potentially resulting instabilities may harm the home country's export interests and endanger the investments of domestic agents. Home-country governments may also have an interest in the stability of geopolitically aligned countries, i.e., countries with which they collaborate in international fora or that are of military importance.[11]

Although governments have these motives to influence rating decisions, it is less obvious that they have also the political power to influence assessments provided by privately-owned credit rating agencies. With respect to international financial organizations, it is much more straightforward that political economy factors can affect economic

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[9] In the U.S., for example, references to credit ratings are contained in several investment company act rules and forms, e.g., the Securities Act of 1933 ("Securities Act") Release No. 9193, Investment Company Act of 1940 ("Investment Company Act") Release No. 29592 (Mar. 3, 2011), 76 FR 12896 (Mar. 8, 2011). The U.S. Securities and Exchange Commission (SEC) forbids money market funds to purchase securities that are not rated by any two Nationally Recognized Statistical Rating Organizations (NRSRO) in one of the two highest rating categories. The U.S. Department of Labor restricts pension fund investments to securities rated "A" or higher (Rule 2a-7 [10] of the Investment Company Act). Section 939A of the Dodd-Frank Act recognizes this reliance as a potential problem and requires federal agencies to review their regulations.

[10] See an article by France' leading financial newspaper, *Les Échos*, available at http://www.lesechos.fr/economie-politique/politique/actu/0203115388893-degradation-de-la-note-de-la-france-un-nouveau-coup-dur-pour-l-executif-627380.php (accessed 30 November 2011, own translation of the quote).

[11] In this regard, DiGiuseppe et al. (2012) show that countries with affordable credit access have a lower probability to experience civil conflict.

assessments since governments are direct shareholders of these institutions (e.g., Dreher et al. 2008; Fratzscher and Reynaud 2011). However, there is a questionable dependence of agencies on governments, in particular their home government. Only the ratings of officially recognized agencies can be used by companies to determine their capital requirements in the European Union and the United States (White 2010; De Haan and Amtenbrink 2011). Since corporate ratings in their respective home countries are a major source of income, the prospect of losing that recognition is an imminent threat to agencies. Dagong, for example, was denied recognition as a Nationally Recognized Statistical Rating Organization (NRSRO) in the United States in September 2010.

There is also anecdotal evidence that governments try to use their influence to impact rating decisions. Two weeks after the U.S.-based rating agency Egan-Jones downgraded the United States to "AA," the U.S. Securities and Exchange Commission (SEC) brought administrative action against the firm for alleged "material misstatements" during its application for regulatory approval in 2008. In this context, the owner of Egan-Jones Sean Egan stated that "[w]e are not going to be intimidated by anybody from issuing timely, accurate ratings."[12] In a similar case, S&P called a $5 billion lawsuit against the company "a retaliation for its 2011 decision to strip the country of its AAA credit rating."[13] More directly, government ties are also visible for Chinese Dagong, as the rating agency entertains strong relations with several Chinese government institutions (see Ling 2012 for a discussion).

Beyond direct pressure from governments, other interested parties within an agency's home country could influence rating outcomes. First, since many banks and financial institutions are among the major shareholders of rating agencies, they could have the leverage to directly or indirectly exert an influence on the agencies' decision-making to protect the value of their bond holdings. According to Shin and Moore (2003), there are indications that the Japanese rating agencies are more vulnerable to influence by its

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[12] See, for example, an article on the website of *The Wall Street Journal* available at http://online.wsj.com/news/articles/SB10001424052702303513404577354023825841812 (accessed 18 November 2013).

[13] See, for example, an article by Reuters available at http://www.reuters.com/article/2013/09/03/us-mcgrawhill-sandp-lawsuit-idUSBRE98210L20130903 (accessed 15 December 2013).

shareholders than the US agencies. They cite a report by the Japan Center for International Finance, according to which "[t]he composition of the shareholders of rating agencies may impair the impartiality of ratings" (Shin and Moore 2003: 331). Shareholders might try to obtain a preferential treatment of countries where they are exposed to large risks, e.g., where they have a large amount of outstanding loans. Second, agency staff or persons close to them may have a personal monetary investment in the respective country under assessment. A home bias might arise because these actors, like other investors, are more likely to hold larger stakes in the domestic economy or economies with close ties than somewhere else (e.g., French and Poterba 1991; Tesar and Werner 1995). Third, analysts at rating agencies might be influenced by future career concerns; the prospect of a new job in the banking sector, easily possible because of similar job requirements, might seem attractive. In this context, Bar-Isaac and Shapiro (2011: 120) speak of a "revolving door" that connects rating agencies and investment banks.

Finally, beyond political economy influences, national sentiments of agency staff may be a driver of such a behavior. Morse and Shive (2011) provide evidence that patriotism explains (parts of) the home bias in equity. Similar to "patriotic investors," employees of rating agencies might be reluctant to downgrade the home country or another sovereign either because they believe that this decision could have a detrimental impact on their home country or just because they are – in the words of Morse and Shive (2011: 411) – "blinded by patriotic loyalty." This effect should be even more pronounced in agencies where national sentiments are anchored in the corporate culture. Ling (2012) describes the Chinese agency Dagong as a "patriotic rating agency." Ling refers to the company's website which states that the agency aims to promote the patriotism of its employees. Taken together, there are theoretical arguments that would support the hypothesis that economic ties and geopolitical interests influence rating outcomes.

4.2 The Role of Cultural Distance

Various studies discuss the role of cultural distance in financial decision-making. Guiso et al. (2009: 1095) identify "perceptions rooted in culture" as important determinants of bilateral investments. Grinblatt and Keloharju (2001: 1072) hypothesize that "familiarity-related effects could be the major contributor to home bias." Indeed, their empirical analysis shows that culture influences stockholdings of both private and corporate investors. Empirical evidence also suggests that firms favor culturally closer overseas listing venues (Sarkissian

and Schill 2004). With respect to syndicated bank loans, Giannetti and Yafeh (2012) show that lenders treat borrowers from countries that are culturally more distant as less reliable. They receive smaller loans, pay higher interest rates and are more often required to provide a third-party guarantee. Given this evidence, it would not be surprising if cultural distance also affects decision-making at rating agencies.

Why would agencies assign better ratings to culturally closer and thus more familiar countries? To answer this question, it is important to remember that rating agencies have to base their assessments on limited and incomplete information. They acquire this information either from publicly available sources or from the sovereign directly ("Due Diligence"). The agencies have to cope with concerns regarding the reliability and accuracy of these data. We discuss three lines of reasoning why cultural proximity (familiarity) might affect rating decisions. These are based on information, differences in risk perceptions, and taste-based discrimination.

First, an information-based theory of cultural distance would assume that a home bias can be the result of completely rational behavior.[14] Giannetti and Yafeh (2012) argue that banks collect less information about culturally more distant borrowers due to higher costs of information gathering and thus consider them as riskier. Similarly, the rating agencies face a trade-off between the benefit of acquiring additional information and the transaction costs this would incur. Linguistic differences raise transaction costs by increasing the difficulties of direct communication and the ease of translation (see also Melitz 2008). This can cause agencies to collect less information overall. Less information can then translate into lower ratings since predictions of the sovereign's liquidity to serve its debts are less precise and thus imply a higher probability of defaulting.[15] Due to this information-cost trade-off, it could be rational that agencies give lower ratings to less familiar countries.

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[14] See Grinblatt and Keloharju (2001) for a similar argument.

[15] Assume that a rating agency estimates the liquidity L of two sovereigns i, with $E[L_i] \sim N(\mu, \sigma_i^2)$. A sovereign enters a state of default if $L_i < z$. Thus, the probability of default is $P(L_i < z) = F\left(\frac{|z-\mu|}{\sigma_i}\right)$. Assume that two sovereigns A and B have the same expected value μ, but sovereign B is culturally more distant to the home country of the rating agency. As a result of higher transaction costs, the agency collects less information about sovereign B, which implies that its prediction of L_B is less

The second explanation for the role of cultural distance focuses on differences in risk perceptions, in particular with regard to relative optimism and trust. Following the literature on an "optimism bias," a home bias does not require that the actors actually possess more information; it suffices that the actors *perceive* the information differently. Kilka and Weber (2000) find that that people hold more "optimistic" expectations of domestic investments as they feel more "competent" about investment possibilities at home.[16] Similarly, French and Poterba (1991) explain the home bias in portfolio holdings with domestic investors' more optimistic expectations about domestic stock returns compared to foreign stocks. The existing literature suggests that trust rooted in culture is a potential cause of these differences in perceptions. DeBruine (2002) provides experimental evidence that people have higher trust in people who look more similar. Guiso et al. (2009) find that cultural distance translates into lower levels of bilateral trust, which then translates into less economic exchange between countries. They conclude from their analysis of bilateral investments that "cultural effects are not limited to unsophisticated consumers, but are also present among sophisticated professionals" (p. 1098).

In the rating process, trust between the agency's home country and the rated country could influence risk perceptions of the agency staff and thus lead to an "optimism bias." For example, analysts could perceive the same economic information from a more familiar source as more reliable and its bonds as less risky. Beyond that, bilateral trust might not only matter for how analysts perceive the available information about the sovereign's *ability* to pay, it could also affect beliefs about a sovereign's *willingness* to pay its debt. This is important since countries commonly default on their debt for reasons other than insufficient liquidity (see historic evidence in Tomz and Wright 2007; Reinhart and Rogoff 2009). A government may decide to default for opportunistic reasons if the domestic political costs to

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precise compared to that of L_A, i.e., $\sigma_B^2 > \sigma_A^2$. Thus, $F_B\left(\frac{|z-\mu|}{\sigma_B}\right) > F_A\left(\frac{|z-\mu|}{\sigma_A}\right)$ for all $z < \mu$, i.e., the predicted default probability is higher for the culturally more distant sovereign. A similar argument is made by Gehrig (1993) and Brennan and Cao (1997), who show noisy rational expectations models that explain a home bias in international equity investments under the assumption that domestic investors have more precise information than foreign investors.

[16] For related evidence of an "optimism bias," see Shiller et al. (1996) for a comparison between the stock market expectations of Japanese and American investors, and Strong and Xu (2003) for fund managers' views on prospects of international equity markets.

the government of raising funds weigh higher than those caused by a default. With this in mind, it seems plausible that rating analysts evaluate a government's willingness to pay more optimistically if the level of bilateral trust is higher. Taken together, as cultural proximity relates to relative optimism and trust, it could also lead to better ratings of culturally closer countries.

A third potential reason for the role of cultural distance is direct discrimination of certain ethnicities or races. Building on Becker (1961) and Stiglitz (1973), we define discrimination in our context as behavior that treats two sovereigns with the same economic characteristics differently based on ethnic or racial differences. Taste-based discrimination may negatively influence how credible borrowers are perceived to be (Giannetti and Yafeh 2012). Ravina (2008) provides empirical evidence that race affects credit conditions. Rating agency staff may exhibit similar behavior.

Summarizing the theoretical arguments about potential political economy influences and the role of culture in rating decisions, our hypothesis reads as follows:

Hypothesis: _Controlling for economic and political fundamentals of rated countries, a rating agency assigns a better rating to_

>   _(1) its home country._

>   _(2) countries in which the home country has larger economic interests._

>   _(3) countries geopolitically aligned with its home country._

>   _(4) countries that are culturally closer to its home country._

5. DATA

5.1 Dependent Variable: Sovereign Ratings

Our dependent variable is a country's sovereign rating provided by one of nine rating agencies: CI, Dagong, DBRS, Feri, Fitch, JCR, Moody's, R&I, and S&P (see again Table 1 for an overview). We follow the literature and examine the determinants of a sovereign's long-term foreign-currency rating, i.e., ratings for government bonds that are issued in a foreign currency and have a maturity of more than one year. We retrieve daily information on

sovereign ratings by most agencies via Bloomberg.[17] The information on ratings published by Feri and Fitch is obtained directly from the agencies. We take the monthly average of the assigned ratings since some agencies only review their ratings on a monthly basis (see again Appendix 2). Moreover, the highest frequency for which the explanatory variables are available is also monthly.[18]

For our empirical analysis, all ratings have been translated to a 21-point scale in accordance with the literature (see Hill et al. 2010 for a similar approach). This means that we assign the highest value of 21 to an "AAA" rating. "C" and "D" in turn are translated into a value of one.[19] The pair-wise correlation between sovereign ratings from the nine credit rating agencies under analysis ranges between 0.784 (CI-Feri) and 0.987 (Fitch-S&P).[20]

5.2   Control Variables

To be able to test for a home bias in sovereign ratings, we need to control for those country-specific economic and political factors that should "objectively" determine the ability of a country to repay its debt. In order to do so, we build on the sets of variables employed in Archer et al. (2007) and Hill et al. (2010).[21] For comparison, Appendix 3 lists all factors that

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[17] To access the data on sovereign ratings, log on to a Bloomberg terminal and type "CSDR." The variables selected are *Foreign Long Term* for CI, *FC LT Sovereign Ratings* for Dagong, *Foreign Currency LT Debt* for DBRS, JCR, Moody's and S&P, and *Foreign Curr Issuer Rtg* for R&I. We follow Bloomberg and collect Moody's foreign currency issuer rating if Moody's has not assigned a foreign-currency debt rating to a country. We have downloaded data in late September 2012 and updated all information on 28 June 2013. Two obvious mistakes in the R&I data have been corrected after e-mail correspondence with the agency's chief analyst.

[18] When a rating is withdrawn in the course of a month, we still compute the average rating based on the available information.

[19] As there are slight differences in the rating scale across rating agencies, please refer to Online Appendix A1 for a full translation table.

[20] See Online Appendix A3 for details.

[21] In contrast to Archer et al. (2007), we do not include variables that measure executive party tenure and undivided government since these variables contain too many missing values and would thus substantially reduce our sample size (data from Beck et al. 2001).

the nine agencies communicate in official documents as those they would account for in their rating process. Most of the officially communicated factors show a significant overlap across agencies. Comparing these factors with those employed in the literature, we identify a potential lack of control for conflict risks, which is why we add further variables in this category. Overall, we employ control variables in the following four categories.

Domestic Economic Performance. To capture the sovereign's macroeconomic situation, we employ the country's logged *GDP per capita* (in constant 2000 US dollars), *GDP growth* rate (including a squared term) and *inflation* rate (based on consumer prices). Following Archer et al. (2007) and Biglaiser and Staats (2012), we also control for the sovereign's richness in natural resources. *Natural resources* measures total natural resource rents as a percentage of GDP. Logged *population* size is added as a control variable since larger countries possess on average a more diversified economy and are thus less affected by external shocks. All data are obtained from the World Bank's World Development Indicators.[22]

Financial Stability and Fiscal Performance. To account for a sovereign's fiscal performance, we control for a country's gross government debt-to-GDP ratio (*Government debt*) and its change over time (*Change in Government debt*). Information stems from the IMF's Historical Debt Database (Abbas et al. 2010). We further add two dummy variables to account for past experiences with defaults (*Default*). The first variable takes a value of one if the sovereign has experienced a sovereign debt crisis or restructuring since 1970. The second variable takes a value of one if the sovereign has defaulted or restructured its debt in the last five years. Data on a country's history of debt crises come from the IMF (Laeven and Valencia 2012).

External Performance. We add three variables to account for a sovereign's external performance. *Trade openness*, i.e., the sum of the rated country's exports and imports, and *current account balance* are both included as a share of GDP. Moreover, we account for debt owed to nonresidents (*external debt*), again as a share of GDP. All three variables are taken from the World Bank's World Development Indicators.

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[22] Data are available at http://data.worldbank.org/ (accessed 31 July 2013).

Political and Institutional Performance. We control for eight political and institutional characteristics of the rated country. First, a sovereign's regime type is captured using the "Polity 2" variable from the Polity IV dataset (Marshall et al. 2013), which measures democracy on a 21-point scale (*polity*). Second, we include an *election* dummy that is coded as one if elections were held during the last 12 months. Third, *years in office* captures the number of years the chief executive has been in office as of January 1st. Fourth, a dummy for executive ideology (*left government*) is coded as one if the leader's party is considered as communist, socialist, social democrat or other left-wing. The latter three variables have been obtained from the Database of Political Institutions (Beck et al. 2001). Fifth to eighth, we control for a country's *rule of law, absence of internal conflict*, *absence of external conflict* and *absence of military in politics*. These variables are drawn from the International Country Risk Guide (ICRG), where higher values indicate a better institutional environment.[23]

We lag all time-varying variables for two reasons. First, the process of incorporating new data and political developments takes some time. Moreover, agencies have an incentive not to change their ratings too often, as very frequent changes would cast a bad picture on their long-term analytical skills. On average, agencies would rather wait if bad (or good) news are confirmed by other sources than to react immediately to changes in their indicators. If appropriate, we compute the moving average of each variable over the previous 12 months. In other cases, in particular for more volatile variables capturing the current economic situation, we calculate the average over the last 36 months to cancel out pure business-cycle effects and random short-term fluctuations that should not influence long-term debt repayment abilities (see Block and Vaaler 2004 for a similar approach). Online Appendix A4 provides precise definitions of all variables employed and their sources. Online Appendix A5 shows the corresponding descriptive statistics.

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[23] The developments during the "Arab Spring" have shown how important these factors are for the stability and thus creditworthiness of a country. Data are available at http://www.prsgroup.com/icrg.aspx (last accessed 14 August 2013).

5.3   Variables of Interest

We use eight variables to test for the existence of a home bias. As we will argue, all measures should – according to the official guidelines of the agencies – be unrelated to sovereign ratings, controlled for the variables introduced in the last subsection. Out of the ten, the variable that allows the most direct test of our hypothesis is a *same country* dummy variable. It takes a value of one if the rated country is the home country of the rating agency. We define an agency's home country in the following two ways. According to the location definition, the home country is defined as the country in which the headquarters of the agency is physically located. Using the ownership-based definition, we code home countries according to the nationality of the major shareholder(s). Both definitions coincide in most cases; CI and Fitch are the only exceptions (see again Table 1 for details). A rejection of the null hypothesis of a zero coefficient on *same country* would empirically support the existence of a home bias as it indicates a preferential treatment of the home country.

If a home bias in sovereign ratings exists, rating agencies might not only assign favorable ratings to their home country, but also to countries with close economic ties, geopolitically-aligned countries and countries that are culturally closer. In the following, we introduce the variables employed in each of these three categories.

Economic interests. We account for two variables that capture economic links between the rated countries and the home country of the rating agency. First, *export interests* are measured by the rated country's share in total exports from the home country. Export data are obtained from UN Comtrade and have been accessed via the World Bank's World Integrated Trade Solution (WITS) software.[24] While a sovereign's access to foreign currency should matter for its ability to pay back its debt and is covered by our control variable *current account balance*, the sovereign's relative importance as an export market for the home country of the rating agency should, all else being equal, be unrelated to rating outcomes.

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[24] The online tool is available at http://wits.worldbank.org (accessed 4 December 2012).

Second, we test for the role of *bank exposure*. The Bank for International Settlements provides data on bank exposure of all banks headquartered in most of our home countries.[25] It contains detailed information on all foreign claims to the public sector, banks, the non-bank private sector, and miscellaneous other claims. In addition, it covers potential exposures from derivatives contracts, guarantees and credit commitments. As our measure of *bank exposure*, we compute the rated country's share in the total risk exposure of all home-country banks.

Geopolitical alignment. We use two measures to test whether countries that are geopolitically aligned with the home country of the rating agency are favored in sovereign ratings. First, we use bilateral voting alignment in the UN General Assembly as a proxy for *geopolitical alignment* between the rated country and the home country of the rating agency. This is defined as the share of votes in which the rated country and the home country exhibit the same voting behavior, i.e., both voting yes, both voting no, or both abstaining (data from Strezhnev and Voeten 2012). Two voting blocs can be identified in the post-Cold War period: a Western bloc around the United States on the one hand and an anti-hegemonic bloc, which includes China, on the other (Voeten 2000). As an illustrative example, consider the case of Malaysia, which is strongly aligned with China and receives on average a two-step better rating from Dagong compared to the three big US agencies. Measures of UN voting alignment are widely used in the literature to measure bilateral affinity (e.g., Barro and Lee 2005; Dreher and Gassebner 2008). For the US agencies in our sample, we employ a country's share in US military aid as a second measure of geopolitical alignment. This variable serves as a proxy for the strategic importance that the United States assigns to these countries.[26]

Cultural distance. We use three measures of cultural distance. The first indicator is a simple dummy variable that takes a value of one if home and sovereign share the same official language (see also Guiso et al. 2009; data from Mayer and Zignago 2011). Moreover, we follow several studies that use more comprehensive measures of cultural distance (e.g.,

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[25] Unfortunately, no data are reported from Cyprus (CI) and China (Dagong). Data are available at http://www.bis.org/statistics/consstats.htm (accessed 3 December 2012).

[26] Data are available at the USAID website at http://gbk.eads.usaidallnet.gov/data/detailed.html (accessed 30 July 2013).

Guiso et al. 2009; Giannetti and Yafeh 2012). Specifically, we use two dimensions from Kolo's (2012) distance-adjusted ethno-linguistic fractionalization index (DELF).[27] The variable *Cultural distance (language)* measures linguistic differences based on language trees from the Ethnologue project, which classifies 6,656 distinct languages into families and branches due to their linguistic origin (Lewis 2009). As outlined before, larger cultural distance could be related to reduced information gathering and less optimistic risk perceptions.

The third measure, *cultural distance (ethno-racial)* is derived from a biological taxonomy of species, based on genealogical relatedness. Kolo (2012) assigns six-letter codes, which are based on race, skin pigmentation and ethnic origin and allow more differentiation between genetic groups than mere genetic distance (as in Spolaore and Wacziarg 2009, for example). Ethno-racial distance can be seen as a proxy for economic discrimination based on race or ethnicity; however, it might also be related to trust towards the rated country.

Online Appendices A4 and A5 also provide definitions, sources and descriptive statistics for all variables of interest. Online Appendix A6 shows simple correlations with the average sovereign rating, and partial correlation holding GDP or the debt ratio constant. We now turn to our econometric estimations.

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[27] The approach in Kolo (2012) builds on the ethno-linguistic fractionalization index (ELF, Alesina et al. 2003). The cultural distance between two countries A and B is calculated as $DELF = \left(1 - \sum_{k_A=1}^{K} \sum_{k_B=1}^{K} p_{k_A} p_{k_B} \hat{s}_{k_A,k_B}\right) \cdot 100$. The calculation weighs each distinct group k within countries A and B by their relative group size p_k. The product of the weights is multiplied with a similarity parameter $\hat{s}_{k_A,k_B}$, which varies between zero and one and takes the value of one if individuals belong to the same cultural group. The resulting $DELF$ value gives the expected similarity between two randomly drawn individuals.

6. ECONOMETRIC ANALYSIS

To test for the existence of a home bias in sovereign ratings, we estimate the determinants of sovereign ratings $r_{a,j,i,t}$. Specifically, we estimate the following regression equation using ordinary least squares (OLS):

$$r_{a,j,i,t} = \beta x_{j,i,t} + e'_{i,t}\gamma + p'_{i,t}\delta + \alpha_{a,j} + \tau_t + \varepsilon_{a,j,i,t} \qquad (3)$$

where $x_{j,i,t}$ is a country-pair specific variable of interest, $e_{i,t}$ and $p_{i,t}$ are vectors that contain sovereign-specific economic and political control variables, $\alpha_{a,j}$ and τ_t are agency and period fixed effects, respectively, and $\varepsilon_{a,j,i,t}$ the error term.[28] Error terms may be correlated at the agency-sovereign level, as well as at the sovereign level. In this case, it is appropriate to calculate cluster-robust standard errors at the most aggregate level of clustering, i.e., at the sovereign level in our case (Cameron et al. 2011). The time period under analysis runs from January 1990 to June 2013. In addition to our regression results for the full sample, we also show results for a sample restricted to the time after the onset of the Global Financial Crisis (GFC). We take September 2008 as the starting point for this period of increased uncertainty. In this month the bankruptcy of Lehmann Brothers and American International Group (AIG) took place (for a detailed discussion of these events, see Mishkin 2010). Home-country influences on sovereign ratings could have become more pronounced following the onset of the crisis. Investors became more risk-averse during the crisis; specifically doubts about the use of sovereign bonds as quasi risk-free assets in financial models have risen. Politicians, journalists and economists intensified their critique of the agencies' decision-making and increased the public pressure not to downgrade their countries.

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[28] We use agency fixed effects rather than home-country fixed to account for differences in the average rating level that can exist between the agencies from one country. For example, in the United States, Moody's could be systematically more pessimistic than S&P (or vice versa). The robustness section displays results with additional country-pair or rated-country fixed effects. Moreover, we show later that our results are qualitatively unchanged when we use ordered probit instead of OLS.

6.1   Baseline Regressions

We start by running regressions for baseline specifications that exclude our variables of interest $x_{j,i,t}$. Since the previous literature has focused on ratings from the big U.S.-based agencies (and from Japanese agencies to a smaller extent), this exercise will show us whether our estimations with a larger set of agencies yield similar results. As can be seen from column 1 of Table 3, the results are in line with former studies focusing on fewer agencies and shorter time periods. Both *GDP per capita* and *Inflation* show the expected signs and are statistically significant at the one-percent level. In line with Hill et al. (2010), the positive effect of *GDP growth* is diminishing as indicated by the significant negative squared term. *Natural resources* shows a negative coefficient which is significant at the one-percent level. *Population* is positive and significant at the one-percent level; larger countries thus receive on average better ratings.

Turning to fiscal stability, we find that *change in government debt* and *government debt* both have the expected negative coefficients, both being statistically significant at the ten-percent level. Even conditional on the other variable, both *default* variables turn out to be negative and significant at the one-percent level. The fact that a country has defaulted since 1970 leads to a rating that is lower by 1.5 points on our 21-point scale. Countries that have defaulted over the last five years are further downgraded by 1.8 points on average. With regard to a country's external performance, the coefficients on *current account balance* and *external debt* both show the expected sign, but only the former reaches statistical significance at conventional levels. *Trade openness* does not seem to further affect sovereign ratings conditional on the other factors.

Most political and institutional factors show the expected signs. The coefficient on *rule of law* is positive in accordance with Biglaiser and Staats (2012) and statistically significant at the one-percent level. In line with political-business-cycle considerations (Block and Vaaler 2004), rating levels during *election* years seem to be related to more uncertainty about future government policy, as indicated by the respective negative coefficient (significant at the ten-percent level). Rating agencies also provide better ratings to countries characterized by *absence of external conflict* and *absence of military in politics*. All other

political variables (*polity*, *years in office*, *left government*, and *absence of internal conflict*) do not reach statistical significance at conventional levels.

Our results for this baseline model are similar when we restrict the observation period to the time after the onset of the GFC, as can be seen in column 2.[29] They are also robust to the inclusion of a dummy variable that takes a value of one if a country is a member of the Eurozone at a particular point in time (see columns 3 and 4). These countries have an additional source of funding; there is a certain likelihood that euro area members would bail out other members in the case of financial turmoil. For example, S&P's criteria for rating sovereigns account for "special credit characteristics of sovereigns within a monetary union" since the June 2011 update (S&P 2012: 2). As the "implicit bailout" guarantee would suggest, the coefficient on *euro area* is positive and significant at the five-percent level in the full sample. Since *euro area* could be related to our variables of interest, we show our main results with and without this additional control.

These objective country-specific controls alone explain 86 percent of the variation in sovereign ratings, as indicated by the adjusted R-squared value. Our baseline model thus has strong explanatory power to predict sovereign ratings from this broad set of agencies. We proceed with the introduction of our variables of interest.

6.2   Main Results

To test whether sovereign ratings show evidence for a home bias, we now add one variable of interest at a time to the baseline specification introduced in the previous subsection. Each cell in Table 4 refers to one independent regression and shows the coefficient of the respective variable of interest. We again show results for the full sample (column 1) and the GFC sample (column 2) and also test whether our results are robust to the inclusion of *euro area* (columns 3 and 4).[30]

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[29] *Change in government debt*, *election* and *absence of external conflict* become statistically insignificant in the GFC period.

[30] Online Appendix A7 shows separate results for the pre-GFC sample.

As can be seen in column 1 from the positive coefficient on *same country*, which is significant at the five-percent level, agencies assign a rating that is 0.9 points higher to their home country than to other countries with the same characteristics. In other words, the rating of the home country is on average almost one point higher than what would be justified by how the agencies assess and weigh the economic and political fundamentals of other rated countries. The favorable treatment of the home country becomes more pronounced during the GFC period; the coefficient rises to 1.8 and becomes significant at the one-percent level (column 2). We obtain similar results when we control for *euro area* (columns 3 and 4). Taken together, this is strong evidence in favor of our first home-bias hypothesis.

Do rating agencies also favor countries that are economically, politically or culturally aligned with their home country? Starting with the measures of economic ties, our results partly support the notion that rating agencies favor countries economically aligned with their home country. While *export interests* does not show up significantly in the full sample (columns 1 and 3), the coefficient becomes significant at conventional levels in column 4. Its economic significance, however, is rather small; the export share of a rated country would have to increase by 26 percentage points to lead to a one-point rating increase.

The second variable of economic ties, home-country *bank exposure*, is robustly related to sovereign ratings. The corresponding coefficient is positive as expected and significant at conventional levels in all estimations. The size of the effect is larger after the onset of the GFC, which could reflect the increased attention to risks posed by interdependencies between banks and state. According to column 4, an increase of the sovereign's share in the home country's bank exposure by 20 percentage points is related to a rating improvement of one point on the rating scale. Taken together, these results suggest that economic ties between home and sovereign are related to ratings.

With regard to geopolitical ties between the home country and the sovereign, we find at best weak support for our hypothesis. The coefficient on *geopolitical alignment (UN)* is positive as expected but only reaches statistical significance at conventional levels in the GFC period (columns 2 and 4). Its economic significance is negligible, however. In order to test whether this and the following effects are not just capturing the same-country effect

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shown above, we further add the *same country* dummy in columns 5 and 6.[31] It appears that the result is completely driven by the home country as the coefficient loses its statistical significance when we control for *same country* (column 6). We also find mixed results for the effect of *US military interests (aid)* on the rating behavior of the US agencies, which becomes statistically significant in the GFC period only. Taken together, geopolitical ties between home and sovereign do not appear to play a significant role in rating decisions.

We now turn to the role of cultural ties between the sovereign and the home country of the rating agency. The coefficient on *common language* is positive as expected and statistically significant at least at the five-percent level in all specification. Countries that share a common language with the home country on average receive a rating between 0.7 to almost one full point higher. This also holds when we control for the *same country* dummy (columns 5 and 6). Language as a tool for communication could affect all home-sovereign relations, not only those in which both countries share a common language. Kolo's (2012) *cultural distance (language)* variable provides a more nuanced measure of linguistic differences. Language dissimilarities reduce the amount of collected information and the predicted likelihood of default. Moreover, the less familiar a language, the less trust might be put into the message it delivers. The results in Table 4 support these ideas: the coefficient on *cultural distance (language)* is negative and significant at the one-percent level in all specifications. The coefficient is robust to the inclusion of *euro area*, and increases in the GFC period. It can be argued that overall trust has decreased after the Lehmann bankruptcy; as such, official numbers are regarded with more suspicion. It seems plausible that, in times of crises, heuristics such as relying on familiarity become more important to assess the reliability of available information.

The size of the effect is not negligible. Consider, for example, the linguistic difference between the United States and China (99), which is 20 percentage points higher than the difference between the United States and the Netherlands (79). A cultural distance in terms of language of 20 points relates to a lower rating of 0.6 points on average in the GFC period (column 4). This result is in line with findings of a "cultural home bias" for bank lending,

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[31] Controlling for the same-country dummy (column 5 and 6) is not necessary for export interests and bank exposure as these variables are not coded for the home country.

investment decisions and trade patterns (Grinblatt and Keloharju 2001; Guiso et al. 2009; Giannetti and Yafeh 2012).

Cultural distance (ethno-racial) between home and sovereign, however, appears to be unrelated to sovereign ratings across all specifications in Table 4. This means that we do not find empirical evidence of discriminatory behavior of rating agencies based on race or ethnicity. Rather, the "cultural home bias" appears to be a function of the availability of information and risk perceptions. Familiarity in terms of language also goes along with a general cultural familiarity, which can be conducive to bilateral trust and better cooperation in the rating process. In Section 6.4, we will further explore the transmission channel behind the "cultural home bias."

Taken together, this is strong support for our home-bias hypothesis. Rating agencies provide preferential treatment to their home country and to countries economically and culturally aligned with it. Geopolitics, however, does not seem to play a significant role.

6.3   Agency-specific Regressions

Which rating agencies are subject to which biases? By pooling all agencies in one regression, we have assumed that each agency weighs all sovereign-specific factors in the same way as we were estimating a single coefficient per explanatory variable. Rating decisions were only allowed to differ by a constant term through agency fixed effects. We now relax this assumption and run individual regressions for each of the nine rating agencies under analysis. Specifically, we re-run the model presented in column 3 of Table 4, which includes the *euro area* dummy in addition to our control variables and period fixed effects. This analysis of the differences between agencies is crucial for the policy implications of our research. It allows us to see whether there are differences between the U.S.-based agencies, on which the public criticism has focused, and other, smaller agencies.

Table 5 shows the coefficients of our variable of interest when we run individual regressions for each agency.[32] As can be seen from columns 1-9, there are large differences

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[32] The interested reader will find the results for the control variables in Online Appendix A8.

across agencies. Four out of nine agencies provide a significantly higher rating to the country where their headquarters is based: CI, Fitch, R&I and S&P. While Fitch and S&P assign a rating to the United States that is on average almost one point higher than their treatment of other countries would justify, the home bias for CI and R&I in favor of Cyprus and Japan, respectively, is about twice and three times that size. For each agency's home country, Figure 2 contrasts the actual rating and the predicted rating based on how each agency weighs the economic and political fundamentals of sovereigns. In other words, we compare the actual ratings (solid line) with the ratings that should be assigned to the home country if it were not the home country (dotted line).

The figure highlights several interesting observations. First, let us compare Fitch and S&P (significant positive same-country dummy in Table 5) with Moody's (no significant bias). Despite the fact that S&P has downgraded the United States in August 2011, it should, given its own weights, downgrade it even further by about one point. We can also see that the initial decision to downgrade the United States came quite late, which can be interpreted as reluctance due to the expected political and media outcry. Fitch also seems to overrate the U.S. for nearly a decade, while Moody's rating, given its treatment of others, has only quite recently begun to deviate from its predicted value. Second, while both JCR and R&I assign a 21-point "AAA" rating to their home country Japan, there is only empirical evidence for a same-country effect for the latter agency. The dotted line indicates that if R&I would apply the same criteria to Japan as it does apply to other countries, the rating should be about two points lower than it is. Third, although there was no evidence of a same-country effect in Dagong's rating decisions (see again Table 5), Dagong should consider a downgrade of its home country as China's fundamentals started to deteriorate in 2012.

We now turn to our measures of economic interests between home and sovereign (see again Table 5). While we find a coefficient on *export interests* which is positive as expected and statistically significant at conventional levels only for Moody's and S&P, our evidence on *bank exposure* is much more conclusive. For five out of seven agencies for which the data on *bank exposure* are available, the corresponding coefficient is found to be positive and statistically significant. The largest effect exists for S&P, where a ten-percent increase in the share of overall exposure to the rated country leads to an increase in the rating by 1.4 steps.

Geopolitical ties seem to be irrelevant for the decisions of most agencies. With regard to *geopolitical alignment (UN)*, the coefficient is insignificant in most specifications.

However, we find a positive and statistically significant coefficient for China's Dagong. It seems that Dagong assigns higher ratings to those countries that are politically more in line with the Chinese government. This effect is robust in terms of size and significance to the inclusion of the *same country* dummy (not displayed). This effect is sizable. A country receives a rating that is one full point higher if its political alignment with China increases by 21 percentage points. This is approximately the difference between Brazil's (90 percent) and Australia's (70 percent) voting alignment in the UN General Assembly. We also find that two agencies provide a significantly lower rating to countries geopolitically aligned with their respective home country (Feri, JCR). *Military interests (aid)* remains insignificant for the U.S.-based agencies. We interpret this as evidence that the US agencies do not provide countries with a preferential treatment merely because they are of military interest to the US government. Overall, there is no robust evidence that geopolitical ties between home and sovereign have an impact on rating decisions.

Again, the results highlight the importance of cultural relatedness. The coefficients on *common language* are positive in all except one case, and the effect of *cultural distance (language)* is negative in all cases. For six out of nine agencies at least one of the two is statistically significant. DBRS, Fitch, Moody's, R&I and S&P assign higher ratings for countries with a *common language,* significant at least at the ten-percent level. The more nuanced *cultural distance (language)* measure is significant at least at the ten-percent level for Canada-based DBRS, Germany-based Feri and all U.S.-based agencies. Agencies that seem to be less affected by this kind of cultural bias are CI, Dagong and JCR.[33] Moreover, CI assigns lower ratings to countries that differ more from Cyprus in terms of ethnicity and race.

Finally, we consider our alternative definition of home country. Rather than defining the home country based on the location of the agency's headquarter, we apply the ownership definition. Thus, CI is coded as "Kuwait" and Fitch is coded as "France." As can be seen from column 10 of Table 4, Kuwait does not receive a favorable treatment from CI

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[33] For CI, the large negative coefficient on common language, though insignificant, is at first sight surprising. This result can be explained by Cyprus' division into Greek and Turkish parts. The negative coefficient stems from a negative bias against Turkey as it shrinks to -0.2 when leaving Turkey out of the sample.

as it is the case for Cyprus, the location of CI's headquarters. However, CI assigns lower ratings to countries that are linguistically or ethno-racially more distant from Kuwait. This might be explained by a large share of employees of Arabic origin. For Fitch, we find a positive coefficient on *same country* when we apply the ownership definition instead of the location definition (column 11). Its rating of France is one point better than what would be justified by Fitch's treatment of other countries. The variables for cultural distance are all insignificant in contrast to the results with the U.S. as the home country in column 5. As it does not seem that Fimalac's majority shareholdings are reflected in a particularly high number of French staff, this is not surprising. In summary, these results can be taken as evidence that it is not only the location of an agency that matters for rating outcomes but also the ownership structure.

6.4   Robustness and Exploration of Transmission Channels

In this subsection, we test for the robustness of our results with respect to alterations in the empirical strategy and further explore the mechanisms how culture affects sovereign ratings. First, we replicate our main results using ordered probit. Until now, we have treated our dependent variable as cardinal. This implies that the difference between an "AA" and an "AA+" rating, for example, is the same as between "BB" and "BB+." In most settings, this choice should have little effect on the direction and significance of variables if the number of response categories is sufficiently large (see Ferrer-i-Carbonell and Frijters 2004, for example). Nonetheless, we rerun our specification using ordered probit to take account of potential non-linear effects. When comparing these estimates to our previous findings using OLS from Table 4, our main results are very similar and no coefficient loses its statistical significance with the exception of *export interests* in the GFC sample (see Online Appendix A9 for full regression results).

Second, we address potential omitted variable bias in several ways. As a first exercise, we include all significant variables from our main specification (Table 4, column 3) in a single equation to test whether the individual effects still remain significant when they are jointly included. Countries that are culturally close to the home country could also be those with which the home country entertains close economic relations (Guiso et al. 2009). After adding one of the two language variables in columns 1 and 2 of Table 6, respectively, the coefficients on *bank exposure* remain stable and statistically significant at conventional levels. Also, both *common language* and *cultural distance (language)* keep their signs and

remain statistically significant. We conclude that the effect of economic ties is not (entirely) driven by cultural distance between the home country and the sovereigns as the effect of the former remains significant when we control for the latter. Next, we explore if both language variables are substitutes for each other. As *bank exposure* is not available for China, Cyprus, the home country itself and years prior to 2005, column 3 excludes this measure and focuses on the language variables. Conditioning on each other lowers the coefficients in absolute terms, but both language variables stay significant at the five percent-level. When we add the *same country* dummy in column 4, the coefficient on *same country* becomes insignificant. This suggests that cultural proximity is the main transmission channel that causes the favorable treatment of the home country.

Another omitted factor could be related to the business model of rating agencies, specifically to conflicts of interest that arise from the "issuer-pays" model. White (2010: 215) suggests that a "rating agency might shade its rating upward so as to keep the issuer happy and forestall the issuer's taking its rating business to a different rating agency." One might thus suspect that countries that pay for their ratings would be treated more favorably. S&P is the only agency that publishes information on which countries receive unsolicited ratings. These countries are Argentina, Australia, Belgium, Cambodia, France, India, Italy, Japan, the Netherlands, Singapore, Switzerland, Taiwan, Turkey, the United Kingdom and the United States (as of June 2013). As can be seen from Online Appendix A10, accounting for a dummy that indicates an unsolicited rating and its interaction with our variables of interest does not qualitatively alter our results for S&P (compare Table 5 column 9).

Our main regressions in previous tables include time and agency fixed effects as we want to exploit cross-country variation. However, our results are also robust to the inclusion of additional fixed effects. Specifically, we include agency-sovereign-pair fixed effects $\pi_{a,j,i}$ in addition to time fixed effects for those variables of interest that vary over time. For the time-invariant variables, we employ rated-country fixed effects ω_i instead.[34] While column 1 of Table 7 displays the main results from Table 4 (column 3) for the reader's convenience, column 2 shows the results with the additional controls. *Same country*, *bank exposure* and

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[34] Using the notation from equation (3), we thus estimate the regression equation $r_{a,j,i,t} = \beta x_{j,i,t} + e'_{i,t}\gamma + p'_{i,t}\delta + \pi_{a,j,i} + \tau_t + \varepsilon_{a,j,i,t}$ for time-varying variables of interest and $r_{a,j,i,t} = \beta x_{j,i} + e'_{i,t}\gamma + p'_{i,t}\delta + \alpha_{a,j} + \omega_i + \tau_t + \varepsilon_{a,j,i,t}$ for those that do not vary over time.

cultural distance (language) are robust to the inclusion of additional fixed effects. While *common language* loses its statistical significance, *export interests*, *geopolitical alignment (UN)* and *US military interests (aid)* remain insignificant.

Third, we control for selection of countries into the sample of rated countries. For example, a sovereign could be more likely to request a rating from an agency from which it expects a more favorable rating. To control for a possible selection bias, we rerun our model from Table 4 (column 3) as a Heckman selection model. However, it is difficult to find a suitable exclusion variable. When they predict the probability that Moody's and S&P assign a rating to a particular sovereign, Beaulieu et al. (2012) use decade fixed effects and a rated country's exports to the United States as exclusion variables. While the former is meant to capture a positive trend in the total number of rated countries, the latter intends to proxy for "a country's friendliness with major western powers" (Beaulieu et al. 2012: 721). However, there are reasons to doubt that either of these two variables satisfies the exclusion restriction. While decade fixed effects could reflect the global economic situation and thus directly impact rating levels, home-country export patterns might be related to rating outcomes, as our paper argues. Note also that we find *export interests* to be significantly related to rating outcomes in our regressions for Moody's and S&P (Table 5, columns 7 and 9). Instead, we choose to start by estimating a Heckman model without exclusion variables. We then use the number of sovereigns that are rated by the respective agency in the previous period, the number of the big three agencies that rate a sovereign in the previous period, or both as exclusion variables. Arguably, a sovereign is more likely to be rated by an agency if that agency covers a larger set of countries and if the market-dominating agencies rate a particular country. At the same time, it is difficult to come up with an explanation why these two measures of country coverage should directly affect rating levels. Our results are very similar to those when we do not account for selection (see Online Appendix A11 for full regression results).

Fourth, we examine the transmission channels of cultural distance in more detail. The insignificant coefficients for *cultural distance (ethno-racial)* suggest that discrimination based on race and ethnicity is unrelated to rating outcomes. The two remaining theoretical explanations for the role of culture, namely superior information and differences in risk perception, are both consistent with the negative effect of *cultural distance (language)* on sovereign ratings. If information was the only transmission channel, we would expect that the bias is alleviated by the existence of a foreign office in the rated country. Giannetti and Yafeh (2012), for example, find that the cultural bias in bank lending is mitigated when banks have

a subsidiary in the foreign country. To test for this transmission channel, we code a dummy variable *office* that takes a value of one if an agency has an office in the rated country. Since only the big U.S.-based agencies have foreign offices on a global scale (Fitch: 34, Moody's: 24, S&P: 24), we restrict our analysis to these three agencies. Table 8 shows that both *office* as well as the interaction between the dummy variable and *cultural distance (language)* are not statistically significant at conventional levels for any of the agencies. The coefficient on *cultural distance (language)* remains negative and statistically significant in all specifications. These results show that local presence of agency staff does not mitigate the cultural home bias. This suggests that it is not just the availability of information that drives the effect of cultural distance. The remaining explanation for the cultural bias is a less optimistic perception of risks of culturally less similar countries.

Finally, we run quantile regressions to learn more about the mechanisms behind the effect of cultural distance. Quantile regression serves as a test as to whether our results are driven by outliers by showing the size and direction of the effect of culture at different quantiles of the rating distribution. Moreover, it allows us to test whether the effect of cultural distance on ratings is larger for countries at the lower end of the distribution. Financial information of less developed countries, with on average lower ratings, is often of poor quality and little credibility (Ahearne et al. 2004). In these cases, differences in risk perceptions should become more important. As expected, the negative effect of *cultural distance (language)* on rating outcomes is indeed larger for countries at the lower end of the rating distribution (see Table 9). It increases in absolute terms from -0.012 at the .8 quantile to -0.021 at the .2 quantile. The effect of *cultural distance (language)* is consistently negative and significant across the rating distribution. Comparing these findings with results for the GFC sample, we find the largest difference in the size of the effect at the lower end of the rating distribution. At the .2 and .4 quantile the negative coefficient nearly doubles in the GFC period, while at the upper end the differences are much smaller compared to the full sample. These results suggest that the differences in risk perceptions rooted in culture are larger when uncertainty is higher. The coefficient on *cultural distance (ethno-racial)* is also increasing in absolute terms from the low to the high quantiles, but remains insignificant in all specifications.

7. CONCLUSIONS

Observers frequently perceive sovereign ratings to be biased and doubt that they accurately reflect the economic and political fundamentals of the rated countries. Many of these concerns reflect the idea that the home country of credit rating agencies has a systematic influence on rating outcomes. This article refers to a home bias in sovereign ratings if a rating agency gives preferential treatment to its respective home country and to countries with close economic, political and cultural ties to its home. Building on the respective literatures on political economy influences in economic assessments and on cultural biases in financial decision-making, we discussed potential reasons for such a bias.

To test whether there is empirical support for a home bias, we collected rating data from nine agencies based in six countries. While most of the variation in ratings is explained by the economic and political fundamentals of rated countries, the results suggest that sovereign ratings in fact exhibit a bias. We find that the average agency assigns a rating to its home country that is almost one point higher than justified by how it assesses other sovereigns. Furthermore, there is some evidence that agencies on average favor countries that share strong economic ties with the home country. All else being equal, countries to which home-country banks have a larger risk exposure obtain better ratings. While there is no robust empirical support that geopolitical ties between home and sovereign play a significant role in rating outcomes, countries that are culturally closer receive a better treatment. The larger the linguistic differences between home and sovereign, i.e., the more unfamiliar a language, the lower the assigned rating. We conclude that the home bias is mainly the result of economic interests and culture, not geopolitical motives. These results are robust to the choice of estimation methods, the inclusion of country-pair or rated-country fixed effects, and selection into the sample of rated countries. We find that the effects of bank exposure and cultural distance appear to be largely independent of one another. Moreover, cultural distance seems to be the main transmission channel that causes the same-country effect.

Our results show substantial variation across agencies. Specifically, four agencies provide significantly better ratings to their home country than what would be justified by their assessments of the economic and political fundamentals of other sovereigns. Moreover, five agencies assign significantly better ratings to those countries in which home-country banks possess higher foreign claims, and six out of nine agencies are affected by cultural distance as measured by linguistic differences or common language.

With regard to cultural distance, we hypothesized that the bias could arise from a lack of information, differences in risk perceptions or simply from discrimination. We find no support for discrimination based on ethno-racial differences between home and sovereign. If the differences were solely due to a lack of information, the existence of an office in a rated country should alleviate the bias. However, when we interact the existence of an office with cultural distance, the bias is not mitigated. Thus, the most plausible explanation appears to be that cultural distance is related to more pessimistic risk perceptions which lead to lower ratings.

These results should not be taken as evidence that rating agencies do not fulfil an economically relevant and potentially efficiency-enhancing role. "Objective" sovereign-specific economic and political fundamentals explain most of the variation in sovereign ratings. Still, the economic significance of the home bias is not negligible. Biases of one rating point can make a big difference for the degree to which a country has access to international capital markets. This holds in particular as long as many large investors still depend on credit ratings for their portfolio choices. That said, our finding of a "cultural home bias" does not necessarily reflect "irrational behavior on behalf of the agencies. Their judgments are based on imperfect information provided by the rated countries as well as third parties. It can be rational to rely on heuristics such as bilateral trust to evaluate this information, which can lead to a lower perceived likelihood that a more familiar state defaults on its debt.

There are important policy implications from our results. Regulation should aim at fostering competition and decrease the reliance on few big agencies. While transparency can be beneficial, overly rigid regulatory frameworks could prevent rating agencies from adequately and quickly adjusting their methodologies and models to new circumstances and thus lower market efficiency. Attempts to limit the maximum number of rating updates to three times a year for unsolicited ratings (as proposed by the European Commission) would particularly affect smaller agencies who issue fewer solicited ratings. Hence this regulatory measure could stifle competition. A more promising approach that is in line with our results would be to explicitly embrace the plurality of methods and opinions. In cases where economic arguments support the use of external ratings, regulation should require ratings by several agencies, ideally from different countries and cultural backgrounds. This would provide a more comprehensive risk assessment and automatically lead to a more diverse and competitive rating agency landscape.

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Table 1: Overview on major credit rating agencies

Agency	Headquarters	Founded	Sov. rating since	Country offices	Staff	Ownership as of December 2012	Ownership history	Number of rated sovereigns by the end of 2000	2012
CI	Limassol, Cyprus	1982	2002	3	~20	100% privately owned by Afaf Adham, Amin Diab, Zafer Diab and the Gulf Master International Co. (privately-owned Kuwaiti Company); none of the shareholders has majority or voting control	No publicly known changes	-	37
Dagong	Beijing, China	1994	2010	3	~600	100% privately owned; major shareholder Guan Jianzhong (former Chinese government official)	Privately owned since foundation; Guan Jianzhong became major shareholder and president in 1998	-	72
DBRS	Toronto, Canada	1976	1998	3	~200	100% privately owned by Walter Schroeder since 1976	No publicly known changes	1	25
Feri	Bad Homburg, Germany	1987	1999	5	~50	100% owned by MLP AG (publicly-traded German company) since 2011; major shareholders of MLP are Manfred Lautenschläger (23.38%), Harris Associates (9.82%), Swiss Life (9.9%), HDI Talanx AG (9.89%), Allianz SE (6.27%)	30% owned by Harald Quandt Holding GmbH and 70% owned by Feri partners until 2006; MLP AG acquired 56,6% including the 30% stake of the Quandt Holding GmbH in 2006	55	56
Fitch	New York, USA; London, UK	1913	1994	34	~2,000	50% Hearst Corporation (family-owned US-based multinational mass media group) and 50% Fimalac (French holding company, major owner Marc Ladreit de Lacharrière)	Part of Fitch Group (100% owned by Fimalac) until 2006; 20% were sold to the Hearst Corporation in 2006, additional 20% in 2009 and another 10% in 2012	69	101
JCR	Tokyo, Japan	1985	1998	1	~90	Stock company, largest shareholders: Jiji Press, Ltd. (19.71%), JCR employees' stock ownership associations (6.51%), K.K. Kyodo News (5.93%), Sumitomo Life Insurance Company (2.68%), Meiji Yasuda Life Insurance Company (2.68%)	No publicly known changes	21	33
Moody's	New York, USA	1909	1949	24	~6,800	Publicly traded since 2000; institutional ownership: 95.34%; top 5 institutional shareholders: Berkshire Hathaway Inc. (13.4%), Capital World Investors (8.1%), Vanguard Group Inc. (6.2%), Bank of New York Mellon Corp (4%), Massachusetts Financial Services Co. (3.8%); further shareholders: BlackRock, Morgan Stanley, State Street, Northern Trust Corp., T. Rowe Price Associates	Owned by US company Dun & Bradstreet from 1961-2000	82	113
R&I	Tokyo, Japan	1998	1998	2	~250	Stock company and part of Nikkei Group; largest shareholders: Nikkei, Inc. (42.72%), Nikkei Business Publications, Inc. (13.41%), Quick Corp. (8.24%), The Bank of Tokyo-Mitsubishi UFJ, Ltd. (4.91%), Sumitomo Mitsui Banking Corp. (4.60%)	Established through the merger between Japan Bond Research Institute and Nippon Investors Service, Inc.	42	44
S&P	New York, USA	1860	1949	24	~5,000	100% owned by McGraw Hill Companies, Inc., since 1966; major shareholders of the publicly-traded McGraw Hill Companies: Capital World Investors, Vanguard Group, State Street Corp., Oppenheimer Funds Inc., Morgan Stanley, Inc.; further shareholders: BlackRock, Bank of New York Mellon Corp., Northern Trust Corp., T. Rowe Price Associates	In 1941, merger of Poor's Publishing (founded 1860) and Standard Statistics (founded in 1906)	87	125

Sources: Personal communication with Moody's Client Services (28 February 2013, 4 March 2013, 22 March 2013, 25 March 2013), Feri EuroRating Services AG (14 March 2013, 21 March 2013), Dagong Global Credit Rating (5 April 2013, 3 June 2013), and internet research (see Online Appendix A2 for a detailed list of sources).

Table 2: Sovereign ratings of home countries (as of June 2013)

	Canada	China	Cyprus	Germany	France	Japan	Kuwait	United States
Home agencies	AAA (21)	AAA (21)	B (7)	AAA (21)	AAA (21)	AAA (20.5)	AA- (18)	AAA (20.7)
Other agencies	AAA (20.7)	AA- (18)	CCC (4.4)	AAA (20.9)	AA+ (19.9)	A+ (17.4)	AA (19)	AA+ (19.8)

Note: Each cell displays the three-letter rating. In case more than one (home or other) agency assigns a rating to a particular country, the table displays the average rating from either all home agencies or all other agencies.

Table 3: Determinants of sovereign ratings (baseline models, all agencies pooled)

	(1)		(2)		(3)		(4)	
					Controlled for *euro area*			
	Full sample		GFC sample		Full sample		GFC sample	
GDP per capita (log)	2.222***	[0.000]	2.243***	[0.000]	2.168***	[0.000]	2.185***	[0.000]
GDP growth	0.260***	[0.004]	0.379***	[0.001]	0.274***	[0.002]	0.398***	[0.001]
GDP growth squared	-0.011*	[0.087]	-0.022**	[0.012]	-0.012*	[0.063]	-0.024***	[0.009]
Inflation	-9.521***	[0.000]	-16.935***	[0.001]	-9.524***	[0.000]	-17.301***	[0.000]
Natural resources	-0.035***	[0.006]	-0.031**	[0.045]	-0.032**	[0.012]	-0.030*	[0.059]
Population (log)	0.748***	[0.000]	0.838***	[0.000]	0.733***	[0.000]	0.832***	[0.000]
Change in government debt	-0.045*	[0.056]	0.006	[0.920]	-0.038*	[0.097]	0.019	[0.709]
Government debt	-0.008*	[0.057]	-0.023***	[0.002]	-0.009**	[0.050]	-0.024***	[0.002]
Default (since 1970)	-1.483***	[0.000]	-1.155***	[0.001]	-1.413***	[0.000]	-1.086***	[0.002]
Default (last 5 years)	-1.832***	[0.000]	-4.381***	[0.000]	-1.871***	[0.000]	-4.403***	[0.000]
Trade openness	0.003	[0.226]	0.000	[0.998]	0.002	[0.292]	0.000	[0.880]
Current account balance	0.077***	[0.000]	0.095***	[0.000]	0.079***	[0.000]	0.099***	[0.000]
External debt	-0.284	[0.609]	-0.526	[0.374]	-0.200	[0.717]	-0.391	[0.517]
Rule of law	0.498***	[0.000]	0.406**	[0.017]	0.507***	[0.000]	0.419**	[0.013]
Polity	0.005	[0.823]	-0.004	[0.892]	0.003	[0.903]	-0.006	[0.840]
Election	-0.101*	[0.067]	-0.067	[0.426]	-0.095*	[0.088]	-0.070	[0.417]
Years in office	0.016	[0.387]	0.019	[0.378]	0.013	[0.457]	0.016	[0.448]
Left government	-0.064	[0.752]	0.116	[0.672]	-0.055	[0.790]	0.097	[0.715]
Absence of internal conflict	-0.040	[0.650]	0.235	[0.156]	-0.026	[0.774]	0.250	[0.136]
Absence of external conflict	0.269**	[0.018]	0.065	[0.680]	0.217**	[0.047]	0.006	[0.972]
Absence of military in politics	0.334***	[0.008]	0.460***	[0.006]	0.343***	[0.007]	0.469***	[0.005]
Euro area	-	-	-	-	0.610**	[0.032]	0.554	[0.190]
Adj. R-Squared	0.86		0.86		0.86		0.86	
Number of observations	74,701		26,605		74,701		26,605	
Number of rated countries	107		104		107		104	

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. All regressions include time and agency fixed effects. The full sample contains data from January 1990 to June 2013. The GFC sample runs from September 2008 to June 2013. Standard errors are clustered at the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 4: Home bias in sovereign ratings (all agencies pooled)

	(1)	(2)	(3)	(4)	(5)	(6)
			Controlled for euro area		Controlled for euro area and same country	
	Full sample	GFC sample	Full sample	GFC sample	Full sample	GFC sample
(a) Same country	0.935**	1.849***	1.025**	1.924***		
	[0.023]	[0.000]	[0.016]	[0.000]		
(b) Export interests	0.010	0.030	0.018	0.038*		
	[0.565]	[0.132]	[0.321]	[0.065]		
(c) Bank exposure	0.038*	0.043*	0.042**	0.049**		
	[0.073]	[0.071]	[0.045]	[0.037]		
(d) Geopolitical alignment (UN)	0.005	0.014***	0.005	0.013**	-0.001	0.007
	[0.362]	[0.007]	[0.401]	[0.010]	[0.929]	[0.272]
(e) US military interests (aid)	0.031	0.099*	0.036	0.105**	0.036	0.105**
	[0.289]	[0.058]	[0.205]	[0.042]	[0.205]	[0.042]
(f) Common language	0.700***	0.825***	0.787***	0.923***	0.736***	0.759**
	[0.001]	[0.004]	[0.001]	[0.001]	[0.003]	[0.018]
(g) Cultural distance (language)	-0.020***	-0.027***	-0.021***	-0.028***	-0.021***	-0.025***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.001]	[0.001]
(h) Cultural distance (ethno-racial)	0.001	0.001	0.001	0.002	0.002	0.004
	[0.778]	[0.627]	[0.809]	[0.557]	[0.478]	[0.130]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Table 3, time and agency fixed effects. The full sample contains data from January 1990 to June 2013 (column 1 and 2). The GFC sample runs from September 2008 to June 2013 (column 3 and 4). Controlling for the same country dummy (column 5 and 6) is not necessary in the case of export interests and bank exposure as these variables are not coded for the home country. Standard errors are clustered at the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 5: Home bias in sovereign ratings (by agency, full sample)

	(1) CI CYP	(2) Dagong CHN	(3) DBRS CAN	(4) Feri DEU	(5) Fitch USA	(6) JCR JPN	(7) Moody's USA	(8) R&I JPN	(9) S&P USA	(10) CI KWT	(11) Fitch FRA
(a) Same country	3.026***	0.002	0.992	-0.400	0.950*	0.760	0.339	2.092**	0.912*	-0.789	0.957***
	[0.003]	[0.999]	[0.208]	[0.357]	[0.053]	[0.503]	[0.517]	[0.018]	[0.057]	[0.483]	[0.001]
(b) Export interests	-0.342**	-0.022	-0.002	0.070	0.034	0.082	0.044**	0.010	0.052**	0.592	0.067
	[0.015]	[0.823]	[0.936]	[0.362]	[0.223]	[0.107]	[0.041]	[0.821]	[0.031]	[0.392]	[0.166]
(c) Bank exposure			-0.015	0.125***	0.109**	0.059**	0.066*	0.045	0.142***	-0.009*	0.050
			[0.290]	[0.003]	[0.015]	[0.027]	[0.097]	[0.121]	[0.001]	[0.078]	[0.248]
(d) Geopolitical alignment (UN)	-0.055	0.047**	-0.014	-0.074***	0.015	-0.069***	0.003	-0.041	-0.001	0.020	-0.018
	[0.433]	[0.038]	[0.740]	[0.000]	[0.227]	[0.004]	[0.841]	[0.157]	[0.920]	[0.640]	[0.328]
(e) US military interests (aid)					0.030		0.038*		0.020		
					[0.287]		[0.084]		[0.544]		
(f) Common language	-1.841	0.532	1.125*	0.674	0.900***	0.760	0.975***	2.092**	0.923***	2.150	-0.074
	[0.206]	[0.659]	[0.074]	[0.178]	[0.001]	[0.503]	[0.002]	[0.018]	[0.000]	[0.103]	[0.832]
(g) Cultural distance (language)	-0.010	-0.013	-0.048**	-0.018*	-0.030**	-0.004	-0.024**	-0.016	-0.030***	-0.031*	0.004
	[0.658]	[0.597]	[0.023]	[0.059]	[0.018]	[0.754]	[0.027]	[0.113]	[0.002]	[0.062]	[0.571]
(h) Cultural distance (ethno-racial)	-0.019*	0.011	0.003	0.001	-0.011	0.006	0.002	-0.007	-0.002	-0.032*	0.000
	[0.080]	[0.211]	[0.886]	[0.823]	[0.315]	[0.367]	[0.838]	[0.487]	[0.856]	[0.071]	[0.993]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Table 3, time and agency fixed effects. Data range from January 1990 to June 2013. The GFC sample runs from September 2008 to June 2013. Columns (1) to (9) define the home country based on the agency's headquarters; columns (10) and (11) based on the ownership definition. Standard errors are clustered at the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 6: Home bias in sovereign ratings (all agencies pooled, robustness checks)

	(1)	(2)	(3)	(4)
Bank exposure	0.033**	0.032*		
	[0.045]	[0.064]		
Common language	0.810***		0.531**	0.532**
	[0.010]		[0.043]	[0.044]
Cultural distance (language)		-0.021**	-0.014**	-0.014**
		[0.036]	[0.026]	[0.032]
Same country				-0.026
				[0.947]
Agency fixed effects	Yes	Yes	Yes	Yes
Period fixed effects	Yes	Yes	Yes	Yes
Adjusted R-squared	0.87	0.87	0.87	0.87
Observations	37743	37743	74701	74701

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. The table displays only the coefficients on the respective variables of interest of each regression. All regressions contain the control variables as specified in Table 3, Euro area, agency and time fixed effects. Data range from January 1990 to June 2013. Standard errors are clustered at the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 7: Home bias in sovereign ratings (all agencies pooled, additional fixed effects)

|	(1)		(2)	
(a) Same country	1.025***	Agency FE	0.682***	Agency and sovereign FE
	[0.001]		[0.006]	
(b) Export interests	0.018	Agency FE	-0.112	Agency-sovereign pair FE
	[0.163]		[0.193]	
(c) Bank exposure	0.042***	Agency FE	0.123**	Agency-sovereign pair FE
	[0.001]		[0.022]	
(d) Political alignment (UN)	0.005	Agency FE	0.003	Agency-sovereign pair FE
	[0.304]		[0.862]	
(e) US military interests (aid)	0.018	Agency FE	0.023	Agency-sovereign pair FE
	[0.191]		[0.522]	
(f) Common language	0.787***	Agency FE	0.073	Agency and sovereign FE
	[0.000]		[0.769]	
(g) Cultural distance (language)	-0.021***	Agency FE	-0.008**	Agency and sovereign FE
	[0.000]		[0.016]	
(h) Cultural distance (ethno-racial)	0.001	Agency FE	0.003	Agency and sovereign FE
	[0.841]		[0.203]	

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Table 3, time fixed effects as well as the fixed effects specified in the table. Data range from January 1990 to June 2013. Standard errors are clustered at the sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 8: Do foreign offices decrease the effect of linguistic differences?

	(1) Fitch	(2) Moody's	(3) S&P
Cultural distance (language)	-0.033*	-0.030**	-0.029**
	[0.095]	[0.019]	[0.025]
Office in rated country	-0.429	-0.984	0.224
	[0.797]	[0.494]	[0.846]
Cultural distance * Office	0.004	0.015	-0.003
	[0.838]	[0.378]	[0.833]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each column refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Table 3, time and agency fixed effects. Data range from January 1990 to June 2013. Standard errors are clustered at the agency-sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

Table 9: The effect of cultural distance on ratings at different quantiles (all agencies pooled)

		20%	**40%**	**60%**	**80%**
(g) Cultural distance (language)	Full sample	-0.021***	-0.015***	-0.012***	-0.012***
		[0.000]	[0.001]	[0.002]	[0.001]
(h) Cultural distance (ethno-racial)		-0.004	-0.003	-0.002	-0.001
		[0.298]	[0.359]	[0.578]	[0.800]
(g) Cultural distance (language)	GFC sample	-0.039***	-0.028***	-0.017***	-0.016***
		[0.000]	[0.000]	[0.000]	[0.000]
(h) Cultural distance (ethno-racial)		-0.004	-0.001	0.000	-0.000
		[0.316]	[0.840]	[0.937]	[0.904]

Notes: The dependent variable is a country's sovereign rating on a 21-point scale. Each cell refers to a separate regression. The table displays only the coefficients on the respective variable of interest of each regression. All regressions contain the control variables as specified in Table 3, time and agency fixed effects. Data range from January 1990 to June 2013. Standard errors are clustered at the agency-sovereign level. ***,**,* indicate significance at the one-percent, five-percent or ten-percent level. P-values are displayed in brackets.

**Figure 1:** Schematic illustration of the rating process
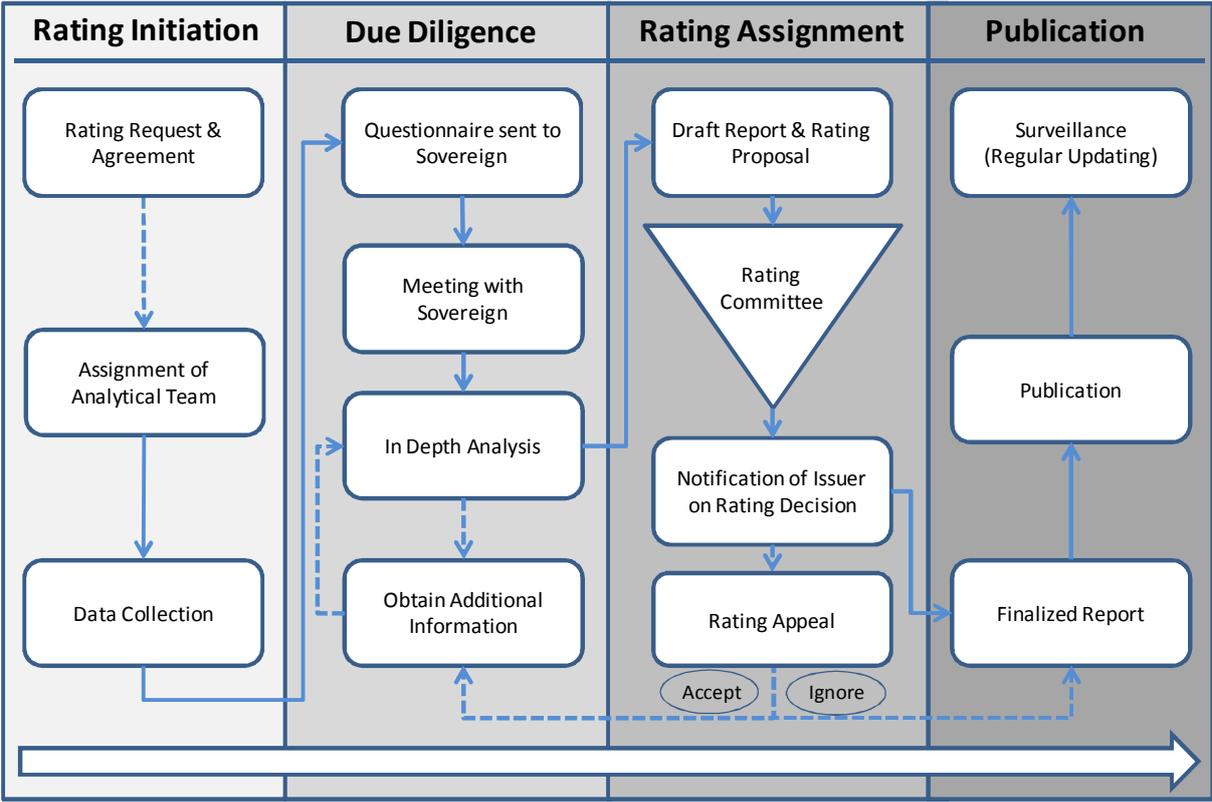
**Figure 2:** Actual rating levels versus predicted values
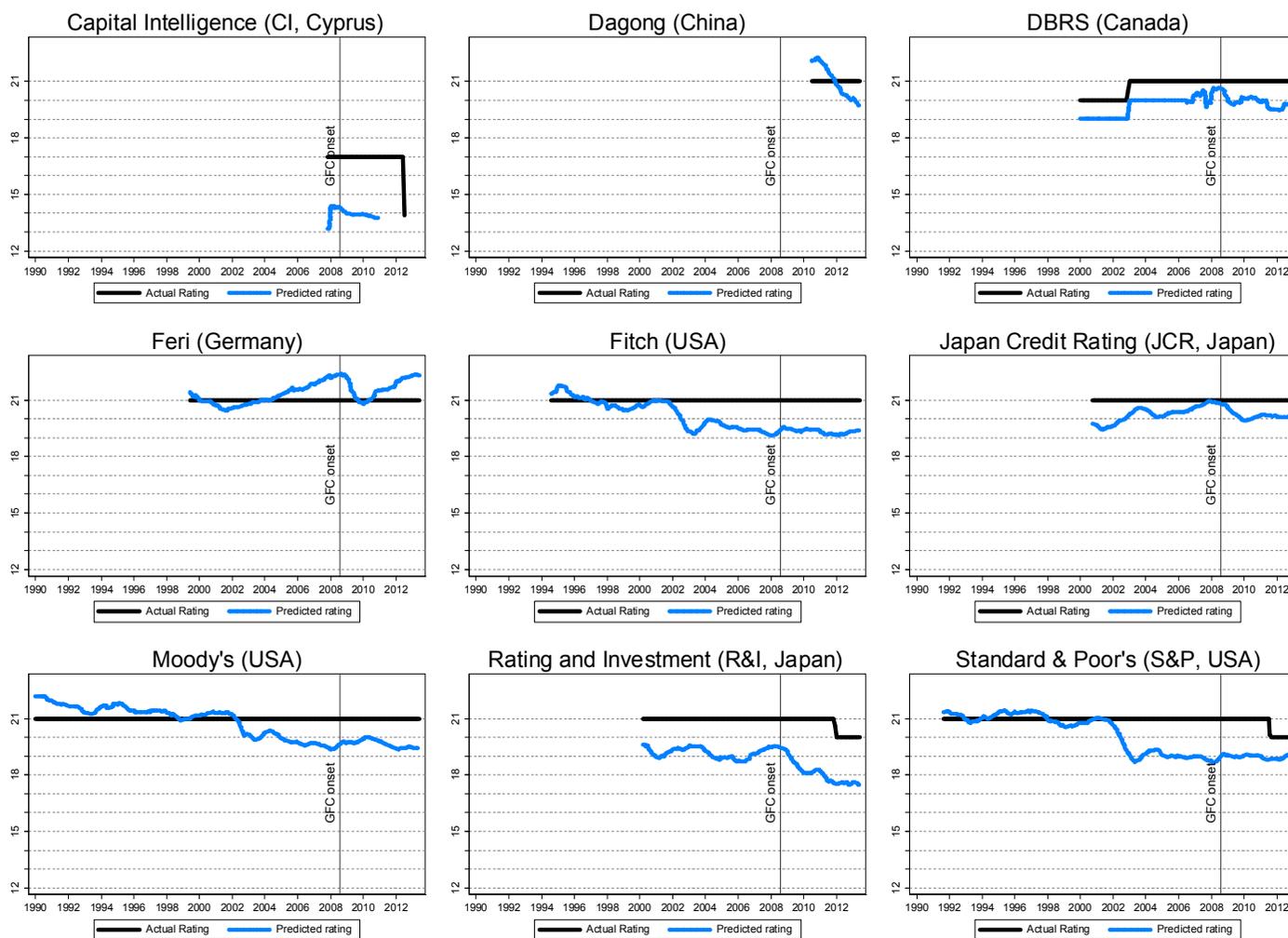
Notes: This figure contrasts the actual rating and the predicted rating based on how each agency weighs the economic and political fundamentals of sovereigns. The solid lines depict the actual ratings, the dotted lines the ratings that should be assigned to the home country based only on the economic and political fundamentals.

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Appendix 1: Sovereign ratings by agency and country (as of 28 June 2013)
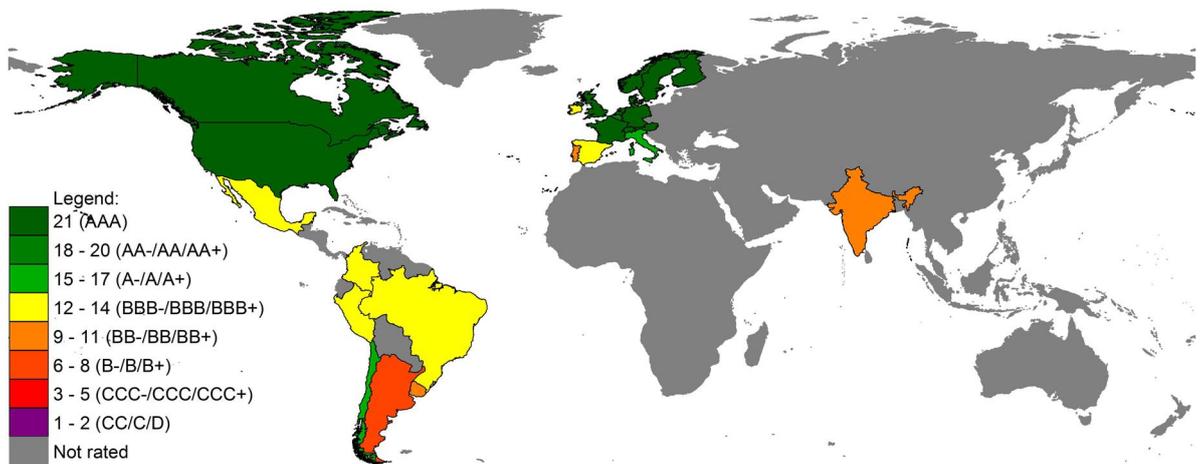
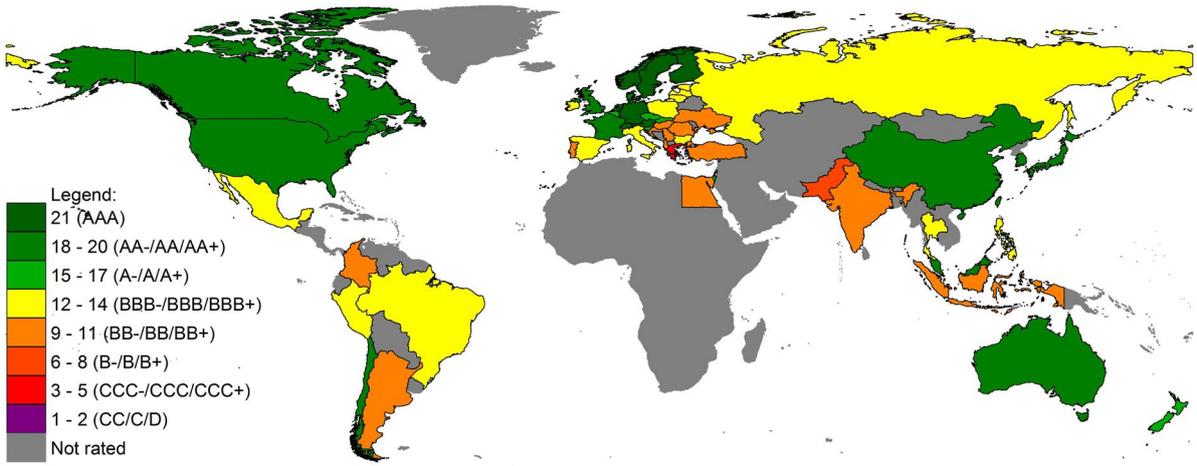*(a) CI (Cyprus/Kuwait)*
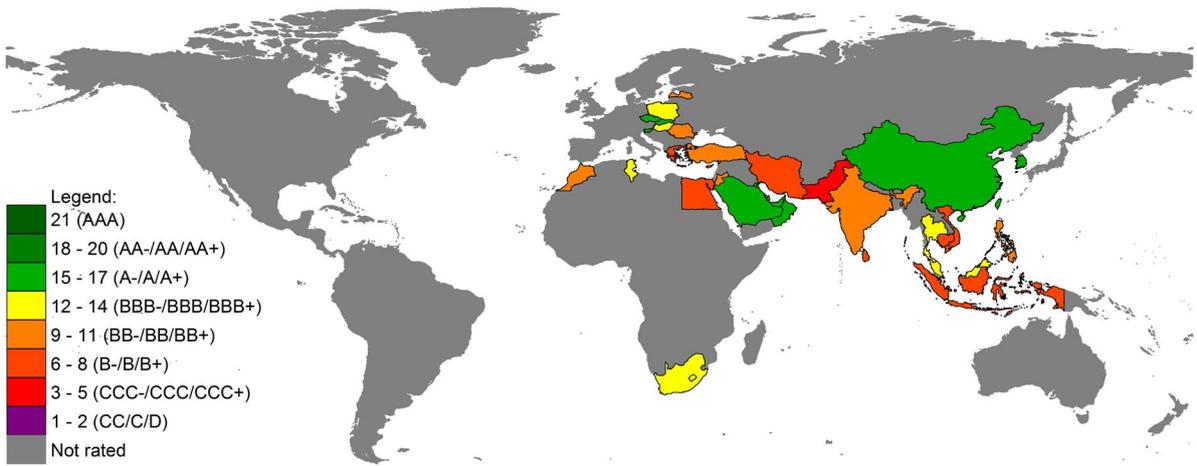
(b) Dagong (China)
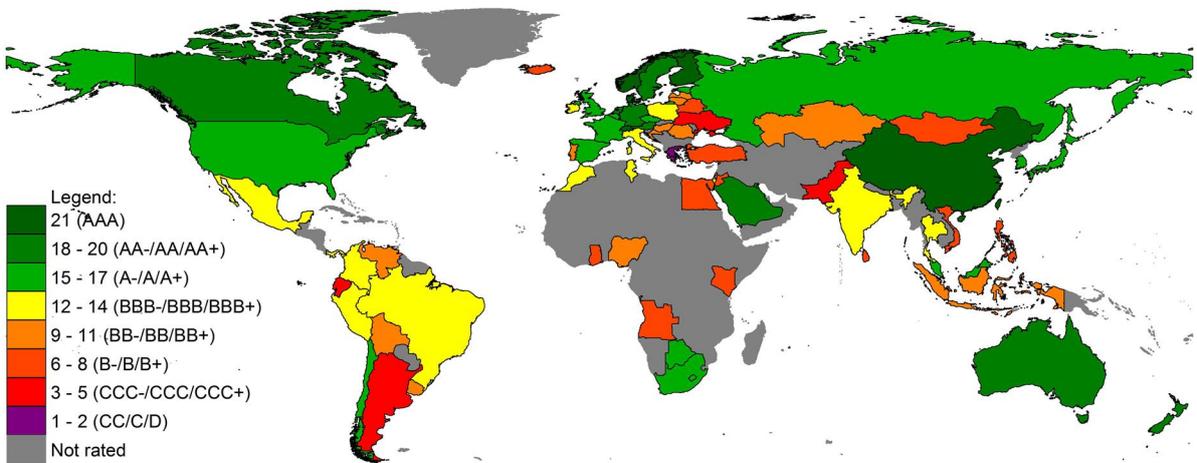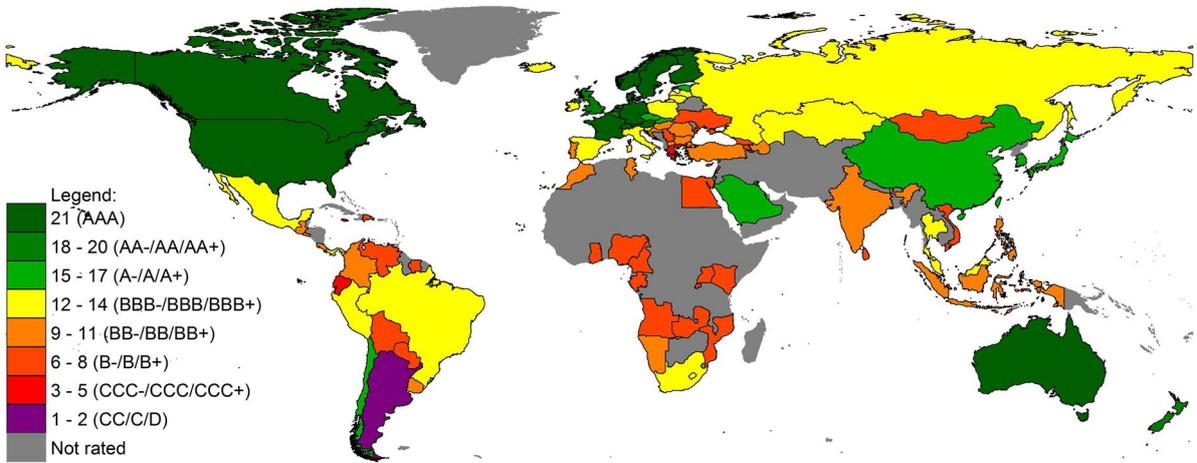

(c) DBRS (Canada)

Appendix 1 (continued): Sovereign ratings by agency and country (as of 28 June 2013)
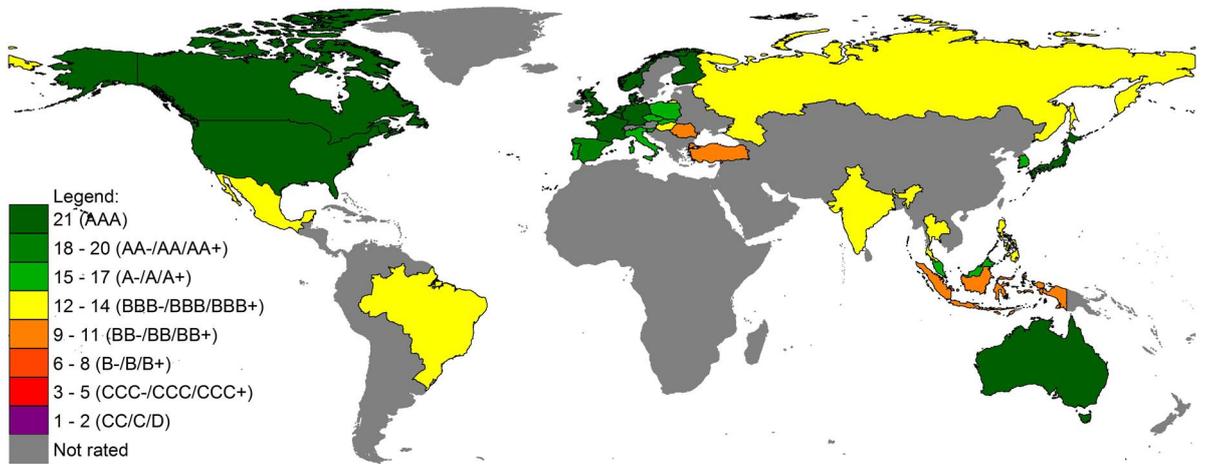
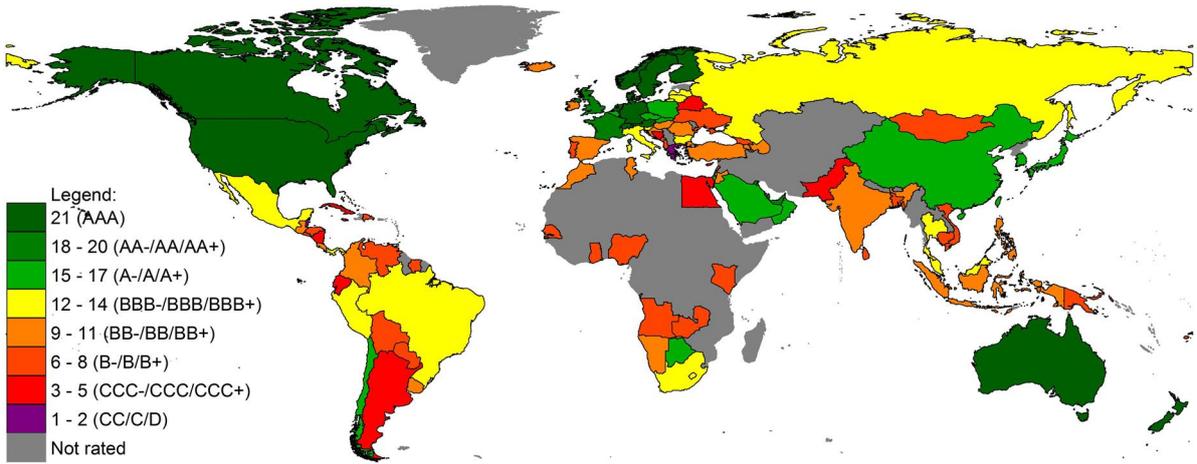*(d) Feri (Germany)*

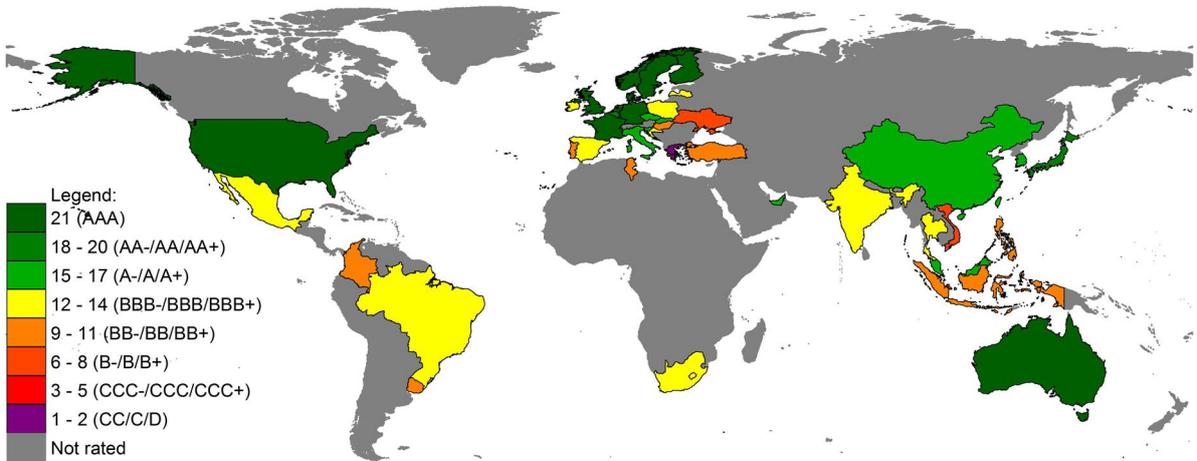*(e) Fitch (USA/France)*

(f) JCR (Japan)

Appendix 1 (continued): Sovereign ratings by agency and country (as of 28 June 2013)

(g) Moody's (USA)

Legend:
- 21 (AAA)
- 18 - 20 (AA-/AA/AA+)
- 15 - 17 (A-/A/A+)
- 12 - 14 (BBB-/BBB/BBB+)
- 9 - 11 (BB-/BB/BB+)
- 6 - 8 (B-/B/B+)
- 3 - 5 (CCC-/CCC/CCC+)
- 1 - 2 (CC/C/D)
- Not rated

(h) R&I (Japan)

Legend:
- 21 (AAA)
- 18 - 20 (AA-/AA/AA+)
- 15 - 17 (A-/A/A+)
- 12 - 14 (BBB-/BBB/BBB+)
- 9 - 11 (BB-/BB/BB+)
- 6 - 8 (B-/B/B+)
- 3 - 5 (CCC-/CCC/CCC+)
- 1 - 2 (CC/C/D)
- Not rated

(i) S&P (USA)

Legend:
- 21 (AAA)
- 18 - 20 (AA-/AA/AA+)
- 15 - 17 (A-/A/A+)
- 12 - 14 (BBB-/BBB/BBB+)
- 9 - 11 (BB-/BB/BB+)
- 6 - 8 (B-/B/B+)
- 3 - 5 (CCC-/CCC/CCC+)
- 1 - 2 (CC/C/D)
- Not rated
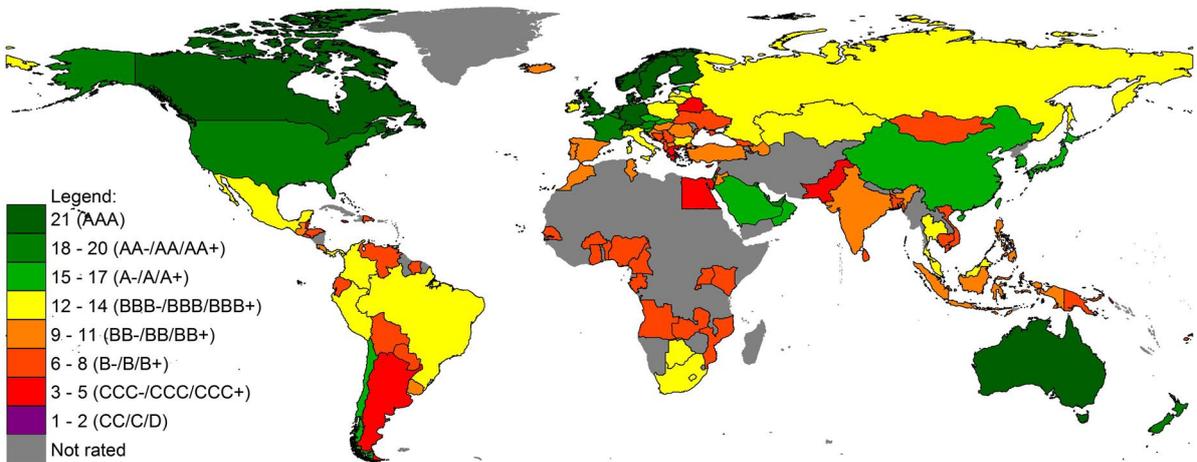
Appendix 2: Comparison of credit rating process (sovereign ratings)

Agency	CI	Dagong	DBRS	Feri	Fitch	JCR	Moody's	R&I	S&P
Home country (location)	Cyprus	China	Canada	Germany	USA	Japan	USA	Japan	USA
Home country (ownership)	Kuwait	China	Canada	Germany	France	Japan	USA	Japan	USA
Does the agency provide - solicited ratings?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
- unsolicited rating?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
How long does a typical rating process take?	Unspecified	Unspecified	No information	10-30 days	30-60 days	60 days	60-90 days	Unspecified	30-45 days
How many analysts are involved in the rating process (per sovereign rating)?	One analyst	Project team (several analysts)	One analyst	One/two analysts and compliance officer	Two analysts	Two analysts	One analyst	Several analysts	Two analysts
Does the agency collect and analyze publically available data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does the agency make an official cooperation offer to the sovereign?	Yes	Yes	Yes*	No	Yes	Yes*	Yes	Yes*	Yes
Does an interview with the sovereign take place?	No*	No*	Yes*	No*	Yes*	Yes*	Yes*	Yes*	Yes*
Does the lead analyst submit a rating proposal to the rating committee?	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes
Who is part of the rating committee responsible for the final rating decision?	Several analysts and chairperson	Project team, external experts and compliance officer	No information	Three or four	At least five analysts and senior director	At least four	Unspecified	Several analysts and chairperson	Five to seven analysts and chairperson
Are the issuers notified prior to the publication of the rating?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Can sovereigns appeal against a rating publication?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Surveillance: Is there a regular updating interval?	Unspecified	At least annually	Monthly	Monthly	At least annually	Monthly	Quarterly	Unspecified	Unspecified
Who initiates an update?	Lead analyst	Project team	Surveillance analysts	Lead analyst(s) and rating committee	All analysts	Unspecified	Lead analyst	Lead analyst	All analysts

Sources: Personal communication with Moody's Client Services (28 February 2013, 4 March 2013, 22 March 2013, 25 March 2013), Feri EuroRating Services AG (14 March 2013, 21 March 2013), Dagong Global Credit Rating (5 April 2013, 3 June 2013), and internet research (see Online Appendix A2 for a detailed list of sources). Note: *: for solicited ratings only

Appendix 3: Analytical key factors of sovereign rating assignments

Agency / Indicators	CI Cyprus (Kuwait)	Dagong China	DBRS Canada	Feri Germany	Fitch USA (France)	JCR Japan	Moody's USA	R&I Japan	S&P USA
Domestic economic performance	-Economic growth prospects	-Economic strength -Economic structure -Total GDP	-Historical growth and prospects -Inflation -Demographics and social structure	-Economic growth -Price stability	-Demographic, educational and structural factors -Labor market analysis -Structure of output and trade -Dynamism of the private sector -Balance of supply and demand	-Industrial structure -Fundamentals of economic development -Growth potential -Economic achievements	-GDP per capita -Diversification and size -Long-term trends	-Economic fundamentals -Growth	-Economic structure and growth prospects
Political and institutional performance	-Level of political risk	-Political risks -Institutional strength	-Political environment -Government policy management	-Rule of law -Economic freedom -Political condition	-Foreign investment policy -Policies and the state -Macroeconomic policy	-Political and social stability -Policy effectiveness and recognition -State of governance	-Rule of law -Governance -Transparency -Regulatory developments	-Socio-political fundamentals -Policy management capacity	-Institutional effectiveness -Political risks
Financial stability and fiscal performance	-Sustainability of public finances	-Financial risks -Governments debt repayment capability -Banking system	-Expenditure -Revenues -Fiscal balance -Budget planning -Monetary policy -Financial system stability	-Public finance -Capital market structure	-Banking and finance -Analysis of medium-term growth constraints	-Trends in the fiscal balance -Financial system -Framework of financial regulations and supervision	-Government balance sheet	-Fiscal conditions -Funding structure	-Fiscal performance and flexibility -Debt burden -Monetary flexibility
External performance	-Country's external growth position	-International reserves -External debt -Short-term foreign debt -Currency reserve system	-International economic integration -External debt & liquidity	-Net external position -Current account -Capital account	-External assets -External liabilities -International position -Balance of payments	-External debt structure -Trends in balance of payments -Management of foreign exchange reserves	-Financial risk (external debts) -Susceptibility to external risk -Balance of payments		-External liquidity -International investment position